

**EXPLORATION OF THE IMPLEMENTATION OF SCHOOL BASED
ASSESSMENTS IN SCIENCES: INSIGHTS FROM SELECTED ZAMBIAN
SECONDARY SCHOOLS**

BY

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**A Thesis Submitted to the University of Zambia in Fulfilment of the Requirements for
the Award of a Degree of Doctor of Philosophy in Educational Administration and
Management**

THE UNIVERSITY OF ZAMBIA

LUSAKA.

2024

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AUTHOR'S DECLARATION

I, Bwembya Ireen, do hereby declare that this thesis is my own piece of work which has not been previously submitted for the award of a degree at any level in the University of Zambia or any other learning Institution in the world.

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APPROVAL

This PhD thesis by Bwembya Ireen is approved as a fulfilment of the requirements for the award of the degree of Doctor of Philosophy in Educational Administration and Management of the University of Zambia.

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Supervisor	Signature	Date
.....

ACKNOWLEDGEMENTS

I wish to thank my supervisor, Dr Harrison Daka for giving me the courage to continue when I was at the verge of giving up, secondly for the guidance in shaping and conducting this study. His patience, humility, encouragement and astute observations made this thesis possible. Special thanks to Director Standards, Mrs Prisca Simukonda, Assistant Director –Standards, Mr James Chomba, Principal Education Standards Officer –Tertiary, Mr Lazarous Kalirani Senior Education Standards Officer- Mathematics and science, Ms Chilufya Mumba for mentorship, valuable advice, suggestions and insight on the genesis of School based Assessments in the Ministry of Education.

My sincere gratitude goes to Executive Director – Examination Council of Zambia, Dr Michael Chilala and the Research department for financial support and opportunity to participate in the Association for Educational Association in Africa.

My sincere gratitude also goes to the Head of Department, Professor Chipindi Ferdinand and all the lecturers in the department for the valuable lessons. I further extend my wishes of gratitude to all the participants that include Education Standards Officers at provincial and district levels, head teachers, deputy head teachers, heads of department -Natural Sciences, Science teachers and learners who made it possible for me to collect the data required to finish the study.

Lastly, I wish to thank the University of Zambia (UNZA) for according me a training contract which accorded me an opportunity to pursue this PhD.

DEDICATION

This thesis is dedicated to my late father, Bwembya Fidelis Machina (Blessed Soul) who sowed seeds of greatness in my early years by making me believe that I could achieve greater heights and my mother, Josephine Kabwe (Blessed Soul) for always believing in me, you were my great inspiration, Mum. I also dedicate it to my Beautiful children, Chisenga B., Chisa S., Chima J., Chinga E., Chireen B. and Rose N., and my three sisters Angela B, Maureen B. and Clara B., for being my greatest source of strength and comfort during this arduous journey. Finally, I dedicate this work to my friends Belinda and Richard for your selfless and immeasurable support, you are that ‘friend that sticks closer than a brother’.

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LIST OF ACRONYMS AND ABBREVIATIONS

AEAA	: Association for Educational Assessment in Africa
AIEMS	: Action to Improve English, Mathematics, and Science
ALM	: Audio-Lingual Method
CA	: Continuous Assessment
CALL	: Computer-Assisted Language Learning
CAPS	: Curriculum and Assessment Policy Statement
CFA	: Confirmatory Factor Analysis
CELTA	: Certificate in English Language Teaching to Adults
CLL	: Community Language Learning
CLT	: Communicative Language Teaching
CPD	: Continuous Professional Development
DEBS	: District Education Board Secretary
DESO	: District Education Standards Officer
DoE	: Department of Education
ECZ	: Examinations Council of Zambia
EFA	: Education for All
ELT	: English Language Teaching
ELL	: English Language Learner
EAP	: English for Academic Purposes
ESA	: Engage, Study, Activate
ESL	: English as a Second Language

ESOs	: Educational Standards Officers
FGD	: Focus Group Discussions
GCE	: General Certificate of Education
GRZ	: Government of the Republic of Zambia
HODs	: Heads of Departments
ICT	: Information and Communication Technology
IELTS	: International English Language Testing System
IIEP	: International Institute for Educational Planning
JETS	: Junior Engineers Technicians and Scientists
L1	: First Language
L2	: Second Language
LMS	: Learning Management System
LPM	: Lembaga Peperiksaan Malaysia (Malaysian Examinations Council)
LSEN	: Learners with Special Educational Needs
MALL	: Mobile-Assisted Language Learning
MoE	: Ministry of Education
NCS	: National Curriculum Statement
NLAF	: National Learning Assessment Framework
NGOs	: Non-Governmental Organizations
NPA	: National Protocol for Assessment
OBE	: Outcome-Based Education

OECD	: Organisation for Economic Co-operation and Development
OMES	: Online Marks Entry Systems
PBL	: Problem-Based Learning
PEO	: Provincial Education Officer
PESO	: Provincial Education Standards Officer
PISA	: Programme for International Student Assessment
PoA	: Programme of Assessment
PPP	: Presentation, Practice, Production
PTU	: Professional Teachers' Union
SBA	: School-Based Assessment
SBAs	: School-Based Assessments
SESO	: Senior Educational Standards Officers
SFA	: Student Financial Assistance
SPSS	: Statistical Package for the Social Sciences
SSI	: Student Satisfaction Inventory
STEM	: Science, Technology, Engineering, and Mathematics
TBL	: Task-Based Learning
TBLT	: Task-Based Language Teaching
TED	:Teacher Education Division
TESOL	: Teaching English to Speakers of Other Languages
TKT	: Teaching Knowledge Test

TOEFL : Test of English as a Foreign Language

TPR : Total Physical Response

UK : United Kingdom

UNESCO : United Nations Educational, Scientific and Cultural Organization

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ABSTRACT

Assessments and examinations are an integral part of any successful education system. To improve the conduct and administration of examination practices, the Ministry of Education (MoE) and Examinations Council of Zambia (ECZ) embarked on examination reforms in 2019, which resulted in the implementation of School based Assessments (SBA). However, the implementation of SBA faces unique challenges exacerbated by the global COVID-19 pandemic. This study explored the implementation of SBA in selected Zambian secondary schools, aiming to develop an evidence-based framework for sustaining the quality delivery of SBA in science. This research examined the alignment of SBA practices with guidelines and identified gaps in implementation processes. Using descriptive survey design, qualitative method was employed to collect data which were thematically analysed. Results revealed that teachers professed SBA as a process of enhancing teaching and learning of science, improved teachers' capacity and confidence in handling practical lessons and provided teachers with an opportunity to closely monitor learners' strengths and weaknesses. However, a considerable number of teachers held that SBA was an additional load onto their already burdened schedules but mandated to implement it as it was policy. Low staffing levels, many classes to teach allocated to one teacher, time apportioned to each science period, the 16 and 15 tasks allotted to science and biology coupled with the six assessment areas for each task, inadequate laboratories and apparatus, resource constraints, and lack of motivation, dominated the challenges faced by teachers in SBA implementation. The categorization of SBA revealed a duty-bound approach towards SBA (symbolic compliance), as SBA marks were mandatory for totalling learners' final marks at the end of secondary school level. Recommendations include establishment of governance systems to enhance monitoring and supervision, re-look into policies and guidelines to advocate for resource allocation and utilisation of funds, infrastructure development to support the classroom based activities as well as future research to explore the long-term impact of SBAs on academic performance. The research has contributed valuable insights to the discourse on educational assessment practices, providing a foundation for informed decision-making and strategic actions to improve science education in Zambian schools and beyond.

Key Words: *School Based Assessments, Monitoring, Standards, Science, Curriculum*

CHAPTER ONE

INTRODUCTION

1.1 Overview of the Study

The overview of the study provides a comprehensive introduction to the research, beginning with the background of the study. This section sets the stage by presenting the historical context, existing knowledge, and gaps in understanding that motivate the research. By delving into the background, the researcher establishes a foundation for the study, showcasing the relevance and significance of the chosen topic.

Following the background, the statement of the problem succinctly identifies the specific issue or challenge that the research aims to address. This section articulates the gap in knowledge or the real-world problem that necessitates investigation. By clearly defining the problem, the researcher creates a framework for the study, guiding the subsequent research endeavors toward a focused and purposeful investigation.

The purpose of the study outlines the overarching goal or objective that the researcher seeks to achieve through the investigation. It provides a broad perspective on the intended outcomes and contributions of the research. This section aligns the research with its broader context and highlights the potential impact of the study on academia, policy, or practice. By clearly stating the purpose, the researcher provides a roadmap for readers to understand the overall intent and significance of the study. The following sections, including justification, objectives, research questions, conceptual framework, and operational definitions, collectively contribute to shaping the research, guiding the study towards meaningful and valuable insights.

1.2 Background of the Study

The Government of the Republic of Zambia (GRZ) places a significant emphasis on the integral role of education in fostering economic, political, and social development, as highlighted in their official documentation (GRZ, 2006). Recognizing the importance of full participation of pupils in the educational process, the government acknowledges that ensuring the quality delivery of education and efficient administration of school examinations are paramount to achieving these developmental goals. To address this, the Ministry of Education (MoE) and the Examinations Council of Zambia collaborated on a comprehensive Examinations Reforms initiative in 2019.

One key aspect of the Examinations Reforms was the introduction of School Based Assessment (SBA), reflecting a commitment to providing students with competencies and higher-order skills. The implementation of SBA represents a departure from traditional examination systems, aiming to capture a more comprehensive understanding of a student's capabilities. This shift acknowledges the limitations of solely relying on conventional Examinations in evaluating a student's knowledge and skills. SBA introduces a more holistic approach to assessment, encompassing diverse aspects of a student's academic journey, such as continuous evaluation, practical applications, and real-world problem-solving.

The incorporation of SBA into the educational framework is aligned with the broader educational goals of nurturing well-rounded individuals equipped with practical skills. By emphasizing competencies and higher-order skills, the educational system seeks to prepare students for the challenges and opportunities they will encounter in various aspects of life. This strategic move is a testament to the forward-thinking approach of the Zambian government, signaling a commitment to fostering an education system that goes beyond rote memorization and embraces a more comprehensive evaluation of students' abilities.

The introduction of School Based Assessment as part of the Examinations Reforms in Zambia reflects a concerted effort by the Ministry of Education (MoE) and the Examinations Council of Zambia to enhance the quality and effectiveness of education. The adoption of SBA underscores a shift towards a more holistic evaluation of students' competencies and higher-order skills, acknowledging the multifaceted nature of education. This reform aligns with the government's broader vision for social and economic development, recognizing the pivotal role that education plays in shaping the future of the nation (GRZ, 2006).

The implementation of School Based Assessment in the Zambian Educational System, as part of the broader examinations reform initiated in 2019, is deeply rooted in the country's educational history and policy framework. The foundation of this reform can be traced back to the 1977 Educational Reforms, which, even at that early stage, recognized the inherent benefits of continuous assessment in enhancing the quality of education (Ministry of General Education, 1996; Kapambwe, 2010; Kakupa, Tembo, and Daka, 2015; Daka and Changwe, 2020; Bwembya, Daka and Tembo, 2022). This historical perspective highlights a long-standing

commitment to exploring alternative assessment methods beyond traditional high-stakes examinations.

The 'Focus on Learning' initiative in 1992 further reinforced the importance of School Based Assessment by emphasizing its role in alleviating the stress induced on learners by high-stakes examinations (MOE, 1992). This recognition underscores the understanding that a more continuous and diversified assessment approach can contribute to a more supportive and less anxiety-inducing learning environment. Moreover, the 1996 'Educating Our Future' policy document (MOE, 1996) acknowledged the significance of ongoing informal and formal assessment processes. This multifaceted approach to assessment aligns with the evolving understanding of education, emphasizing the need to evaluate students through diverse lenses beyond conventional examinations.

The academic discourse on assessment in Zambia has consistently emphasized the need for both formative and summative assessments to enhance the learning process (Mulenga-Hagane, Daka, Msango, Mwelwa, and Kakupa, 2019; Daka, 2019; Daka, Chipindi, and Mkandawire, 2020; Daka, Chipindi, Phiri, Mulenga, Mvula, and Chirwa, 2021; Daka, Mulenga-Hagane, Mukalula-Kalumbi, and Lisulo, 2021). Scholars have underscored the importance of assessments that not only measure student performance but also provide valuable feedback to guide and improve learning outcomes. This collective body of research reflects a growing consensus within the Zambian educational community on the necessity of adopting a balanced and comprehensive approach to assessment, with SBA serving as a key component of this paradigm shift.

The inclusion of School Based Assessment in the examination's reform of 2019 is not an isolated occurrence but rather a culmination of a historical trajectory deeply embedded in the Zambian educational landscape. The evolution of assessment policies and practices over the years underscores the commitment to enhancing the quality of education and adapting to the evolving needs of students and the educational system as a whole. (Ministry of General Education, 1996; Kapambwe, 2010; Kakupa, Tembo, and Daka, 2015; Daka and Changwe, 2020; MOE, 1992; MOE, 1996; Mulenga-Hagane et al., 2019; Daka et al., 2020, 2021).

School Based Assessments in Zambia are strategically designed to equip students with a spectrum of competencies and skills that are essential for navigating the challenges of the 21st century. According to Branden (2012), these competencies include critical thinking, problem-

solving, analytical, innovative, and collaborative skills. Recognizing that the world is undergoing rapid educational and economic changes, Zambia places a significant emphasis on improving human capital development through the educational system. The aim is to prepare learners not only with factual knowledge but also with the values, attitudes, and practical skills that will enable them to adapt and thrive in a dynamically evolving global landscape.

In alignment with this perspective, the relevance of SBAs extends beyond merely assessing students' knowledge acquisition. As emphasized by Yong and Lim (2008), SBAs serve as a tool to measure the effectiveness of the teaching and learning process rather than merely evaluating the objectives of students' learning experiences. This underscores a shift in focus from traditional assessment methods that primarily measure the rote memorization of facts to a more dynamic evaluation that gauges the application of knowledge and the development of critical skills. By assessing the teaching and learning process, SBAs offer insights into the effectiveness of educational strategies, helping educators refine their approaches to better facilitate student growth and development.

The call for enhancing competencies through SBAs is rooted in the recognition that the educational landscape is evolving rapidly, requiring learners to possess a broader skill set. This transformative approach aligns with the broader goals of human capital development, aiming to produce graduates who are not only academically proficient but also equipped with the practical skills demanded by the contemporary world. The competencies fostered through SBAs, such as critical thinking and collaboration, are crucial for learners to navigate complex challenges, contribute meaningfully to society, and succeed in diverse professional environments.

The emphasis on SBAs in Zambia reflects a forward-thinking approach to education, recognizing the need to go beyond traditional assessments and focus on developing a comprehensive skill set in learners. The integration of competencies such as critical thinking and collaboration underscores the commitment to preparing students for the demands of the 21st century. As the educational landscape continues to evolve, SBAs play a vital role in measuring the effectiveness of teaching and learning processes, contributing to the ongoing improvement of the education system in Zambia (Branden, 2012; Yong & Lim, 2008).

School Based Assessments in Zambia serves as a flexible and student-centric approach by providing learners with the opportunity to progress at their own pace. Unlike traditional

assessment methods that may require rigid adherence to a predetermined schedule, SBA allows students the freedom to advance to the next topic only when they have sufficiently acquired the necessary knowledge. This flexibility not only accommodates diverse learning speeds and styles but also encourages a deeper understanding of each topic before moving on. As indicated in the policy documents (MoE, 1996), this adaptability is crucial in fostering an environment where teachers can employ creative and innovative teaching methods, tailoring their approaches to meet the specific needs of individual learners.

The policy framework recognizes the significance of Continuous Assessments (CA) in the educational process. The Examinations Council of Zambia is entrusted with the responsibility of preparing detailed procedures for how CAs, including SBA, would be conducted by teachers. This reflects a commitment to ensuring the systematic and fair implementation of continuous assessment practices. Additionally, the policy highlights the importance of providing teachers with clear guidelines on the objectives to be tested. This dual emphasis on procedure and guidelines reinforces the intent to establish a standardized yet adaptable system that maintains quality while allowing for creative and effective teaching strategies.

The scheme of assessments, as outlined in the policy, comprises both School Based Assessment and final examinations. The division of responsibilities between schools and the ECZ ensures a comprehensive evaluation of student performance. Schools conduct the SBA, allowing for a more nuanced and continuous understanding of learners' capabilities, while the ECZ oversees the final examinations, providing an external and standardized assessment component. This dual evaluation system aims to strike a balance between the flexibility of continuous assessment and the need for a standardized measure of student achievement. By incorporating both components, the education system in Zambia seeks to offer a holistic and reliable assessment of students' knowledge, skills, and competencies.

The integration of School Based Assessment into the educational framework of Zambia signifies a commitment to providing learners with a flexible and student-oriented approach to assessment. The policy directives underscore the importance of clear procedures and guidelines to ensure the systematic implementation of continuous assessments. The collaborative efforts of schools and the Examinations Council of Zambia in conducting SBAs and final examinations, respectively, reflect a comprehensive and balanced strategy to evaluate student performance. This approach aligns with the broader goal of fostering an education system that

is both adaptable to individual learning needs and maintains high standards of assessment (MoE, 1996).

The implementation of School Based Assessment in Zambia spans a specific timeframe, with learners accumulating marks over two years from Grade 8 to Grade 9 for junior secondary and three years from Grade 10 to Grade 12 for senior secondary, as outlined in the Ministry of Education's policy document from 1996 (MoE, 1996). This delineation of the assessment period underscores a deliberate approach to continuously monitor and evaluate students' progress and performance throughout their secondary education. The extended duration allows for a comprehensive understanding of learners' capabilities and growth over time, aligning with the overarching goals of SBA to provide a holistic assessment of student development.

To facilitate the effective implementation of SBA, guidelines for teachers have been developed, adding a layer of clarity to the assessment process (Chipoma, 2014). This move is seen as a reinforcement of the SBA policy within the curriculum, addressing the need for explicit directions on how the assessment should be conducted. The development of teacher guidelines not only serves as a practical resource for educators but also signifies a commitment to translating policy into action. The expectation is that this reinforcement will lead to the practical execution of SBA in terms of both methodology and the allocation of resources required to support its effective implementation.

The anticipated impact of the guidelines and the reinforcement of the Examinations Council of Zambia syllabus is significant in terms of raising teachers' morale and providing them with a valuable opportunity to monitor learners' progress, abilities, and challenges (Rimfield et al., 2019; Mweemba and Chilala, 2007). The guidelines offer educators a structured framework for conducting assessments, making the process more transparent and accessible. This reinforcement, when effectively communicated and supported, has the potential to empower teachers in their roles, fostering a sense of ownership and commitment to the SBA process. By reliably and validly monitoring learners' development, teachers become key stakeholders in the success of SBA, contributing to its effectiveness in enhancing the overall quality of education.

Lastly, the delineation of the SBA assessment period and the development of teacher guidelines represent significant steps towards the practical implementation of SBA in Zambia's secondary education system. The reinforcement of the ECZ syllabus, accompanied by clear guidelines, provides a roadmap for educators, enabling them to carry out assessments effectively. This, in

turn, is expected to turn the SBA policy from a dormant concept in the curriculum to a tangible and impactful educational practice. The commitment to providing teachers with the tools and resources needed for successful implementation reflects a dedication to improving the quality of education and ensuring the holistic development of learners (MoE, 1996; Chipoma, 2014; Rimfield et al., 2019; Mweemba and Chilala, 2007).

The administration and conduct of School Based Assessment in Zambia were envisioned to deviate from the traditional examination format, aiming for a more integrated and seamless approach within the teaching and learning process. The expectation was that SBA would be seamlessly woven into the classroom dynamics and administered by subject teachers as a natural extension of their instructional responsibilities. Unlike one off examinations, SBA was intended to be an organic part of the teaching and learning experience, allowing teachers to assess students' progress in a continuous manner. This approach aligns with the overarching goal of fostering an assessment system that is closely tied to the educational objectives and content, as articulated in the Ministry of Education's directive (MoE, 2013).

The emphasis on incorporating SBA into teaching and learning activities also highlights its role in facilitating teacher self-monitoring and improvement of classroom instruction. By integrating assessment into the regular flow of lessons, teachers gain valuable insights into the effectiveness of their instructional methods. This continuous feedback loop enables educators to identify areas of strength and weakness in real-time, fostering an environment of ongoing professional development. SBA, in this context, serves not only as an evaluative tool for students but also as a reflective instrument for teachers, contributing to the enhancement of overall instructional quality.

For classroom assessments, including SBA, to fulfill their potential in contributing to teaching and learning, they must align closely with the stated aims, objectives, and the required content and competencies, as emphasized in the Ministry of Education's directive (MoE, 2013). This alignment ensures that assessments are purposeful and directly contribute to the attainment of educational goals. Additionally, close monitoring of assessments is deemed necessary to assess learners' abilities and identify areas that may require remedial work. This approach supports the creation of a conducive learning environment where assessments serve as tools for promoting deep and meaningful learning experiences.

Recognizing the importance of teachers' competence in formulating valid assessments, the directive encouraged educators, especially those whose subjects have an SBA component, to obtain the prescribed syllabus for their subjects of specialization. This proactive approach underscores the significance of aligning assessments with the established syllabus, ensuring that they accurately measure the intended content and competencies. By providing teachers with the necessary resources, such as the prescribed syllabus, the education system aims to enhance educators' ability to create valid and effective assessments, ultimately contributing to the success of the SBA initiative.

The envisioned administration of SBA in Zambia is characterized by its integration into the teaching and learning process, aiming to create a natural and non-disruptive assessment experience. This approach not only aligns with the educational objectives but also facilitates continuous improvement in classroom instruction. The directive to closely match assessments with aims, objectives, and content, coupled with the encouragement for teachers to obtain the prescribed syllabus, reflects a commitment to ensuring the effectiveness and validity of SBA as a tool for promoting deep and meaningful learning (MoE, 2013).

The actual implementation of School Based Assessment in the secondary education section in Zambia differed from the primary section, as it was not preceded by a piloting phase. Swallow, Nielson and Chakufyali (2009) and Kapambwe (2010) provide insights into the initiation of the SBA pilot program, which began with Grade 5 in 2006, Grade 6 in 2007, and Grade 7 in 2008, eventually scaling up to cover all parts of the country by 2010. This phased approach in the primary section allowed for a systematic introduction and assessment of the feasibility and effectiveness of SBA before its widespread implementation. However, the secondary section did not undergo a similar pilot phase, indicating a deviation from the primary level implementation strategy.

The absence of a piloting phase in the secondary section becomes noteworthy, especially given the practical nature of certain subjects such as integrated science, biology, and science, which are heavily oriented towards hands-on activities and experiments. These subjects present unique challenges that may not be adequately addressed without a prior feasibility study. Unlike the primary section, where a gradual and phased approach allowed for adjustments based on the outcomes of the pilot program, the decision to implement SBA in the secondary section without piloting suggests a departure from a more cautious and iterative implementation strategy.

The compulsory nature of SBA for all learners in both urban and rural areas further emphasizes the need for a thorough understanding of its implications before full-scale implementation. The absence of a feasibility study for SBA in the secondary section raises questions about the potential challenges that may have emerged during the pilot phase, which could have informed a more refined and tailored implementation strategy. The practical orientation of subjects like integrated science, biology, and science heightens the importance of anticipating and addressing potential obstacles in advance.

The implementation of SBA in the secondary section of Zambia's education system lacks the phased piloting approach observed in the primary section. The decision to make SBA compulsory for learners in various subjects without a prior feasibility study in the secondary section suggests a departure from a more cautious and iterative implementation strategy. The experiences gained from the primary section's pilot program could have informed a more nuanced and effective approach to address the unique challenges posed by practical-oriented subjects at the secondary level (Swallow, Nielson and Chakufyali, 2009; Kapambwe, 2010).

The swift implementation of School Based Assessment in Zambia's education system was a direct response to a critical incident in 2018 – the cancellation of several School Certificate examination papers due to leakages and the subsequent concerns raised by stakeholders regarding the integrity of the examination process. The cancellation of six question papers and the suspension of examinations for a period of 10 days, as reported in the ECZ in PERSPECTIVE Issue 15, underscored the severity of the issue of examination malpractices, particularly the pre-administration leakages of examination materials. This event highlighted the urgent need for a comprehensive and resilient assessment system that could address the vulnerabilities exposed by the widespread leakages.

Examination malpractices, especially leakages of question papers, pose a significant threat to the integrity and credibility of the education system. The cancellation of examination papers in 2018 was a decisive response by the Ministry of General Education, reflecting the gravity of the situation and the need for immediate action. The disruption caused by the cancellations not only affected the examination process but also raised concerns among stakeholders about the reliability and security of the traditional examination system.

The subsequent introduction of School Based Assessment was a strategic move to mitigate the challenges posed by examination malpractices. By shifting the assessment focus to a

continuous and integrated approach, SBA aims to minimize the risks associated with leaks of examination papers. The decision to swiftly implement SBA demonstrated the government's commitment to addressing the vulnerabilities in the traditional examination system and ensuring the credibility of the assessment process. This change in assessment methodology seeks to provide a more secure and reliable means of evaluating student performance while reducing the potential for leakages.

The swift implementation of School Based Assessment in Zambia was a direct response to the critical issue of examination leakages in 2018. The cancellation of multiple question papers and the subsequent suspension of examinations underscored the urgent need for a more secure and resilient assessment system. The introduction of SBA represents a strategic shift towards continuous assessment, aiming to mitigate the risks associated with examination malpractices and enhance the credibility of the education system (ECZ in PERSPECTIVE Issue 15).

In response to the pervasive issue of examination leakages, high-level consultation meetings involving all stakeholders were convened to analyze and strategize solutions to combat this challenge, as reported in the ECZ in PERSPECTIVE Issue 15. The recognition of the severity of examination leakages prompted a collective effort to address the root causes and implement measures to bring an end to this vice. These consultation meetings served as a platform for thorough deliberations, allowing input from diverse perspectives to inform the development of effective strategies. The engagement of various stakeholders underscores the collaborative approach taken by the Ministry of Education and the Examinations Council of Zambia in tackling the complex issue of examination malpractices.

The outcome of these consultations was the introduction of School-Based Assessment and the implementation of more punitive measures against perpetrators of examination malpractices. The decision to embrace SBA and strengthen punitive measures reflects a commitment to restoring credibility to Zambian national examinations. The urgency of this response emanates from the need to safeguard the integrity of qualifications both within the country and on an international scale, as highlighted in the ECZ in PERSPECTIVE Issue 15. These measures were not only seen as a proactive approach to addressing the immediate challenges posed by examination leakages but also as long-term solutions to fortify the national examination system against potential future vulnerabilities.

The reforms embarked upon by the Ministry of Education and ECZ in 2019, including the introduction of SBA, were specifically designed as an urgent response to various factors that may have facilitated the leakages of school examinations in the past. The holistic nature of these reforms indicates a comprehensive assessment of the systemic issues contributing to examination malpractices. By addressing these factors, the Ministry of Education and ECZ aimed to create a more secure and reliable examination system that would stand up to scrutiny and maintain the credibility of Zambian qualifications. The urgency of this response underscores the commitment to ensuring the efficacy and integrity of the national examination process.

Further, the adoption of School-Based Assessment and the implementation of stringent measures against examination malpractices were outcomes of high-level consultations involving various stakeholders. These measures were seen as critical steps to restore credibility to Zambian national examinations, both within the country and globally. The urgency of the response, manifested through the reforms in 2019, demonstrates a proactive approach to address the immediate challenges and fortify the examination system against potential future vulnerabilities (ECZ in PERSPECTIVE Issue 15).

The immediate implementation of School-Based Assessments in the secondary section had a comprehensive impact on the entire cycle of examinations, spanning from test development to the administration of examinations and the subsequent dissemination of results. The transition to SBA required a thorough reevaluation and restructuring of the examination process to align with the new assessment methodology. This encompassed defining tasks, developing assessment criteria, and establishing protocols for fair and consistent evaluation. The magnitude of this transformation is reflected in the stipulation of specific tasks for different subjects, such as ten tasks for Integrated Science, fifteen for Biology, and sixteen for Science, covering the entirety of the syllabus.

In the context of Science subjects, SBA is designed to assess Scientific Process Skills, focusing on practical aspects that go beyond traditional examinations. For instance, one of the assessed skills is the ability to follow instructions for the assembly and safe use of provided apparatus and materials. This not only gauges manipulative skills but also emphasizes adherence to safety guidelines in laboratory settings. The introduction of SBA thus goes beyond testing theoretical knowledge and delves into practical applications, fostering a more comprehensive understanding of scientific concepts.

Within the practical tasks, learners are expected to demonstrate a range of skills, including describing the methods used for investigating scientific concepts. This assesses their ability to articulate the processes involved in scientific investigations, promoting effective communication of experimental procedures. Additionally, learners are required to list the materials needed for a particular task, specifying quantities. This aspect of the assessment evaluates their knowledge of the investigative process, control measures, and attentiveness during observations – all contributing to a holistic evaluation of their scientific proficiency.

Moreover, the practical tasks in SBA aim to measure the learners' ability to select the right measuring devices for the task at hand and to carry out specified manipulations of the apparatus. This involves understanding the properties and uses of various laboratory equipment, showcasing the learners' practical knowledge and skills. For example, the assessment might require students to choose the appropriate test tubes, considering factors such as material (plastic, glass, or Pyrex) based on the specific heating requirements of the solutions involved. This underscores the practical applicability of the assessment, reinforcing the integration of theoretical knowledge with hands-on skills.

The immediate integration of School-Based Assessment in the secondary section brought about a paradigm shift in the examination process, impacting various aspects from test development to result dissemination. The specific tasks stipulated for Science subjects highlight the commitment to a more practical and comprehensive evaluation of learners' scientific abilities. SBA, with its emphasis on Scientific Process Skills, not only assesses theoretical knowledge but also cultivates practical skills and applications, contributing to a more robust and meaningful assessment of learners' scientific proficiency.

In the context of School-Based Assessment in science subjects, the development of specific practical tasks is structured to evaluate a spectrum of scientific skills. One such critical skill is the ability to take readings accurately, recognizing that different measuring devices have distinct methods for achieving precision and accuracy. This proficiency ensures that learners not only obtain realistic measurements but also understand the nuances of diverse instruments, cultivating a fundamental aspect of scientific literacy. The emphasis on correct readings aligns with the broader goal of preparing learners for real-world applications where precision in measurements is crucial.

Additionally, learners engaged in practical tasks are required to demonstrate their competence in producing clear drawings to illustrate the setup of apparatus. This skill is essential, especially in experimental contexts such as fractional distillation. In scenarios like these, learners must showcase their understanding of the correct apparatus setup and its practical application to achieve the desired results. The ability to visually communicate experimental configurations enhances the clarity and effectiveness of scientific reporting, emphasizing the importance of both theoretical and practical comprehension.

Systematic recording of observations is another key skill assessed in practical tasks. Learners are expected to present data in an organized manner, including all readings with appropriate units. This systematic approach to data presentation not only contributes to the rigor of scientific investigation but also promotes skills associated with data analysis and interpretation. This multifaceted evaluation ensures that learners are not only adept at conducting experiments but also proficient in processing and extracting meaningful insights from the collected data.

Moreover, the assessment of practical tasks extends beyond mere data presentation to encompass critical thinking and analysis. Learners are required to describe the precautions taken during experiments, demonstrating an understanding of safety measures and the potential risks associated with certain procedures. Additionally, learners are encouraged to suggest ways for improvement, fostering a reflective and innovative approach to scientific inquiry. These components of the assessment aim to cultivate a holistic scientific mindset, where learners not only engage in experimentation but also develop the ability to evaluate and enhance their methods.

The comprehensive assessment of scientific skills within practical tasks aligns with the broader educational objectives of promoting 21st-century skills essential for lifelong learning. Accurate readings, clear illustrations, systematic data recording, critical analysis, and suggestions for improvement collectively contribute to the development of well-rounded individuals capable of navigating the complexities of scientific inquiry. The emphasis on practical applications ensures that learners are equipped not only with theoretical knowledge but also with the practical skills necessary for success in real-world scientific contexts.

The introduction of School-Based Assessment in practical papers for Grade 9 and Grade 12 candidates in Zambia was strategically poised to enhance learner performance and skills. The decision to incorporate SBA into the teaching and learning process was intentional, allowing

for the integration of assessment activities during instructional sessions. This approach not only ensures that learners are continually engaged with the assessment process but also maximizes the opportunity for skills development within the context of regular classroom activities. By conducting SBA during teaching and learning, the education system aims to create a seamless and holistic approach to student assessment, fostering a more comprehensive understanding of subject matter.

An immediate impact of incorporating SBA into teaching and learning was the reduction in the number of examination papers. At Grade 9, the number decreased from 47 to 30, and at Grade 12, it reduced from 74 to 50. This reduction in the number of examination papers was a deliberate measure to optimize contact time for teaching and learning. By streamlining the assessment process, educators can focus more on delivering content, providing targeted support, and facilitating effective learning experiences. This shift reflects a commitment to a balanced approach, where assessment complements teaching and learning, contributing to the overall development of learners.

The changes in the examination setup, with a focus on integrating SBA and reducing the number of papers, are aligned with the goal of forming a human capital with first-class minds. The aim is to prepare students who not only possess a solid academic foundation but also demonstrate practical skills and critical thinking abilities. As noted by Eric (2013), the focus on school attainment is crucial, as human capital becomes a driving factor for economic growth in developing countries. The changes in the examination structure underscore the recognition of education as a catalyst for national development, emphasizing the need for an educational system that nurtures well-rounded individuals.

The responsibility of the education system, from planning to assessment, becomes evident in its role in achieving the country's aspirations. The revision of the curriculum to an outcome-based approach and the subsequent implementation of SBA are strategic steps toward aligning education with national goals. However, recognizing teachers as key players in this transformative process is essential. Eric (2013) emphasizes the significance of teacher orientation and training to effectively implement and realize the goals of the revised curriculum and SBA. Teachers play a central role in translating educational policies into meaningful classroom practices and providing them with the necessary support is crucial for successful implementation.

The incorporation of School-Based Assessments into practical papers for Grade 9 and 12 candidates in Zambia represents a comprehensive and forward-thinking approach to student evaluation. Emphasizing skills development alongside traditional academic assessments, the shift seeks to cultivate well-rounded individuals equipped with practical competencies. The decision to reduce the number of examination papers aligns with the broader educational goal of optimizing teaching and learning time. By streamlining the assessment process, educators can focus on delivering content, providing targeted support, and facilitating meaningful learning experiences. This deliberate restructuring reflects a commitment to a balanced education system that not only imparts knowledge but also nurtures essential skills, aligning with the vision of developing human capital capable of contributing significantly to the country's development.

While curriculum design and implementation are pivotal elements of this educational transformation, the responsibility extends to ensuring that teachers are adequately prepared for the changes. The success of the introduced reforms hinges on providing teachers with the necessary orientation and training to effectively execute these modifications in the classroom setting. Teachers play a central role in translating educational policies into meaningful classroom practices, and their preparedness is crucial for the seamless integration of SBA and the revised examination structure. Addressing the professional development needs of educators becomes paramount in achieving the intended goals of the reformed educational approach. This collaboration between curriculum design, implementation, and teacher training underscores the interconnected nature of these elements, highlighting the importance of a unified and well-coordinated approach to educational reform.

In essence, the collaboration of these elements is pivotal for the education system to fulfill its role in shaping the future of the country. The introduction of SBA, coupled with a reduction in examination papers, signifies a commitment to producing graduates who not only excel academically but also possess practical skills essential for real-world challenges. This transformative shift in assessment aligns with the broader national goal of forming a competent human capital that can drive the country's development. By recognizing the interconnectedness of curriculum reforms and teacher readiness, Zambia's education system can navigate these changes effectively, ensuring a holistic and impactful educational experience for its learners. The successful integration of these elements will play a vital role in shaping a brighter and more prosperous future for the nation.

At the senior secondary school level in Zambia, the implementation of School-Based Assessments was driven by a dual purpose aimed at enhancing teaching and learning in the classroom while simultaneously improving teacher capacity. The Guidelines for the Administration of SBA at Secondary School Level (2020) underscore the importance of SBA as a tool for teachers to identify the knowledge, understanding, and skills that learners possess. By integrating SBA into the educational landscape, the goal was to create a more dynamic and responsive teaching environment, where educators could tailor their instructional approaches based on a nuanced understanding of individual learner needs. This alignment of assessment with classroom instruction aimed to elevate the quality of education by providing real-time insights into student progress and learning outcomes.

Another significant objective of introducing SBA at the senior secondary school level was to enhance syllabus coverage by assessing learner competencies and skills. The intention was to move beyond traditional examination methods and incorporate practical school assessments within the curriculum. This shift acknowledged the limitations of relying solely on theoretical examinations and sought to create a more comprehensive evaluation of students' capabilities. With the implementation of SBA, schools were empowered to conduct practical assessments, allowing teachers to design assessment tasks that not only tested theoretical knowledge but also assessed the application of skills in real-world scenarios. The Guidelines highlighted the active role of teachers in preparing these assessment tasks and assigning final marks, contributing to a more holistic evaluation of learner abilities.

The practical execution of SBA at the senior secondary school level involved a streamlined process where teachers played a central role in the assessment cycle. Teachers prepared assessment tasks, scored the final marks in the examinations, and then transmitted these scores to the Examinations Council of Zambia through an online portal. This digital transmission mechanism not only facilitated a more efficient and timely assessment process but also leveraged technology to enhance the overall administration of SBA. The incorporation of an online portal for score submission reflects a modern and streamlined approach to assessment management, aligning with the broader goals of efficiency and accuracy in evaluating learner performance at the senior secondary school level.

The integration of School-Based Assessment into the teaching and learning process signifies a paradigm shift in education, providing a systematic basis for making inferences about the learning and development of pupils. As emphasized by Kuh et.al (2014). SBA becomes a

valuable tool for educators to gain insights into the progress and capabilities of learners. This methodological approach involves a comprehensive process, including defining, selecting, designing, collecting, analyzing, interpreting, and utilizing information to enhance learners' learning and development. By embedding SBA into the educational framework, it allows for a continuous and nuanced evaluation of students, moving away from the limitations of one-off tests.

The decision to adopt SBA as an alternative to traditional examinations was motivated by a recognition of the challenges associated with conventional testing methods. The Examinations Council of Zambia, as discussed in Perspective Issue No. 14, acknowledges that SBA addresses the limitations of one-off tests, which often assess fewer skills and techniques. Moreover, conventional examinations may focus on a narrow range of content, apparatus, and teaching methodologies aimed at preparing students for the examination rather than fostering a broader understanding of the subject matter. SBA, by contrast, presents a holistic approach that not only widens the spectrum of skills and techniques assessed but also exposes learners to a more diverse range of learning experiences.

SBA is conceptualized as a multifaceted process encompassing the definition, selection, design, collection, analysis, interpretation, and utilization of information. This approach aligns with the idea of education as a dynamic and continuous process, allowing for ongoing evaluation and intervention. The ECZ's perspective emphasizes that the flexibility inherent in SBA enables educators to identify areas of improvement and implement remedial interventions. This adaptability is crucial for ensuring that learners not only acquire knowledge but also develop the necessary skills to apply that knowledge in various contexts. SBA's capacity for ongoing assessment supports the goal of continuous improvement and development within the educational system.

The adoption of SBA in the teaching and learning process reflects a commitment to a more dynamic, comprehensive, and adaptive approach to student assessment. The multifaceted nature of SBA, as highlighted by Kuh et.al (2014) provides educators with a systematic basis for making informed inferences about learners' progress and development. The shift towards SBA addresses the limitations of traditional examinations, promoting a broader assessment of skills and techniques while allowing for timely and targeted remedial interventions. This transformation aligns with the evolving nature of education, emphasizing continuous improvement and the holistic development of learners.

The Ministry of Education, in response to heightened concerns about the escalating number of examination paper leakages, initiated a transformative shift in the assessment process through the implementation of School-Based Assessment. This strategic move, executed in collaboration with the Examinations Council of Zambia, aimed to address the challenges posed by the traditional examination system. The prevalence of leakages in examination papers had become a significant issue, prompting the need for a more secure and controlled assessment approach. The introduction of SBA marked a departure from the conventional examination structure, signifying a commitment to enhancing the integrity and reliability of the assessment process in Zambia's education system.

One notable change brought about by the implementation of SBA is the transformation of the role of the Examinations Council of Zambia in the assessment process. With the introduction of school-based assessments, the traditional Paper 3 is no longer planned, prepared, marked, and recorded by ECZ. Instead, this responsibility has been shifted to the subject teachers who are directly involved in teaching the learners. This shift represents a decentralization of the assessment process, placing greater responsibility on those individuals who have direct and continuous interaction with the students. The move towards teacher involvement not only aligns assessment more closely with the teaching and learning environment but also leverages the expertise of educators who are intimately familiar with their students' capabilities and progress.

The decision to involve subject teachers in the planning, preparation, marking, and recording of assessments was motivated not only by the desire to mitigate leakages but also by considerations of cost-effectiveness. When practical papers were solely administered by ECZ, the council incurred significant expenses in the administration of Paper 3. The shift towards involving subject teachers in these processes not only addresses the issue of security but also streamlines the assessment administration, reducing the financial burden on the Examinations Council of Zambia. This change underscores a pragmatic approach to assessment management, optimizing resources while maintaining a focus on the quality and security of the assessment process.

Lastly, the implementation of School-Based Assessment in response to stakeholders' concerns about examination paper leakages represents a transformative step in Zambia's education system. The shift from a centralized to a decentralized assessment process, with subject teachers actively involved in the administration of practical papers, is a strategic move to

enhance the security and efficiency of assessments. The changes not only address the challenges posed by leakages but also contribute to a more cost-effective and teacher-engaged assessment system. This transformation underscores a commitment to safeguarding the integrity of examinations while optimizing resources for a more sustainable and effective assessment process.

The concern over learners having to travel long distances to different schools for examinations, leading to potential dropouts from the school system, prompted a significant intervention by the Examinations Council of Zambia. In addressing this issue, the ECZ decided to award Examination Centre Status to all schools recognized by the Ministry of General Education, as outlined in Perspective Issue No. 14. This strategic move aimed to alleviate the burden on students who faced challenges in accessing examination centers due to geographical constraints. By extending Examination Centre Status to recognized schools, the ECZ ensured that learners could conveniently take their exams in environments familiar to them, reducing the risk of dropout due to logistical difficulties.

The directive from the ECZ emphasized the role of Provincial Education Officers in ensuring that all recognized schools, both public and private, were presented to the ECZ for the Award of Examination Centre numbers. This systematic approach aimed to include a broad spectrum of schools, thereby enhancing accessibility to examination centers for a larger population of students. The commitment to making quality assessments accessible aligned with the ECZ's mandate to provide equitable and inclusive opportunities for education. By facilitating the recognition and authorization of schools as examination centers, the ECZ contributed to fostering a more supportive and accessible examination environment for learners across diverse geographical locations.

The ECZ's emphasis on schools having appropriate facilities before authorization to operate further demonstrated a commitment to maintaining high standards for learning and assessment. This requirement aimed to ensure that examination centers provided a conducive and standardized environment for students, eliminating disparities in facilities that might impact the examination experience. This strategic directive aimed to guarantee that learners, regardless of their location, were provided with examination conditions that met the required standards, thereby contributing to the overall quality of assessments

The positive impact of this intervention extended beyond logistical considerations. The directive from the ECZ directly addressed the psychological well-being of candidates, particularly in the context of practical papers. Previously, candidates had to conduct practical examinations in unfamiliar environments, which could lead to feelings of defeat and vulnerability. This situation, as highlighted in Perspective Issue No. 14, had particularly adverse effects on girl children, exposing them to potential abuse. By ensuring that schools meet the appropriate standards before being authorized as examination centers, the ECZ effectively eliminated the need for candidates to face unfamiliar and potentially unsafe conditions during practical examinations.

Moreover, the intervention by the ECZ alleviated the pressure on candidates who previously handled apparatus for the first-time during examinations. The requirement for schools to have appropriate facilities before authorization aimed to ensure that candidates were adequately prepared and familiar with the equipment, fostering a more comfortable and conducive learning environment. This change not only reduced stress for candidates but also contributed to the development of practical skills, as candidates could engage with apparatus in a more familiar and controlled setting, improving the overall quality of the assessment process.

The ECZ's proactive measures to address the challenges associated with long-distance travel for examinations have had a transformative impact on the accessibility and quality of assessments in Zambia. By awarding Examination Centre Status to recognized schools and ensuring appropriate facilities, the ECZ has played a crucial role in creating a more inclusive, standardized, and secure examination environment. This intervention aligns with the broader mandate of the ECZ to provide quality assessments within reach of all citizens, contributing to the overall improvement of the education system in Zambia.

Science stands as a cornerstone among the major subjects taught globally, playing a vital role in shaping the educational landscape. In Zambia, the significance of science education is underscored by its compulsory inclusion in the curriculum across all types of schools. The prominence of science in the curriculum reflects its fundamental importance in fostering critical thinking, problem-solving skills, and scientific literacy among learners. Recognizing its pivotal role, the education system in Zambia places a strong emphasis on the effective teaching and learning of science, acknowledging that it serves as a key driver of technological and innovative advancements.

In order to maximize knowledge acquisition and ensure the impartation of practical skills, science and other practical-oriented subjects are taught using the School-Based Assessments approach in Zambia. This strategic adoption of SBA is aimed at guaranteeing comprehensive syllabus coverage and providing valuable feedback to both learners and teachers. The utilization of SBA facilitates a continuous and nuanced assessment process, allowing for the identification of areas that may require additional attention or remedial work. This approach aligns with the broader goals of the education system to create a dynamic and responsive learning environment that caters to the diverse needs of learners.

The implementation of SBA in science subjects offers learners unique opportunities to explore their world and make meaningful discoveries. By engaging in practical assessments and experiments, students are encouraged to apply theoretical knowledge to real-world scenarios, fostering a deeper understanding of scientific principles. Moreover, the emphasis on practical learning creates a conducive environment for learners to develop critical skills such as observation, analysis, and experimentation. These skills not only contribute to academic success but also empower learners to bring innovations to existing industries and potentially create new inventions, aligning with the demands of a rapidly evolving technological landscape.

The effective administration of SBA in science subjects serves to demystify the challenges often associated with learning science. By incorporating practical components into the curriculum, science education becomes more tangible and relatable to everyday life. Students are not only exposed to theoretical concepts but are also actively involved in hands-on activities, making the learning experience more engaging and relevant. This approach not only enhances the comprehension of scientific principles but also instills a sense of curiosity and inquiry, fostering a lifelong love for learning in the field of science.

Lastly, the pivotal role of science in the curriculum and education system in Zambia cannot be overstated. The adoption of the SBA approach in teaching science reflects a commitment to providing a holistic and effective learning experience. By leveraging SBA, the education system ensures comprehensive syllabus coverage, offers valuable feedback, and creates opportunities for learners to explore, discover, and innovate. This approach contributes to making the learning of science less challenging, more engaging, and aligned with real-world applications, ultimately preparing learners for active participation in the dynamic field of science and technology.

1.3 The Implementation of SBA

The Ministry of Education and Examinations Council of Zambia has provided guidelines, which serves as an implementation guide for all schools. The guidelines are an established standardized framework that, if adhered to properly, can contribute to the delivery of quality SBAs throughout Zambia. By providing clear directives on record keeping, supervision, and adherence to SBA procedures, the guidelines aim to create a consistent and reliable assessment process across educational institutions. This uniformity is crucial for ensuring that the benefits of SBA, such as continuous and holistic assessment, are realized uniformly, regardless of the school's location or size.

The implementation of these guidelines also aligns with broader educational goals, such as improving the quality of assessments and fostering a culture of accountability within the education system. As schools across Zambia follow the stipulated guidelines, there is the potential for a positive impact on the overall educational landscape, with SBAs serving as effective tools for gauging learners' progress and fostering a more dynamic and student-centric learning environment.

The guidelines on record keeping and supervision in School-Based Assessment provide a structured framework to enhance the quality and consistency of assessments across schools in Zambia. The Head Teacher's role in overseeing these processes ensures that standards are maintained, fostering an environment of transparency and accountability. As schools adhere to these guidelines, the potential for standardized, high-quality SBAs becomes a reality, contributing to the continuous improvement of the educational system in Zambia.

Thus, learners are required to carry out the practical tasks and record their responses appropriately. (Guidelines for the Administration of SBA at Secondary Level, 2020). Each task set should carry 20 marks which must measure 6 competences as shown in the table 1.1 below.

Table 1.1: Measure of the 6 competences

S/No	Skill	Maximum Marks	
		Science	Biology
1	Description of the method used	2	2
2	Recording observation and /or reading systematically	7	2
3	Data processing, presentation, and analysis	6	3
4	Stating precautions taken or suggestions for improvement	2	1
5	Application of the findings of the tasks to real life	1	1
6	Conclusion	2	1
	Total	20	10

Note: This Mark allocation Guide is for one practical task.

Source: Field data, 2023

Table 1.1 provides a comprehensive breakdown of the specific skills and corresponding maximum marks allocated for School-Based Assessments in Science and Biology. The table outlines the skills essential for assessing learners and emphasizes the importance of covering various competencies within each practical task. In Biology, each of the fifteen tasks is designed to measure skills such as describing the method used, systematically recording observations, data processing, presentation, and analysis, stating precautions or suggestions for improvement, applying findings to real life, and drawing conclusions. Similarly, in Science, the sixteen tasks aim to assess these competences to ensure a holistic evaluation of learners' abilities.

The maximum marks assigned to each skill indicate the significance attributed to different aspects of scientific inquiry. For instance, the allocation of 7 marks for systematically recording observations in Biology underscores the importance of meticulous data collection in the scientific process. The detailed breakdown of marks for each skill provides a clear guide for teachers to develop tasks that align with the intended competencies. This structured approach ensures that the SBA tasks cover a diverse range of skills, contributing to a comprehensive evaluation of learners' understanding and application of scientific principles.

The inclusion of Bloom's Taxonomy in the guidelines further reinforces the expectation for teachers to incorporate higher-order thinking skills in task design. Meeting all six levels of Bloom's Taxonomy ensures a well-rounded and challenging assessment that goes beyond rote memorization. This approach aligns with international standards and aims to equip learners with the critical thinking and analytical skills necessary for global competitiveness.

Table 1.1 above, serves as a practical guide for teachers in developing SBA tasks that effectively measure learners' competencies in Science and Biology. The detailed skill breakdown and corresponding marks emphasize the importance of a holistic assessment approach. By adhering to these guidelines, teachers can contribute to the overall enhancement of the educational experience, fostering a deeper understanding of scientific concepts and promoting skills essential for success on an international level.

In summary, SBA in sciences are compulsory to all learners across all school -types in the country. The prominence of science in the curriculum forms its fundamental importance in fostering 21st Century skills among learners. Against this background, my study sought to explore the implementation of SBAs in sciences in selected schools Eastern Province

1.4 Statement of a Problem

The Ministry of Education has provided schools with guidelines on how to conduct and administer SBAs. School Based Assessments are a weight to the examinations, adding 30% to the final results of each candidate. As such, schools are expected to diligently adhere to the guidelines provided regardless of the school type and set up. Since the implementation of SBAs at the secondary level in Zambia, the education system encountered unprecedented challenges due to the global COVID-19 pandemic. The outbreak led to widespread school closures which had seen learners staying at home without contact lessons with teachers, and others resorting to online learning. The closures disrupted and drastically reduced the traditional classroom-based activities hindering the systematic assessments that are integral to the SBA policy. These disruptions have significantly affected the execution of SBA and, subsequently, the ability to conduct a timely review and evaluation of the policy's implementation (Daka, Mugala, Mulenga-Hagane, & Kalimaposo, 2023).

The existing literature on SBA implementation and evaluation reveals that various countries have conducted assessments and evaluations to gauge the effectiveness of such policies. However, there is a notable gap in the information available regarding the specific context of

SBA in Zambia. The limited research on SBA in Zambia underscores the necessity for a comprehensive assessment to the alignment of SBA practices with the provided guidelines. This study aims to fill this gap by examining the conduct and administration of SBA in Zambian secondary schools, considering the unique challenges posed by the COVID-19 pandemic.

In light of the challenges identified by other scholars, this research seeks to contribute valuable insights by establishing the extent to which the implementation of SBA in Zambian secondary schools adheres to the guidelines provided. The exploration hoped to identify gaps and shortcomings in the current implementation process, providing a foundation for proposing a robust SBA implementation framework. The proposed framework will not only address the identified gaps but will also serve as a valuable resource for stakeholders in Zambia and other countries, offering guidance for sustaining effective and quality implementation of SBA in the field of sciences. This study, therefore, aims to contribute to the ongoing discourse on educational assessment practices in the context of evolving global challenges.

1.5 Purpose of the Study

The purpose of the study was to explore the implementation of School Based Assessments in Science in selected Zambian secondary schools in order to formulate an evidence- based implementation framework that could be used to sustain the quality delivery of SBA in Science.

1.5.1 Main Research Objective

This study sought to explore the implementation of School Based Assessments in Sciences in selected Zambian secondary schools in order to formulate an evidence- based implementation framework that should be used to sustain the quality delivery of SBA in Science.

1.5.2 Specific Research Objectives

The following research objectives were crafted to fulfil the above purpose.

1.5.2.1 To determine the extent to which SBA Policy has been evaluated since its roll out in 2019.

1.5.2.2 To assess the administration of SBAs in sciences at secondary level.

1.5.2.3 To establish the challenges stakeholders face in implementing SBA in Science.

1.5.2.4 To formulate an evidence based implementation framework that should be used to sustain the quality conduct of SBA in Science.

1.6 Main Research Question

How has been the implementation of School Based Assessments in Sciences in selected schools in Zambia?

1.6.1 Research Questions

The following research questions governed the research.

1.6.1.1 To what extent has the SBA Policy been evaluated since its roll out in 2019?

1.6.1.2 How are SBAs in sciences being administered at secondary schools?

1.6.1.3 What challenges do stakeholders face in implementing SBA in Science?

1.6.1.4 Which framework should be used to sustain the quality conduct of SBA in Science?

1.7 Justification of the Study

School programs that are implemented by means of this system need evaluation to avoid meaningless changes and reforms (Sanders and Sullin, 2006). Evaluation is an essential part of improvement of any educational practices and procedures. Firstly, School Based Assessments are at infancy stage of implementation in Zambia, thus, there is not much information on its review and evaluation. Secondly, SBA in science are compulsory to all learners in the country regardless of the school type. Therefore, the researcher was hoping the study would provide insight into how SBA was being conducted in schools in relation to the set guidelines and establish whether the SBA examination reform is heading for a success or not. In the recent past, the newly implemented reform on Science, Technology, Engineering and Mathematics (STEM) curriculum, was cancelled two years after its initial implementation. This situation has left a serious gap in the learners' that were taking it as they were asked to revert to the old system. This study also intended to contribute to the body of knowledge on SBA in Science. It further sought to enlighten other assessments bodies that intended to pursue the path of SBA or are already implementing the former in their Countries. It should therefore be noted that, at the time this research was carried out, the affected stakeholders have had three (3) years of experience in implementing SBA in Science (Biology, Chemistry and Physics) classes.

1.8 Delimitations of the Study

This study was confined to Standards Officers at Provincial and District levels, Head teachers, Deputy Head teachers, Heads of departments, teachers of Biology, Physics and Chemistry in three Districts of Eastern provinces at senior secondary schools. These Districts were within

reach to the researcher, and they provided enough information on the conduct of SBAs in sciences. The instruments were tested through piloting the instruments in four schools from 3 districts of Lusaka province.

1.9 Limitations

The research design of the study introduced certain limitations that should be considered when interpreting the findings. The study focused on a specific sample size, involving one head teacher, one deputy head teacher, one head of department, and six subject teachers from each of the nine selected schools in each district. While this approach provided in-depth insights into the perspectives of these key stakeholders, it is essential to acknowledge that the results may not be fully representative of all science teachers across various districts and provinces in the country. The limited scope of participants may constrain the generalizability of the study's findings to the broader population of science teachers in Zambia.

Furthermore, the exclusive focus on a specific group of educators may overlook the diversity of experiences and challenges that other science teachers in different districts and provinces may encounter. Variations in school infrastructure, resources, and contextual factors may influence the implementation of SBAs differently across regions. Therefore, caution should be exercised when attempting to generalize the study's outcomes to the entire population of science teachers in Zambia. Despite these limitations, the study serves as a valuable contribution to the understanding of SBA implementation within the selected context, offering insights that can inform future research endeavors and educational policy considerations.

1.10 Conceptual Research Framework

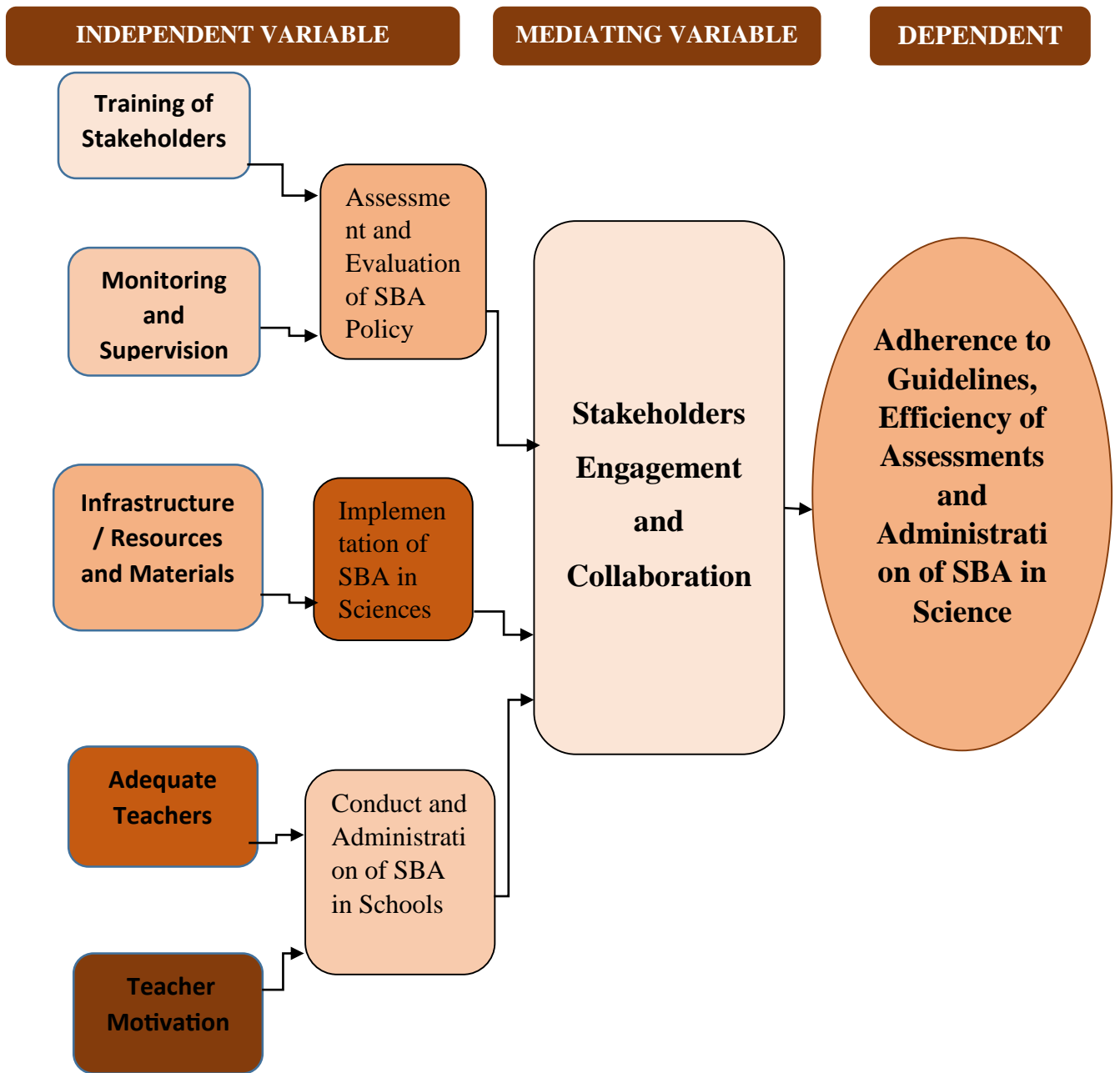
In the conceptual framework of this study, the interplay among independent, mediating, and dependent variables is elucidated to provide a comprehensive understanding of the relationships and dynamics within the research context. The independent variable, representing a presumed cause, is a key factor that is expected to exert an influence on the dependent variable, which signifies the anticipated outcome or effect in the study. This conceptualization enables the exploration of the factors or characteristics that may contribute to variations in the dependent variable, offering a foundation for investigating patterns and causal relationships (Leshem and Trafford 2007).

Mediating variables, as depicted in the framework, play a crucial role in facilitating the relationship between the independent and dependent variables. These intermediary factors are

considered to be instrumental in mediating or influencing the outcome of the study. By incorporating mediating variables into the conceptual framework, the researcher acknowledges the complexity of the relationships under investigation and seeks to uncover the nuanced mechanisms through which the independent variable may impact the dependent variable ((Leshem and Trafford, 2007). This framework thus serves as a guide for understanding not only direct relationships but also the intricate pathways and processes that connect the variables in the study.

The conceptual framework, presented graphically in figure 1.1 below, provides a visual representation of the hypothesized relationships among the variables. It serves as a roadmap for research inquiry, guiding and shaping the study's methodology. Through this framework, the researcher aims to navigate the intricate web of relationships between independent, mediating, and dependent variables, contributing to a more nuanced and comprehensive analysis of the factors influencing the implementation of School-Based Assessment in secondary schools.

Figure 1.1: Conceptual Framework for SBA Implementation



Source: Field data, 2024

The conceptual framework for this study involved three key components: the independent variable, the mediating variable, and the dependent variable. The independent variable in this context is the "Implementation of School-Based Assessments." This variable represents the primary focus of the research, examining how the SBA policy has been executed in selected secondary schools in Zambia since its implementation in 2019. The mediating variable, identified as "Stakeholder Engagement and Collaboration," plays a crucial role in influencing the relationship between the implementation of SBA and the quality delivery of assessments in

science subjects. Stakeholder engagement involves the active participation and collaboration of various key players, including learners, teachers, administrators, parents, and policymakers, in the process of implementing SBA. This mediating variable is expected to influence the effectiveness and success of SBA implementation by addressing challenges, enhancing communication, and fostering a collaborative environment.

The dependent variable in the conceptual framework is the "**Adherence to Guidelines, Efficiency of Assessments and Administration of SBA in Science**". This variable represents the ultimate goal of the study, aiming to assess and evaluate the overall effectiveness of the SBA implementation specifically in the context of science subjects in selected Zambian secondary schools. It encompasses aspects such as adherence to guidelines, the efficiency of assessment administration, and the overall quality of the SBA policy implementation. The mediating variable, Stakeholder Engagement and Collaboration, is positioned between the independent variable and the dependent variable, illustrating its role in influencing the relationship between the implementation of SBA and the quality delivery of assessments in science subjects. The conceptual framework provides a structured and comprehensive approach to understanding the interplay of these variables in the context of evaluating and improving the implementation of SBA in Zambian secondary schools

1.11 Theoretical Framework

1.11.1 Implementation Theory Overview

This study was guided by Implementation and Stakeholders' theories. The Implementation Theory, stemming from the foundational work of Pressman and Wildavsky in 1973, and the Stakeholders Theory, originated from R. Edward Freemans influential work published in 1984. Stakeholder's theory is a cornerstone framework in "Strategic Management: A Stakeholder Approach".

Implementation Theory, stemming from the foundational work of Pressman and Wildavsky in 1973, stands as a robust and comprehensive framework for understanding the complex journey of translating policies or programs from the conceptual realm into practical application (Kitson et al., 1998). As a theoretical construct, it has undergone refinement and expansion over the years, with scholars like Sabatier and Mazmanian contributing significantly to its evolution. The central tenet of Implementation Theory lies in dissecting the multifaceted process of how policies materialize and take effect in real-world contexts.

At its core, Implementation Theory underscores the importance of various factors influencing the successful execution of policies. Among these critical factors are resource allocation, which involves distributing the necessary resources effectively to support the implementation process. Additionally, stakeholder engagement emerges as a pivotal aspect, recognizing the diverse actors involved and their roles in shaping the implementation landscape. Administrative support is another key element highlighted by the theory, emphasizing the need for strong leadership and organizational backing to navigate the challenges inherent in putting policies into action.

Scholars, such as Sabatier and Mazmanian, have contributed to the theoretical framework by providing a structured approach for analyzing the intricacies of implementation (Kitson et al., 1998). This structured framework offers a systematic lens through which researchers and policymakers can examine the dynamics, obstacles, and facilitators that shape the journey from policy formulation to on-the-ground realization. Implementation Theory, thus, remains a valuable tool for comprehending the real-world challenges and opportunities associated with turning policies into actionable initiatives.

1.11.2 Key Components of Implementation Theory

In the specific context of the current study, the application of Implementation Theory proves instrumental in scrutinizing the implementation of the School-Based Assessments policy since its initiation in 2019. This theoretical framework provides a comprehensive and insightful lens through which to analyze the multifaceted process of implementing SBA in secondary schools. By delving into the intricate dynamics of policy execution, Implementation Theory allows for a nuanced examination of the factors that contribute to or impede the successful realization of SBA objectives.

One crucial facet illuminated by Implementation Theory is the importance of adherence to guidelines. The theory emphasizes that successful policy implementation requires a faithful and consistent application of the stipulated guidelines. In the case of SBA, this involves understanding how well teachers and school administrators adhere to the prescribed procedures, ensuring that the intended goals of the policy are met. Resource allocation, another key element highlighted by Implementation Theory, comes to the forefront. It explores how well schools allocate the necessary resources to support the SBA process, encompassing aspects such as training, materials, and administrative support.

Furthermore, Implementation Theory sheds light on the roles played by various stakeholders in the execution of the SBA policy. Teachers, school administrators, education officials, and even students are integral actors in the implementation process. The theory underscores the need for effective communication, collaboration, and coordination among these stakeholders to overcome challenges and maximize the positive outcomes of SBA. In essence, the use of Implementation Theory offers a sophisticated analytical framework to unravel the intricacies of implementing the SBA policy, providing valuable insights for both researchers and policymakers.

1.11.3 Rationale for Implementation Theory

The decision to adopt Implementation Theory as the analytical framework in this study is grounded in its efficacy in unraveling the intricacies of policy execution. As the study aims to scrutinize the School-Based Assessments policy, understanding how it has been translated into practice becomes imperative for a comprehensive assessment. Implementation Theory provides a systematic lens through which researchers can dissect the complexities of the implementation process, offering insights into the various factors that contribute to or hinder successful execution.

One pivotal aspect highlighted by Implementation Theory is stakeholder engagement. In the context of SBA, stakeholders include teachers, school administrators, education officials, and students. The theory emphasizes the importance of understanding how these diverse actors interact and collaborate in the implementation process. By examining the roles and interactions of these stakeholders, researchers can discern the dynamics that shape the successful execution of SBA, identifying areas where effective collaboration contributes to positive outcomes or where challenges arise due to misalignment.

Additionally, Implementation Theory sheds light on resource allocation, another critical factor in the execution of educational policies. This encompasses the allocation of human, financial, and material resources to support the implementation of SBA. The theory's emphasis on resource allocation allows researchers to investigate how well schools and educational institutions provide the necessary support for teachers and students involved in the SBA process. Overall, Implementation Theory serves as a valuable analytical tool, enabling a nuanced exploration of the multifaceted factors influencing the implementation of the SBA policy.

1.11.4 Application of Implementation Theory

The utilization of Implementation Theory in this study involves a rigorous examination of the efficacy with which the School-Based Assessment policy has been put into practice. Central to this analysis is an in-depth scrutiny of various facets, including the adherence to prescribed guidelines, the appropriateness of resource allocation, and the roles assumed by key stakeholders throughout the implementation process. Implementation Theory offers a structured framework for evaluating the intricacies of policy execution, providing a comprehensive understanding of the factors influencing the success or challenges faced during the SBA policy implementation in science subjects.

One crucial aspect under examination is the fidelity to guidelines, emphasizing how well schools and educators have adhered to the stipulated protocols for conducting SBA. This involves an assessment of the extent to which teachers followed the recommended procedures, designed tasks in alignment with specified skills, and accurately marked and recorded students' performance. Additionally, the study explores the appropriateness of resource allocation, considering whether schools provided the necessary support both in terms of human and material resources to facilitate a smooth SBA implementation process.

Furthermore, Implementation Theory aids in dissecting the roles undertaken by key stakeholders, ranging from teachers to school administrators and education officials. Understanding the dynamics of stakeholder engagement allows for an exploration of collaborative efforts, potential challenges in communication or coordination, and the overall impact of these interactions on SBA outcomes. Through this lens, the study seeks to uncover nuances that may have influenced the effective or challenging implementation of the SBA policy in science subjects. In essence, the application of Implementation Theory serves as a strategic approach to unveil critical insights and inform evidence-based recommendations for policy enhancement.

1.11.5 Strategic Improvement through Implementation Theory

Implementation Theory, with its focus on unveiling practical challenges and providing insights into key determinants of policy execution, plays a pivotal role in the formulation of strategic improvements. The study, anchored in Implementation Theory, aims to identify specific gaps and areas of concern in the effective implementation of the School-Based Assessments policy in science subjects within Zambian secondary schools. This in-depth analysis will not only

shed light on existing challenges but also pave the way for evidence-based recommendations to enhance the overall quality of SBA delivery.

One critical aspect under consideration is the identification of challenges faced by educators and schools in adhering to the prescribed guidelines for SBA. Whether these challenges stem from inadequate training, resource limitations, or other contextual factors, the insights derived from Implementation Theory provided a nuanced understanding. Additionally, the study explored strategies for strengthening stakeholder engagement, recognizing the collaborative efforts required from teachers, administrators, and education officials to ensure the successful execution of the SBA policy. Implementation Theory serves as a lens to examine how these stakeholders interact, communicate, and coordinate their efforts, influencing the overall effectiveness of the policy.

Moreover, the study investigates resource allocation within the context of SBA implementation. By examining how schools allocate human and material resources to support SBA activities, the research aims to identify areas where improvements or adjustments may be needed. Recommendations derived from Implementation Theory focused on optimizing resource allocation to create an environment conducive to successful SBA implementation in science subjects. In essence, the study, grounded in Implementation Theory, endeavors to provide practical and actionable insights that can inform strategic improvements for sustained quality delivery of SBA in Zambian secondary schools.

1.11.6 Stakeholder Theory: An Expanded Overview

Stakeholder Theory, a cornerstone framework in strategic management, originated from R. Edward Freeman's influential work, "Strategic Management: A Stakeholder Approach," published in 1984. Freeman's groundbreaking contribution revolutionized the traditional understanding of organizations, shifting the focus from serving shareholders exclusively to recognizing the intricate relationships and interconnectedness with various stakeholders. Stakeholder Theory emphasizes that organizations should consider the interests and concerns of all relevant stakeholders, acknowledging their influence on decision-making processes and the overall success of the organization.

Over the years, Stakeholder Theory has evolved with notable contributions from scholars like Donaldson and Preston. This evolution has enriched the framework, providing a more comprehensive understanding of stakeholder management within organizational contexts. The

theory posits that stakeholders, including employees, customers, communities, and more, hold a legitimate interest in an organization's activities. By considering the diverse perspectives and needs of these stakeholders, organizations can enhance their decision-making processes, foster positive relationships, and ultimately achieve sustainable success.

Stakeholder Theory recognizes that organizations operate within a broader socio-economic context, and their actions impact a myriad of individuals and groups. The theory encourages organizations to adopt a holistic approach, balancing the interests of various stakeholders rather than prioritizing the singular focus on shareholders. This perspective aligns with contemporary views of corporate social responsibility, emphasizing the importance of ethical, transparent, and socially conscious business practices. As a foundational framework in strategic management, Stakeholder Theory continues to influence organizational behavior, corporate governance, and strategic decision-making, shaping a more inclusive and responsible approach to business.

1.11.7 Background of the Stakeholder Theory

Edward Freeman's seminal work marked a pivotal moment in the evolution of strategic management thinking. In his groundbreaking book, "Strategic Management: A Stakeholder Approach" (1984), Freeman introduced a revolutionary perspective that challenged the prevailing shareholder-centric model. Freeman argued for a more inclusive approach, emphasizing the importance of stakeholders with individuals and groups affected by or affecting an organization. This shift represented a departure from the traditional focus solely on shareholders and laid the foundation for Stakeholder Theory

Following Freeman's pioneering contributions, subsequent scholars, including Donaldson and Preston, further enriched and refined the Stakeholder Theory. Their work expanded the theoretical framework, acknowledging the intricate and dynamic relationships between organizations and stakeholders. Rather than viewing stakeholders as passive entities, the evolving theory recognized the interactive nature of these relationships, emphasizing the importance of mutual influence and reciprocal engagement. This expansion marked a significant step toward a more comprehensive understanding of stakeholder management, capturing the complex dynamics inherent in organizational contexts.

The evolution of Stakeholder Theory reflects a paradigm shift in how organizations perceive and navigate their relationships with stakeholders. The framework promotes a holistic

perspective that recognizes the diverse interests and concerns of various stakeholders, beyond the singular focus on shareholders. Stakeholder Theory's enduring influence extends to contemporary discussions on corporate governance, sustainability, and responsible business practices, reinforcing the notion that successful organizations must navigate a complex network of relationships and prioritize ethical, socially conscious decision-making.

1.11.8 Key Tenets of Stakeholder Theory

Stakeholder Theory, at its core, presents a fundamental shift in organizational thinking by recognizing that businesses operate within a complex network of relationships with various stakeholders. These stakeholders encompass a broad spectrum, ranging from shareholders and employees to customers, suppliers, communities, and beyond. The theory challenges the traditional view that prioritizes shareholders as the sole focus of organizational strategies, advocating for a more inclusive approach that considers the interests of all stakeholders.

The central tenet of Stakeholder Theory lies in the belief that organizations cannot thrive sustainably by solely catering to the needs and demands of shareholders. Instead, it emphasizes the need for organizations to actively engage with and balance the concerns of all relevant stakeholders. By acknowledging the diverse impacts and influences that stakeholders exert on the organization, the theory underscores the interconnectedness of these relationships. This holistic perspective encourages businesses to adopt a broader vision, recognizing the multifaceted nature of their responsibilities to society and the various constituencies they serve.

The practical implications of Stakeholder Theory are far-reaching, influencing organizational decision-making, corporate governance structures, and corporate social responsibility initiatives. Organizations embracing this theory are more likely to adopt ethical practices, foster transparent communication, and integrate sustainability into their business strategies. In essence, Stakeholder Theory provides a conceptual framework that aligns with contemporary expectations of responsible and accountable corporate behavior in an interconnected global landscape.

1.11.9 Application of Stakeholder Theory

Within the specific context of the present study, Stakeholder Theory serves as a valuable framework for comprehensively exploring the implementation of SBA in selected Zambian secondary schools. In the realm of SBA, stakeholders encompass a diverse group, including teachers, administrators, parents, policymakers, and students. By adopting Stakeholder Theory,

the study aimed to delve into the perspectives, interests, and concerns of these stakeholders, recognizing their distinct roles and contributions to the implementation process. This approach allowed for a nuanced exploration of the intricate relationships and dynamics that shape SBA execution.

Stakeholder engagement is a central tenet of the theory, emphasizing the importance of understanding and balancing the interests of all relevant parties. In the context of SBA, teachers play a crucial role in designing, administering, and evaluating assessment tasks. Administrators contribute to the overall policy framework and logistical support, while parents and policymakers may have vested interests in the educational outcomes and quality of assessments. Students, being direct beneficiaries, also hold a stake in the effectiveness and fairness of the assessment system. By embracing Stakeholder Theory, the study aims to capture the collective wisdom of these diverse perspectives, providing a holistic understanding of the challenges and opportunities associated with SBA implementation.

The insights gained from applying Stakeholder Theory in the study contribute to evidence-based recommendations for optimizing stakeholder engagement, addressing concerns, and refining strategies to enhance the overall effectiveness of SBA in science subjects within Zambian secondary schools. Through this approach, the study acknowledges the interconnectedness of stakeholders' roles and seeks to foster collaborative efforts for continuous improvement in the educational assessment landscape.

1.11.10 Rationale for Stakeholder Theory

The adoption of Stakeholder Theory in this study is grounded in its capacity to provide a holistic perspective on organizational dynamics within the educational context. Stakeholder Theory is particularly apt for exploring the implementation of SBA in sciences of Zambian secondary schools as it recognizes and incorporates the diverse interests and perspectives of stakeholders. In educational settings, stakeholders include teachers, administrators, parents, policymakers, and students, each with distinct roles and contributions to the assessment process. By embracing Stakeholder Theory, the study aimed to unravel the intricate web of relationships and interactions among these stakeholders, acknowledging their varied interests, concerns, and expectations.

Stakeholder Theory emphasizes the importance of considering the interests of all relevant parties to achieve long-term success and sustainability. In the context of SBA, this means

recognizing the multifaceted landscape surrounding assessment practices and ensuring that the voices of different stakeholders are heard and valued. Teachers, who are pivotal in executing SBA tasks, may have specific perspectives on the practical aspects of implementation. Administrators contribute to the overarching policy framework and logistical support, while parents and policymakers may have broader concerns about the quality and fairness of the educational system. By adopting Stakeholder Theory, the study seeks to provide a comprehensive understanding of these varied perspectives, promoting collaborative efforts to enhance the overall effectiveness of SBA in science subjects within Zambian secondary schools.

The rationale for choosing Stakeholder Theory as a guiding framework in this study is rooted in its applicability to the dynamic and interconnected educational ecosystem. Recognizing the importance of diverse stakeholder perspectives ensures that the study considers the broader context within which SBA is implemented, paving the way for well-informed recommendations to optimize stakeholder engagement and improve the overall quality of educational assessments.

1.11.11 Strategic Management through Stakeholder Theory

The strategic adoption of Stakeholder Theory in this study stems from its endorsement of a balanced and inclusive approach to organizational management. Stakeholder Theory serves as a powerful analytical tool, providing researchers with the means to delve into the roles and perspectives of diverse stakeholders involved in the implementation of School-Based Assessments in Zambian secondary schools. The theory emphasizes the interconnected relationships among stakeholders, acknowledging their varied interests and contributions to the educational system. By embracing Stakeholder Theory, the study aims to unravel the complexities of stakeholder engagement, offering valuable insights into the roles and expectations of different actors within the SBA implementation process.

Stakeholder Theory not only allows for a comprehensive analysis of stakeholder dynamics but also positions researchers to formulate evidence-based recommendations for strategic improvements. The theory encourages an in-depth exploration of the concerns, interests, and expectations of various stakeholders, fostering a nuanced understanding of their impact on the success or challenges of SBA implementation. The study, aligned with Stakeholder Theory, seeks to go beyond a mere examination of stakeholder roles and perspectives; it aims to contribute to the broader discourse on effective stakeholder engagement in educational policy

and practice. By leveraging Stakeholder Theory, the study aspires to influence the quality and sustainability of SBA delivery in science subjects within the Zambian educational landscape.

In summary, the strategic use of Stakeholder Theory as a guiding framework in this study is grounded in its capacity to offer a balanced and inclusive perspective on organizational dynamics. By recognizing and incorporating the varied interests and contributions of stakeholders, the study positions itself to contribute meaningfully to the ongoing dialogue on stakeholder engagement and its impact on the effectiveness of SBA in science subjects within Zambian secondary schools.

1.12 Motivation

The research described in this thesis was conducted in Eastern Province, Zambia, and was motivated by several key factors. First and foremost, the researcher's extensive background as a subject teacher for 16 years, specializing in Physics and Chemistry, and four years as the Head of the Natural Science Department provided a unique perspective on the conduct and administration of national examinations in science, particularly practical paper 3. This firsthand experience offered valuable insights into the challenges and intricacies associated with national practical examinations, laying the foundation for a comprehensive exploration of the newly introduced School-Based Assessment.

In addition to teaching experience, the researcher had the privilege of undertaking an internship in the Directorate of Standards, Evaluation, and Assessments from 2021 to 2022. This experience allowed the researcher to monitor learning institutions and engage with Standards Officers at various levels across different Provinces and Districts. The exposure gained during this internship provided a broader understanding of the educational landscape and assessment practices, creating a well-rounded perspective for the research.

A significant aspect that spurred the research was the transition from national practical examinations, centrally planned and coordinated by the Examinations Council of Zambia, to School-Based Assessments. The shift meant that individual teachers in different school types were now responsible for planning, administering, marking, computing, and recording SBA results. This transition raised questions about the diverse implementation practices across schools, necessitating an in-depth examination of how schools were adapting to the new SBA system.

Furthermore, the persistent issue of ineffective performance in science subjects in national examinations, despite the introduction of SBA, emerged as a compelling motivation for the research. Despite SBA being designed to enhance the assessment process, the observed disparity in results indicated a need for a closer look at the implementation of SBA and its effectiveness in achieving its intended goals. Addressing this performance gap became a key objective of the research, aiming to identify factors contributing to disconnect between SBA implementation and improved academic outcomes.

The motivation to contribute to the improvement of teaching and learning in science through enhanced assessment practices was fueled by the acquired knowledge in curriculum development and educational processes. The researcher's background and experience in these areas ignited a desire to play a role in advancing the quality of science education. Recognizing the pivotal role that assessment practices play in shaping educational experience, the intention was to leverage this knowledge for the betterment of science education.

Moreover, the potential for the Ministry of Education and the Examinations Council of Zambia to utilize the findings for self-evaluation assessments was a significant aspect of the research's broader impact. The study aimed to provide insights and recommendations that could assist educational authorities in assessing the effectiveness and sustainability of the implementation of quality School-Based Assessments in schools. The findings could potentially serve as a valuable resource for these entities to refine and strengthen their assessment policies and practices.

The prospect of extending the evaluation approach to other provinces underscored the scalability and applicability of the study's outcomes. By sharing insights and recommendations derived from the research, there existed an opportunity to enhance SBA implementation practices not only in Eastern Province but also in other regions. This broader impact could contribute to a more uniform and effective implementation of SBA policies across the educational landscape.

Furthermore, the study held the potential to serve as a framework for assessing and evaluating the SBA Policy at a national level. The comprehensive exploration of SBA implementation practices, challenges, and successes could offer a template for a systematic evaluation of the policy's impact. Such an evaluation could inform policy adjustments and improvements, ensuring that the SBA system aligns with educational goals and standards at the national level.

In essence, the research was driven by a commitment to contribute to the enhancement of science education through improved assessment practices. The envisioned impact extended beyond the specific province studied, with the potential to influence educational policies, practices, and evaluations at both regional and national levels.

1.13 Scope of the Study

The research were conducted in selected secondary schools across three districts of eastern province, chosen for their representation of varied socio-economic and geographical characteristics. The study's time frame spanned from the initiation of the School-Based Assessment policy in 2019 to the present, encompassing the challenges posed by COVID-19-related school closures. The target population included educators, students, and relevant administrative staff in these selected secondary schools, with a specific focus on those directly involved in the administration and assessment processes of SBA in the science subjects.

To ensure a comprehensive understanding, a mixed-methods approach will be employed for data collection. Surveys and statistical analysis will be utilized for quantitative data, focusing on assessing the SBA policy and the administration of School-Based Assessments. Qualitative insights, including challenges faced by stakeholders, will be gathered through interviews, and focus group discussions. However, it is important to note some limitations. The study's scope is confined to secondary schools in Zambia, and the findings may not be entirely applicable to other educational levels or countries. While the impact of COVID-19 on SBA implementation were considered, the study may not have comprehensively covered all nuances of the pandemic's effects. Data were analyzed through the six-step thematic analysis phases of Braun and Clarke (2006) Framework.

By integrating both types of data, the study aimed to provide a holistic information of the implementation of School-Based Assessments in Sciences. Ethical considerations were prioritized throughout the research process, ensuring informed consent from participants, maintaining the confidentiality of responses, and responsibly using collected data. The significance of the study lied in its contribution to addressing the existing knowledge gap regarding the implementation of SBA in Sciences in Zambia. The proposed evidence-based framework intended to offer practical solutions to identified challenges, ultimately contributing to the overall enhancement of the quality and effectiveness of SBA in science education.

1.14 Operational definitions

1. **School Based Assessments:** School based assessment is the process of collecting information from learners about their experience of learning in the class (Brookhart, 2001). There are different ways of collecting information, depending on what teachers teach and what kind of information they need. All types of assessment are based on the principle that the more clearly and specifically teachers understand how learners are learning, the more effectively they can teach them.
2. **Classroom Practice:** Classroom practice refers to activities that are organised, directed, and guided by the teacher (Columba, 2001). As teachers involve learners in the lesson, a substantial amount of class time is taken up with various forms of practice, which include reading, writing, demonstrations, and other similar activities. By observing how students undertake and practice activities, teachers learn a great deal about learner progress and sources of problems.
3. **Assessment methods:** Assessment methods are based on the idea that learners can evaluate their own learning and learn from the evaluation process. These methods are learner centered in the sense that they give learners opportunities to reflect on both their linguistic development and their learning processes (what helps them learn and what might help them learn better) (DoE, 2002:4). Examples of these methods are self-assessment, peer assessment, group assessment, observation and oral question and answer.
4. **Assessment techniques:** Assessment techniques are formative evaluation methods that serve two purposes. They help the teacher to assess the degree to which learners understand the lesson and they provide the teacher with information about the effectiveness of teaching methods (Angelo and Cross, 2002). Assessment techniques provide day-to-day feedback that can be applied immediately, provide useful information about what students have learned without the amount of time required for preparing tests and reading papers, and help to foster good working relationships with students and encourage them to understand that teaching and learning are on-going processes that require full participation.
5. **Quality Teacher:** This term referred to an educator who had a positive effect on student learning and development through a combination of content mastery, command of a broad set of pedagogic skills, and communications/interpersonal skills. The following are considered as characteristics of a quality teacher:
 - i) Teachers who are life-long learners in their subject areas, teach with commitment, and are reflective upon their teaching practice.

- ii) Those who are able to transfer knowledge of their subject matter and the learning process through good communication, diagnostic skills, understanding of different learning styles and cultural influences, knowledge about student development, and the ability to marshal a broad array of techniques to meet student needs.
- iii) Teachers who could establish an environment conducive to learning and leverage available resources outside as well as inside the class.
- iv) Those who used prescribed standards of assessing students in order to bring about learning.

1.15 Thesis outline

The thesis is divided into six main chapters. The first chapter being Introduction while the second is Literature Review. Chapter three presents the methodology used while chapter four presents the Findings of the study. Chapter five is the Discussion of the Findings and the last chapter, six is Conclusion and implications. Each chapter is divided into sub sections for easy understanding.

The first chapter provides the background of School Based Assessments in Zambia and further discusses the importance of learning science to foster economic growth. It provides the reasons for the transition from one off national examination to school-based assessment system. The chapter further presents the Problem Statement which aimed at investigating the implementation of the school-based assessments in sciences and ends with conceptual and theoretical frameworks.

The second chapter presents literature that was reviewed to guide the Exploration of the Implementation of school-based assessments in science. It begins with the understanding of school-based assessments, classroom practices, and challenges other countries have faced in implementing SBA. Furthermore, the chapter analyses the Global, African and Zambian perspective of school-based assessments. Literature was used as a basis for arriving at a framework that could be used to effectively implement quality school-based assessments in sciences.

Chapter three presents the methodology that was used to collect the data required to achieve the research objectives. It began by providing the research design followed by study site, population sample size sampling techniques as well as sampling procedures. Later on, the data collection instruments, procedure on how questionnaires, interview guides and focus group

discussions were administered. Finally, the data analysis processes, threats to reliability, validity, and tests

The fourth chapter initiates by presenting the demographic variables of the study participants. It meticulously details the characteristics of the individuals involved in the research, offering a comprehensive overview of the sample group. Following the demographic presentation, the chapter seamlessly transitions into the results presentation, where the findings derived from the collected data are systematically elucidated and analyzed. The presentation of results offers a detailed account of the study's outcomes, addressing each research objective and question. This section meticulously unpacks the data, providing statistical insights, trends, and patterns observed during the investigation. The data presentation is accompanied by relevant figures, tables, or graphs, enhancing the clarity and comprehensibility of the findings.

Subsequently, the chapter delves into an in-depth discussion of the findings. This section critically analyzes the results in the context of existing literature, theoretical frameworks, and research objectives. It aims to interpret the significance of the findings, uncovering underlying trends, implications, and potential contributing factors. The discussion section serves to contextualize the results within the broader academic discourse, offering insights into the practical implications of the study. Following the comprehensive discussion of findings, the chapter culminates with a robust conclusion. The conclusion succinctly summarizes the key discoveries of the study, emphasizing their relevance and implications. It reiterates how the results align with or deviate from the initial hypotheses or research questions, providing a sense of closure to the investigative process.

Concluding the chapter, recommendations are proffered based on the study's outcomes. These recommendations are designed to guide future research endeavors, policy implementations, or practical interventions. The chapter closes by highlighting the contributions of the study to the academic field and underscoring the potential avenues for further exploration and improvement in the subject area.

1.16 Summary

This chapter focused on background information on “Exploration of the implementation of School based Assessments in Sciences in selected Zambian Secondary Schools”. It started by highlighting the importance of learning Science and the genesis of School Based Assessments in Secondary schools of Zambia and how it was envisaged to take place. It further showed the

skills each task in science is expected to measure to ensure proper implementation of SBA in Secondary Schools. The chapter also looked at the statement of the problem, the purpose of the study, the Justification of the study which is hoped to reveal all the information related to School Based Assessment in Zambia from training of teachers, to planning, administration, marking, scoring and record keeping. Furthermore, this chapter looked at Delimitation and Limitations Conceptual and Theoretical frames of the study, the scope, the motivation behind conducting the research and lastly clarification of some terms used.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides literature on Exploration of the Implementation of School Based Assessments in Sciences. As stated by Christopher (2000) and Daka (2019) literature review is an assessment of the research and theoretical framework and not a list of all previous research. Quitman (2016) and Daka (2019) also added that literature review refers to any collection of materials on a specific topic and not necessarily the great literary texts of the world. This chapter pays special attention to the concept of SBA, importance, and role of School Based Assessment reform policy in the teaching of science, the challenges teachers are facing in implementing SBA as well as Classroom assessment practices. Further, this chapter highlights how these classroom practices and factors influence quality teaching and learning. The literature review of the research topic adopted reviewing the existing literature and other published related research papers. Epidemiology (1997) states that research study starts with literature review on the relevant subject and Collins et al (2000) lists literature review sources as, journals, books, dissertations, research reports, conference, government papers, policy papers and newspaper articles. The purpose of literature review as noted by Collins et al (2000) has been to familiarize the researcher with information available that is relevant to research subjects also to find out what gaps exists between what has been done already and what is proposed to be done.

2.2 Role of Science in National Development

The Examinations Council of Zambia (2014) recognizes that the performance of candidates in the 2013 Grade 9 and 12 examinations in Environmental Science and Physical Sciences revealed a lack of in-depth understanding of the subject concepts among some candidates. Upon reviewing the sampled scripts, it was concluded that many candidates faced challenges related to mastering concepts and interpreting practical observations. Moreover, global education systems are currently undergoing transformative changes due to rapid technological advancements and emerging concerns about students' ineffective performance in Science and Mathematics (Dagher and BouJaoude, 2011).

The teaching methodologies employed in science education, particularly in practical subjects, have raised concerns, leading to a shift towards learner-centered approaches over teacher-

centered approaches. The learner-centered approach emphasizes learning by doing, where learners are believed to better retain concepts and knowledge through the creation or discovery of information using existing knowledge and past experiences.

The importance of imparting psychomotor skills is highlighted, as engaging learners in practical activities contributes to better retention of learned material. Consequently, numerous education reform projects worldwide aim to prepare learners to meet the current demands of creating a scientific community beneficial to society (Dagher and BouJaoude, 2011). Emphasizing science education methodologies that encourage hands-on teaching and learning is seen as essential for instilling a profound conceptual understanding and fostering positive attitudes toward science.

Science, as a fundamental subject in school curricula, plays a pivotal role in shaping the intellectual development of learners. The effective delivery of science education relies heavily on the proficiency of teachers responsible for imparting scientific knowledge. According to the Ministry of Education (1996), the ultimate goal of teaching science is to cultivate processes of scientific thinking among learners. This objective underscores the importance of bringing the learning of science to life, enabling students to grasp its practical applications and real-world implications. To achieve this purpose, educators must navigate various challenges encountered in both primary and secondary school sections of Zambian schools.

The challenges faced in the teaching and learning of science are multifaceted, encompassing issues ranging from inadequate laboratory facilities to a scarcity of human and material resources. These challenges can significantly hinder the effective delivery of science education, impacting the quality of learning experiences for students. The Ministry of Education in Zambia has recognized these impediments and implemented deliberate strategies to address them. Notable initiatives include the Continuous Professional Development (CPD) program, which aims to enhance the skills and knowledge of science educators. Additionally, the Action to Improve English, Mathematics, and Science (AIEMS) initiative seeks to elevate the proficiency of educators in these crucial subjects.

Furthermore, the Junior Engineers Technicians and Scientists (JETS) program, supported by the Ministry of Education, is designed to stimulate interest and proficiency in science-related fields among students. Under its umbrella, the Science, Technology, and Engineering Mathematics (STEM) program is another subsidiary that underscores the commitment to

promoting science education. These strategic initiatives represent a concerted effort by the Ministry of Education to overcome challenges in science education and create an environment conducive to effective teaching and learning.

The challenges inherent in the teaching and learning of science in Zambian schools necessitate proactive measures and strategic interventions. The Ministry of Education's initiatives, such as CPD, AIEMS, JETS, and STEM, reflect a commitment to improving the state of science education by addressing resource constraints and enhancing the professional development of educators. These efforts align with the overarching goal of instilling scientific thinking processes in learners, contributing to a more robust and effective science education system in Zambia.

The implementation of School Based Assessments serves as a crucial bridge between theoretical knowledge and practical application, effectively bringing concepts and theories to life within the educational context. This pedagogical approach plays a pivotal role in imparting students with lifelong skills and knowledge by allowing them to put theoretical understanding into practice. By engaging in hands-on activities, such as the assembly of simple electric circuits and the illumination of bulbs, learners not only gain theoretical knowledge but also develop practical skills that remain ingrained in their memory. This practical experience extends beyond the classroom, empowering learners to apply their acquired knowledge in real-world scenarios.

For instance, the knowledge gained through SBA becomes particularly evident when learners encounter a common household issue, such as a faulty plug on an electric appliance. The hands-on experience acquired during SBA activities equips learners with the confidence and capability to troubleshoot and resolve such issues seamlessly. This application of theoretical knowledge to practical situations underscores the long-lasting impact of SBA on students' problem-solving abilities, contributing to their overall competence and self-reliance.

Moreover, School Based Assessments provides a valuable platform for learners to not only understand concepts theoretically but also to actively try out and apply their acquired skills. This practical dimension of SBA is instrumental in preparing school leaders, including those from primary, junior, and senior secondary levels, with the essential skills needed for survival in various contexts, be it in entrepreneurship or the broader world of work. The hands-on nature

of SBA ensures that learners are not only academically proficient but also equipped with practical and applicable skills that enhance their adaptability in diverse environments.

Lastly the incorporation of School Based Assessment into the educational framework proves to be a necessary and beneficial move. It not only facilitates the seamless integration of theoretical knowledge and practical application but also imparts students with enduring skills and competencies. The practical experiences gained through SBA activities empower learners to confidently apply their knowledge, fostering a holistic educational approach that prepares them for the challenges of entrepreneurship and the world of work.

2.3 Role of Assessments in Teaching and Learning

Acknowledged by various scholars, assessment stands as a pivotal element in the realm of teaching and learning (Meier, Rich, and Cady, 2000; Brookhart, 2001; Brown, 2004). The multifaceted nature of assessment involves its classification into two primary categories: formative and summative assessments. Formative assessments play a central role in the ongoing learning process, aimed at enhancing and improving learning outcomes. In contrast, summative assessments are typically administered at the conclusion of a learning period, serving the purpose of grading, and certifying learners' competencies. The dichotomy of formative and summative assessments provides educators with a comprehensive toolkit for gauging student understanding and progress throughout the educational journey.

Both assessment for learning and grading serve as invaluable tools for furnishing feedback to both educators and learners. This feedback loop plays a critical role in informing instructional decisions and planning. Educators, drawing on the insights gained from assessments, can tailor their instructional approaches to meet the specific needs of their students (Daka, 2019). Furthermore, assessments assist in identifying students who may require additional attention in specific subject areas, ensuring a targeted and personalized approach to education. This aligns with the understanding that assessment is not merely an evaluative process but a dynamic tool that informs and shapes the learning environment.

A crucial aspect of assessment is the provision of feedback to students, often referred to as "formative assessment" (Brookhart, 2001). This form of assessment goes beyond grading and certification; it actively contributes to the learning process by offering constructive feedback that guides students towards improvement. The reciprocal nature of formative assessment fosters a collaborative learning environment where educators and students engage in a

continuous dialogue aimed at enhancing understanding and mastery of subject matter. This emphasis on formative assessment underscores the evolving nature of assessment in education, moving beyond a mere evaluative function to becoming an integral part of the learning journey.

Lastly, assessment, as elucidated by scholars, plays a pivotal role in the educational landscape, offering both formative and summative insights into student learning. The dual functionality of assessment for learning and grading enriches the educational experience by providing valuable feedback to educators and learners alike. The dynamic nature of assessment, particularly formative assessment, transcends traditional evaluation paradigms, fostering an interactive and collaborative learning environment that actively contributes to the continuous improvement of education.

The significance of feedback in the enhancement of day-to-day student assessment is underscored by scholars such as Smith and Gorard (2005) and Kanchebele-Sinyangwe and Daka (2022). These researchers emphasize that feedback plays a pivotal role not only in fostering teacher improvement but also in enhancing the learning experience for students. The value of feedback lies in its ability to offer specific guidance to learners regarding their strengths and weaknesses. This targeted feedback mechanism, rooted in scholarly observations, becomes a valuable tool for teachers seeking to refine and optimize their assessment strategies on a continuous basis.

Building upon this foundation, Brookhart (2001) and Daka, Mulenga-Hagane, Mukalula-Kalumbi, and Lisulo (2021) contribute to the discourse by asserting that assessment, to be truly formative, must go beyond evaluation and be actively utilized to improve performance. In this context, the transformative potential of feedback becomes evident. Assessment, when harnessed as a formative tool, serves as a dynamic mechanism for driving educational improvement. The insights gained through assessment practices can inform instructional decisions, allowing teachers to tailor their approaches based on the specific needs and learning styles of their students. This aligns seamlessly with the ethos of School Based Assessments (SBAs), where the information gleaned from assessments guides' decisions on whether to progress to new topics or revisit areas that may need further attention.

In the context of SBAs, the concept of formative assessment takes center stage, aligning with the notion that assessment should be an ongoing and iterative process. Teachers, armed with the information obtained through assessments, can make informed decisions about the direction

of their instruction. The cyclical nature of formative assessment within SBAs provides educators with a nuanced understanding of student progress, enabling them to dynamically adjust their teaching methods. The goal is not merely to evaluate but to actively contribute to the continuous improvement of both teaching and learning.

Finally, the scholarly discourse on feedback and formative assessment, as articulated by Smith, Gorard, Brookhart, and others, establishes a compelling narrative. Feedback is not just an evaluative tool; it is a catalyst for improvement, both for teachers refining their assessment practices and for students enhancing their learning experiences. The application of formative assessment principles is particularly relevant in the context of SBAs, where the iterative nature of assessment informs ongoing instructional decisions and shapes the trajectory of educational progress.

Further, in recognizing the transformative role of assessment in the realm of education, it becomes imperative to view assessment not merely as an evaluative tool but as an essential companion to lifelong learning. This paradigm shift implies a departure from its exclusive confinement to assessors, extending the reach of assessment into the hands of learners themselves. Scholars such as Boud (2000), Raveaud (2004), Smith and Gorard (2005), Chetcuti, Murphy, and Grima (2006), as well as Daka, Namafe, and Katowa–Mukwato (2019), have championed the introduction of high-quality formative assessment practices. Engaging with these practices is deemed crucial as they lay a secure foundation for lifelong learning and directly contribute to the cultivation of a learning society. This shift aligns seamlessly with Akyeampong, Pryor, and Ampiah's (2006) assertion that assessment serves as a reflective tool for teachers to produce a more sophisticated account of teaching and learning empowerment.

High-quality formative assessment practices, as introduced by these scholars, not only enhance the learning experience but also play a pivotal role in fostering a learning society. Through the continuous engagement with formative assessment, individuals are empowered to reflect on their learning experiences and embark on a journey of self-awareness. The work of Akyeampong, Pryor, and Ampiah (2006) further underscores that assessment serves as a catalyst for teachers to reflect deeply on their teaching experiences, leading to a more nuanced understanding of the dynamics of teaching and learning.

Formative assessment, when integrated into the educational landscape, has the potential to benefit learners of all ages and stages. It serves as a catalyst for learners to become more self-

aware and adept in mapping their individual learning paths, taking into consideration their unique strengths and weaknesses. This personalized approach to learning is essential for cultivating a sense of ownership and agency in learners, enabling them to navigate their educational journeys with a heightened level of autonomy.

Furthermore, formative assessment practices facilitate fruitful collaboration among learners. By actively engaging with the feedback and insights derived from assessments, learners can contribute to a collaborative learning environment. The sharing of experiences, strategies, and insights becomes a cornerstone for mutual growth, creating a community of learners who actively support and learn from one another.

The paradigm shift towards viewing assessment as an integral companion to lifelong learning is championed by scholars who advocate for high-quality formative assessment practices. The transformative potential of assessment extends beyond evaluation, contributing to the establishment of a learning society. Through continuous engagement with formative assessment, individuals, including both teachers and learners, embark on a journey of self-reflection, empowerment, and collaborative growth. This nuanced approach to assessment is instrumental in cultivating a holistic and dynamic learning environment that aligns with the principles of lifelong learning.

When examining the realm of teachers' classroom assessment practices, it becomes evident that several factors demand careful consideration. The incorporation of school-based assessments into the education system underscores a commitment to enhancing the quality of teaching and learning. To ensure effective implementation, key stakeholders must familiarize themselves with best practices. According to Webb (2005), factors such as school organization, traditions, routine, class period duration, learner enrolment, and the system's expectations for grade-level content all significantly contribute to shaping teachers' classroom practices.

Webb (2005) particularly highlights the impact of school organization, traditions, and routine on classroom assessment practices. These elements, deeply embedded in the school's culture, influence the overall approach teachers adopt in assessing students. The ingrained practices within the school environment can either facilitate or hinder effective classroom assessment. Therefore, understanding and aligning with the school's organizational ethos is crucial for teachers seeking to enhance their assessment practices.

Additionally, Webb emphasizes the duration of class periods as a critical factor. Short class periods, those lasting less than forty minutes, are posited to limit sustained learner engagement, hinder comprehensive classroom discussions, and reduce opportunities for reflection. The temporal constraints imposed by shorter class periods pose challenges to the depth and breadth of assessment practices. Teachers must navigate these constraints while striving to create meaningful learning experiences within the given time frame.

The number of learners enrolled in a classroom also emerges as a pivotal factor influencing assessment practices. Large class sizes can impact the effectiveness of certain assessment methods. Managing assessments for a substantial number of students requires careful planning and consideration of alternative approaches that ensure fair evaluation and meaningful feedback.

Furthermore, the expectations set by the education system regarding grade-level content contribute to shaping teachers' assessment strategies. The alignment between classroom assessments and the broader educational framework ensures that teachers are not only meeting individual student needs but also adhering to overarching educational goals and standards.

The effective implementation of school-based assessments necessitates a nuanced understanding of various factors that influence teachers' classroom practices. Webb's (2005) insights shed light on the importance of school organization, traditions, routine, class period duration, learner enrolment, and system expectations. Teachers must navigate these factors thoughtfully, recognizing the impact each element has on the assessment landscape. By doing so, educators can tailor their practices to create an environment conducive to meaningful and effective assessment within the broader context of the educational system.

The landscape of education is continually evolving with the introduction of educational inventions, novel creations, and unfamiliar practices. While these innovations hold the potential to transform teaching and learning, they often bring about differences in opinion and an array of challenges. One specific area where teachers are grappling with these challenges on a daily basis is in the realm of classroom assessment. The complexities and demands of modern education have given rise to a myriad of issues that researchers and educators alike are actively addressing.

A multitude of challenges in classroom assessment has been identified by various researchers, shedding light on the multifaceted nature of the educational landscape. Among these challenges

are the demands for social reform within the educational system, the provision of adequate educational resources, varying approaches of different stakeholders to educational reform, the establishment of a culture conducive to effective teaching and learning, and controversies surrounding the meaning, management, and measurement of classroom assessment. The intricate interplay of these factors has created a pressing need for educational reform to address the evolving nature of teaching and learning in contemporary educational settings.

Rakometsi (2000), Tladi (2000), Kotze (2002) and Chisholm (2005) have all contributed to the discourse surrounding the challenges in classroom assessment and the broader need for educational reform. Their insights underscore the complexity of the issues at hand and the necessity of a comprehensive approach to address these challenges. As educational systems grapple with these issues, it becomes increasingly evident that reform efforts need to be holistic, considering the diverse perspectives and concerns of educators, administrators, and other stakeholders.

Navigating the complexities of classroom assessment requires a nuanced understanding of the challenges posed by demands for social reform, resource provision, varying approaches to reform, and the establishment of a conducive teaching and learning culture. Moreover, the controversies surrounding the meaning and measurement of classroom assessment further highlight the need for clarity and consensus within the educational community. The ongoing dialogue and collaboration among researchers, educators, and policymakers are essential to developing effective strategies for educational reform that can address these multifaceted challenges and foster a learning environment that is responsive to the needs of contemporary learners.

The myriad challenges that teachers grapple with in the realm of assessment underscore the crucial importance of sound assessment policies. Researchers such as Brookhart and Bronowicz (2003) and Changwe, Mwanza, Daka, and Ng'onomo (2023) argue that learners often perceive assessment solely as a mechanism for identifying failure rather than as a tool for documenting their development and success. This perception is rooted in a narrow understanding of learning, wherein students view the educational process as centered around identifying and reproducing correct answers to well-defined problems with predetermined solutions. The implications of such perceptions are profound and emphasize the need for assessment policies that not only measure performance but also foster a holistic view of learning and development.

The intricate relationship between assessment practices and teaching and learning is a subject of considerable diversity and individuality. Scholars such as Adams (2001), Gao and Watkins (2002), and Brown (2003, 2004) highlight the eclectic and idiosyncratic nature of assessment practices. For instance, Brown (2004) conducted a survey among elementary school teachers, revealing that many educators formulate assessment policies based on their idiosyncratic values and conceptions of teaching. This individualistic approach to assessment underscores the complexity of aligning assessment practices with broader educational goals and standards, necessitating a nuanced understanding of the diverse perspectives held by educators.

Moreover, the complexity of effective teaching and learning is intricately tied to teachers' personal conceptions and theories of teaching practice. Scholars such as Kegan (1992), Pajares (1992), and Astuti Azis (2012) emphasize that the way teachers conceptualize and approach teaching significantly impacts the learning experiences of their students. The idiosyncrasies in teachers' beliefs and values about education contribute to the diverse landscape of assessment practices. This diversity, while reflecting the rich tapestry of educational perspectives, also poses challenges in establishing consistent and standardized assessment policies that align with overarching educational objectives.

Addressing the challenges associated with learners' perceptions of assessment and the idiosyncratic nature of teachers' assessment practices requires a comprehensive and reflective approach to policy formulation. The design of assessment policies should strive to not only measure academic performance but also foster a broader understanding of learning that encompasses personal development, critical thinking, and problem-solving skills. It becomes essential for educational institutions to facilitate a collaborative and reflective environment where educators can engage in dialogue about their conceptions of teaching and assessment, leading to the development of assessment policies that are more inclusive, equitable, and aligned with the goals of contemporary education.

The challenges in assessment practices, as identified by various scholars, underscore the need for well-formulated assessment policies that address learners' perceptions and the individualistic nature of teachers' approaches. The formulation of such policies requires a careful consideration of diverse perspectives, fostering a collaborative dialogue among educators, and ensuring alignment with broader educational objectives. A thoughtful and reflective approach to assessment policy can contribute to a more holistic and effective educational experience for learners.

2.4 Concept of School-Based Assessment

Educational assessment is a fundamental element intertwined with the intricate processes of teaching and learning. Defined by Lorna (2003), it constitutes the systematic process of documenting, typically in measurable terms, an individual's knowledge, skills, attitudes, and beliefs. This comprehensive understanding of assessment extends beyond the individual learner to encompass the entire learning community, which may comprise a class, workshop, or any organized group of learners. Furthermore, assessment transcends the microcosm of individual learners and learning communities to impact the broader institutions and the educational system at large (Lorna, 2003).

The multifaceted nature of assessment entails the meticulous collection of both qualitative and quantitative information about learners. Various assessment tools come into play, including tests, assignments, quizzes, projects, checklists, and homework, all designed to facilitate informed judgments about learners' performance. The purpose of assessment in education is manifold, ranging from gauging individual academic readiness and tracking learning progress to evaluating skill acquisition and identifying educational needs (Lorna, 2003). This broad and nuanced perspective on assessment highlights its role as a dynamic and integral component in the educational landscape.

In the educational context, the term "assessment" encompasses a diverse array of methods and tools. These tools are strategically employed by educators to evaluate, measure, and systematically document various facets of the learning process. The overarching goal is to gain insights into students' academic readiness, ongoing progress, and the acquisition of essential skills. This holistic approach to assessment, as delineated by Lorna (2003), underscores its significance in providing educators with valuable insights to tailor their instructional approaches and support students' diverse learning needs.

As education continually evolves, assessment remains a cornerstone in shaping pedagogical strategies, refining curricula, and ensuring that educational systems are adaptive and responsive to the dynamic needs of learners. The rich tapestry of assessment methods and tools serves as a compass, guiding educators in their mission to foster a conducive and effective learning environment.

According to Wrigley (1986), assessment plays a pivotal role in the educational landscape by serving as a feedback mechanism for both teachers and learners. It serves as a crucial gauge to

determine the extent to which learning objectives are being achieved. By providing insightful information about areas of weaknesses, strengths, and untapped potentials, assessment becomes a dynamic tool that can inform and guide instructional strategies. This feedback loop is essential for educators to adapt their teaching methods, ensuring a tailored and effective approach that resonates with the diverse learning needs of students.

Nitko (1995) contributes to the discourse on assessment by framing it as a process geared towards gathering relevant information with the explicit purpose of making educational decisions. The decision-making aspect underscores the practical utility of assessment in shaping the trajectory of the educational journey. The selection of the appropriate method or procedure for information gathering becomes a critical consideration, and Nitko emphasizes that this choice should align with the specific purpose for which educators intend to use the information. Understanding the purpose and tailoring the assessment approach accordingly is fundamental in extracting meaningful insights that inform instructional decisions.

The concept of assessment, as delineated by Nitko (1995) and Wrigley (1986), encompasses two overarching categories: summative and formative assessment. Summative assessment typically occurs at the conclusion of a learning period and aims to evaluate the overall learning outcome. In contrast, formative assessment is an ongoing, continuous process designed to provide real-time feedback during the learning journey, enabling adjustments and improvements. Both forms of assessment contribute uniquely to the educational process, reinforcing the idea that assessment is not a one-size-fits-all endeavor but a nuanced and purpose-driven practice.

For students, assessment holds more than just an evaluative function. As highlighted by Wrigley (1986), it serves as a form of attention and encouragement. The feedback received through assessment becomes a powerful motivational tool, acknowledging achievements, addressing weaknesses, and fostering a positive learning environment. In this way, assessment becomes not only a diagnostic and decision-making tool for educators but also a source of support and encouragement for students, nurturing their academic growth and motivation.

Formative assessments, as elucidated by Nitko (1995), are dynamic evaluations conducted during the ongoing learning process. Unlike summative assessments that occur at the conclusion of an academic period, formative assessments are administered multiple times throughout a unit, course, or academic program. The primary objective of formative

assessments is to provide educators with in-process feedback, offering valuable insights into students' learning progress. This ongoing feedback loop serves as a diagnostic tool, revealing what students are comprehending effectively and where they might be facing challenges.

Nitko (1995) emphasizes that the essence of formative assessment lies in its capacity to inform instructional decisions. The feedback generated from formative assessments is instrumental in shaping instructional approaches, adapting teaching materials, and tailoring academic support to meet the specific needs of students. This real-time responsiveness ensures that the learning experience remains flexible and adaptive, promoting an environment conducive to effective learning.

One distinguishing feature of formative assessments is their non-scoring or non-grading nature. As indicated by Mctighe and O'Connor (2005), these assessments are not primarily intended for assigning grades but rather focus on gathering insights into the learning process. The versatility of formative assessments is evident in the myriad forms they can take, ranging from more formal quizzes and assignments to informal methods like questioning techniques and in-class discussions. This variety allows educators to employ diverse strategies that align with the nature of the content being taught and the learning preferences of their students.

Mctighe and O'Connor (2005) succinctly capture the essence of formative assessments by characterizing them as assessments "for learning." This phrase underscores the proactive nature of formative assessments, emphasizing their role in driving improvements during the instructional period or lesson. Educators leverage the results of formative assessments not only to gauge students' understanding but, more critically, to iteratively refine and enhance their teaching techniques. In essence, formative assessments become a catalyst for continuous improvement, fostering a responsive and student-centric approach to education.

Nitko (1995) defines summative assessments as evaluative tools employed to assess student learning at the conclusion of a specific instructional period, such as the end of a unit, course, semester, program, or school year. Unlike formative assessments, which are conducted iteratively during the learning process, summative assessments are administered to determine the overall academic achievement of students within a defined period or activity. These assessments are marked by their comprehensive nature, offering a holistic evaluation of the extent to which students have acquired the expected knowledge and skills.

The central characteristic of summative assessments is their scoring and grading mechanism, as highlighted by Nitko (1995). This distinguishes them from formative assessments, as summative assessments result in quantifiable scores or grades. Teachers employ various instruments, including tests, assignments, and projects, to measure students' performance objectively. The outcomes of these assessments provide a quantitative summary of students' achievement levels, offering a standardized measure of their proficiency at the conclusion of the instructional period.

Mctighe and O'Connor (2005) aptly describe summative assessments as the "aggregate of students' learning." This characterization emphasizes the cumulative nature of these assessments, which encapsulate the entirety of what students have learned over the specified period. Summative assessments serve as a capstone evaluation, providing a comprehensive overview of students' academic accomplishments and their ability to meet the learning objectives set forth in the curriculum.

The role of summative assessments extends beyond individual students to inform broader educational decisions. Educational institutions and policymakers rely on the aggregated results of summative assessments to evaluate the effectiveness of instructional programs, curricula, and overall educational strategies. The summative assessment outcomes contribute to the continuous improvement of educational practices, ensuring accountability and promoting the overall advancement of the educational system.

2.4.1 Concept of School Based Assessments in Sciences

The Ministry of Education has taken a proactive approach to enhance the quality of teaching and learning in classrooms through the implementation of School Based Assessments. Emphasizing assessments as a pivotal tool for improvement, the Ministry recognizes the transformative potential of SBAs in measuring the attainment of skills and competences that extend beyond what can be captured in a single test or examination. This strategic shift from traditional assessment methods aligns with the Ministry's commitment to fostering a more comprehensive and meaningful educational experience.

SBAs, as outlined by the Ministry of Education, serve a dual purpose. Firstly, they address the limitations of one-off tests that may only assess a narrow set of skills and techniques. By adopting a more continuous and inclusive assessment approach, SBAs provide a broader scope for evaluating learners' abilities, handling various apparatus, and comprehensively addressing

the curriculum. This departure from a narrow examination-focused approach ensures that learners are exposed to a diverse range of skills and techniques, contributing to a more holistic educational experience.

Furthermore, SBAs play a crucial role in widening the array of skills and techniques to which learners are exposed. This exposure goes beyond the confines of conventional examination-oriented teaching. SBAs encourage a more dynamic and interactive learning environment where learners engage with diverse skills and techniques, fostering a deeper understanding and appreciation for the subject matter. Additionally, the implementation of SBAs allows for targeted remedial interventions, ensuring that any gaps in skill acquisition and knowledge are promptly addressed to support students' ongoing development.

However, the effectiveness of classroom assessments, including SBAs, hinges on their ability to truly measure what is expected. As emphasized by the Ministry of Education, the credibility of educational outcomes is contingent upon assessments accurately reflecting the intended objectives. Ensuring the reliability of assessment practices is fundamental to upholding the integrity of the education system and providing learners with a fair and meaningful evaluation of their skills and competences.

The Ministry of Education's implementation of SBAs underscores a commitment to transformative assessment practices aimed at improving the quality of teaching and learning. By addressing the limitations of traditional assessments, SBAs provide a platform for comprehensive evaluation, exposure to diverse skills, and targeted interventions to enhance learners' educational experiences. The emphasis on the trustworthiness of assessment outcomes reinforces the Ministry's dedication to maintaining the integrity and credibility of the education system.

As outlined by Hamidi (2010), the purpose of assessments has undergone a significant paradigm shift, moving from a product-oriented approach to a process-oriented one. The new approach positions assessments as a supportive mechanism for teaching and learning rather than an intrusive force. Assessments are designed to provide valuable information about learners, teachers, schools, and other stakeholders, fostering an environment where the focus is on understanding and supporting individuals rather than merely evaluating outcomes. This transformative shift aligns assessments with the broader goal of serving both student selection and certification based on clear criteria rather than normative standards. In embracing this

process-oriented approach, assessments are viewed as tools for accountability rather than as instruments that impact the teaching and learning process negatively. Hamidi (2010) highlights that assessments should act as accountability tools, ensuring transparency and responsibility in the educational system. This implies a departure from punitive measures and a move towards fostering a culture of continuous improvement. The integration of assessments with curriculum and instruction becomes a key aspect of assurance, reinforcing the idea that assessments are not separate entities but integral components of the overall educational process.

The implications of this shift in approach are extensive, placing increased demands on various stakeholders within the educational ecosystem. Learners, teachers, parents, teacher trainers, administrators, curriculum developers, and communities are all affected by the transition to a process-oriented assessment framework. The broader participation at the district and school levels necessitates a collaborative effort to align assessment practices with the evolving educational landscape. This collective responsibility underscores the interconnectedness of stakeholders in shaping an educational environment that prioritizes meaningful learning experiences. Within this framework, School Based Assessments emerge as a continual activity aimed at improving the quality of instruction and motivating learners to engage in the learning process (Gronlund, 2006). SBAs, situated within the process-oriented approach, become dynamic tools for teachers to enhance their instructional methods and for learners to actively participate in their own educational journeys. The emphasis on continual assessment reinforces the idea that learning is an ongoing, iterative process rather than a static endpoint.

The evolution of the purpose of assessments, as elucidated by Hamidi (2010), signifies a fundamental shift towards a more supportive, accountable, and integrated approach. This shift has broad implications for various stakeholders in the education system, demanding a collective effort to adapt to the evolving landscape. Embracing assessments as dynamic components of the educational process aligns with the principles of continuous improvement, transparency, and a holistic view of teaching and learning.

The integration of school-based assessments into the conventional teaching and learning process signifies a fundamental transformation in the assessment landscape. Rather than being a standalone evaluation tool, school-based assessments have become an integral part of the educational journey, contributing to a more responsive and valid assessment of learning. This approach recognizes that assessments should not be detached from the broader teaching process but should actively inform and shape the learning experience.

School-based assessments necessitate an increased level of personal contact with and observation of learners. As highlighted in the literature, this aspect of assessment underscores the importance of direct engagement between teachers and students. The emphasis on personal contact allows educators to gain a nuanced understanding of individual learning styles, challenges, and progress. This personalized approach facilitates a more tailored and effective instructional strategy, aligning with the principles of student-centered learning.

Furthermore, school-based assessments go beyond being a mere evaluative measure; they are an integral component of students' official grades upon completing specific school levels. This recognition of teachers' evaluations as part of the official grading system emphasizes the significance of continuous assessment in determining students' overall academic performance. It reinforces the notion that learning outcomes are not solely determined by standardized tests but are a culmination of various assessment methods that capture the multifaceted nature of students' abilities and achievements.

In addition to its role in grading, school-based assessments serve as a valuable monitoring device, providing feedback to teachers about the learning progress of their students. This ongoing feedback loop is crucial for educators to adjust their teaching methods dynamically and enhance students' learning skills. The cyclical nature of assessment, feedback, and instructional adjustment forms the backbone of a responsive and iterative teaching and learning process, fostering continuous improvement.

The administration of School-Based Assessments plays a pivotal role in gauging the depth to which learners have assimilated academic concepts. This dynamic assessment approach allows teachers to move beyond traditional metrics and delve into a nuanced understanding of students' comprehension levels. Through varied assessment tasks and a focus on diverse skills, teachers gain insights into the multifaceted aspects of learning. This process goes beyond a simple grading system, enabling educators to tailor their instructional strategies to address individual learning needs and enhance the overall effectiveness of teaching methodologies.

Moreover, SBA serves as a reflective tool for teachers to evaluate the efficacy of their teaching methods. The continuous feedback loop inherent in SBA fosters self-assessment and professional development for educators. By examining the outcomes of SBA, teachers can identify areas of strength and areas that may require adjustment in their teaching methodologies. This reflective aspect enhances the overall quality of instruction, fostering a

commitment to ongoing improvement and ensuring that the educational experience remains dynamic and responsive to the evolving needs of students.

The distinctive features of SBA, as highlighted by Almed and William (1994), include a wide range of assessment tasks and the incorporation of flexible, open-ended questions. This design emphasizes adaptability and responsiveness within the assessment process. The flexibility inherent in SBA allows for easy adjustments, ensuring that assessments align with the unique characteristics of the learning environment and the diverse needs of students. The open-ended questions promote critical thinking and problem-solving skills, offering a more comprehensive and authentic measure of students' understanding and application of concepts. The administration of SBA not only serves as a means to assess learners' assimilation of concepts but also functions as a powerful tool for teacher self-evaluation. The incorporation of diverse assessment tasks and flexible, open-ended questions reflects the adaptability and responsiveness of SBA in educational settings. This approach contributes to a more holistic understanding of student learning and ensures that teaching methodologies are continually refined to meet the dynamic demands of education.

The introduction of School-Based Assessments as a novel concept in Zambian Secondary Schools has encountered challenges in terms of understanding and acceptance among teachers, students, stakeholders, and parents. The transition from the traditional model of relying solely on a single public end-of-year examination has generated confusion and skepticism within the educational community. The unfamiliarity with SBA has led to doubts and concerns about its effectiveness and implications, particularly regarding the shift away from a singular summative exam.

The complexity of SBA as a new assessment approach has raised questions among various stakeholders regarding its purpose and impact on the established norms of accountability and evaluation. The apprehension is rooted in the potential disruption of the longstanding demand for assessment information, especially in terms of promotion results and the monitoring of school performance. The shift towards a more continuous and varied assessment model challenges the traditional expectations and understanding of stakeholders, contributing to a sense of uncertainty and resistance to change.

The concerns surrounding SBA highlight the need for comprehensive communication and education initiatives to bridge the knowledge gap and foster acceptance within the educational

community. Clear communication about the objectives, benefits, and methodologies of SBA is essential to dispel doubts and ensure that all stakeholders are aligned with the transformative goals of this innovative assessment approach. Additionally, targeted efforts to address the specific concerns of teachers, students, and parents can contribute to a smoother transition and the successful implementation of SBA in Zambian Secondary Schools.

School-Based Assessment emerges as a powerful and effective tool within the classroom, requiring a set of skills and practices that foster student interaction to achieve immediate objectives. Recognizing the pivotal role of teachers in advancing the standard of learning, SBA places a greater responsibility on educators to design assessments of high quality that align with students' learning outcomes. This proactive approach ensures that assessments are not merely evaluative but are integral components of the teaching and learning process, contributing to continuous improvement.

In the realm of SBA, teachers are afforded a unique opportunity to continuously monitor the progress of their students and provide constructive feedback that facilitates the enhancement of students' learning abilities. This ongoing monitoring goes beyond traditional assessment methods, creating a dynamic feedback loop that enables teachers to engage with students in a more personalized manner. Constructive feedback becomes a catalyst for improvement, fostering a supportive environment where students can actively participate in their own educational journey, and teachers can adapt their instructional strategies based on real-time insights.

The outcomes of SBA assessments empower teachers to make informed decisions about the trajectory of instruction. Based on the assessment results, teachers can determine whether to continue with a particular topic, introduce a new one, offer additional assistance to students in need, or recommend remedial classes for those facing academic challenges. This nuanced decision-making process reflects the responsiveness and adaptability of SBA, ensuring that the teaching approach is tailored to the specific needs and abilities of the students. The cyclical nature of assessment, feedback, and instructional adjustment underscores the dynamic and interactive nature of the teaching and learning process within the framework of SBA (Brown, 2001).

SBA stands as an invaluable instrument for teachers to elevate the standard of learning in the classroom. Through skillful design and implementation, teachers engage in continuous

monitoring, providing constructive feedback that fosters student improvement. The outcomes of SBA assessments empower teachers to make informed decisions, enhancing the adaptability and responsiveness of the teaching process. This approach not only aligns with the evolving needs of students but also underscores the transformative impact of assessment practices in the educational landscape.

School-Based Assessments present an inclusive and equitable approach to appraising students, emphasizing their natural understanding, abilities, and readiness. This transformative assessment method, as highlighted by Davidson (2007), encourages teachers to employ a diverse range of methods, including quizzes, question and answer sessions, short writing exercises, drama, and role-play. This diversity in assessment methods allows educators to gauge students' learning outcomes in a comprehensive manner, tailoring the evaluation process to the nature and requirements of each subject.

The distinctive characteristics of SBA set it apart from traditional assessment methods. Unlike conventional approaches, SBA places a significant emphasis on teacher involvement in planning the assessment program. Teachers take an active role in designing the assessment framework, identifying appropriate assessment tests, and making informed judgments about students' performance. This participatory role empowers teachers to align assessments with the specific needs and dynamics of their classrooms, fostering a more personalized and contextually relevant evaluation process.

Moreover, the characteristics of SBA extend beyond the assessment itself to encompass a holistic view of the teaching and learning process. The engagement of teachers in planning, designing, and judging assessments underscores the collaborative nature of SBA. It transcends the role of a mere evaluative tool and becomes an integral part of instructional planning. This integration ensures that assessments are seamlessly woven into the educational fabric, promoting a symbiotic relationship between teaching and evaluation that enhances the overall quality and effectiveness of the learning experience.

School-Based Assessments offer a dynamic and inclusive method for appraising students, focusing on their natural abilities, and understanding. The utilization of diverse assessment methods and the active involvement of teachers in the assessment process distinguish SBA from traditional approaches. This approach not only provides a nuanced understanding of

students' learning outcomes but also promotes a collaborative and integrated educational environment that recognizes the multifaceted nature of teaching and assessment.

Furthermore, the distinctive feature of School-Based Assessments lies in its ability to collect samples of students' performance continuously over an extended period. This longitudinal approach offers a more comprehensive understanding of students' progress, allowing educators to track development, identify patterns, and assess the sustainability of learning outcomes. Unlike traditional assessments that often capture a singular point in time, SBA embraces the notion that learning is an ongoing process, and its flexibility enables the collection of diverse performance samples.

Moreover, the adaptability of SBA is a key strength, allowing it to be adopted and modified to align with the specific teaching and learning goals of a particular class. This tailoring ensures that assessments are contextually relevant, addressing the unique dynamics and needs of each classroom. This adaptability is particularly valuable as it allows educators to customize assessments based on the current focus and priorities, fostering a more targeted and effective evaluation of students' abilities and achievements.

Additionally, the locale of SBA in the classroom setting, where students and teachers actively interact, is crucial. This proximity facilitates immediate and constructive feedback, a hallmark of SBA. Students receive timely insights into their performance, enabling them to identify areas for improvement and actively engage in the learning process. The real-time feedback loop not only enhances the effectiveness of assessment but also contributes to a dynamic and responsive teaching and learning environment, promoting continuous improvement.

In addition to its multifaceted nature, School-Based Assessments boast the crucial characteristic of being conducted by the students' own teachers, individuals who are intimately familiar with the students' learning styles, strengths, and challenges. This close association enhances the reliability of the assessment process, as teachers possess a nuanced understanding of each student's academic journey. The direct involvement of the students in the assessment, including elements like peer assessment, fosters a cooperative learning environment. The collaboration between students and teachers not only ensures a more accurate evaluation but also promotes knowledge sharing and the exchange of expertise within the classroom setting.

Furthermore, the transformative impact of SBA is underscored by its role in stimulating continuous evaluation and adjustment of the teaching and learning program. This characteristic

represents a significant innovation in school teaching and learning methodologies. The cyclical process of assessment, feedback, and adjustment ensures that the educational program remains dynamic and responsive to the evolving needs of students. This adaptability is particularly crucial in today's educational landscape, where traditional, static teaching methods may fall short in meeting the diverse learning requirements of students. SBA, as a continuous evaluation tool, complements other forms of assessment, including external examinations, contributing to a holistic and integrated approach to evaluating student progress and promoting a well-rounded educational experience.

The global landscape of education has witnessed a widespread adoption of School-Based Assessments in various educational systems, signifying a shift from the traditional testing and examination culture to a more comprehensive assessment approach. This transformation has been particularly evident in many developed nations, reflecting a recognition of the multifaceted benefits that SBA brings to educational development. The realization of these advantages has fueled the global need to cultivate an assessment culture that goes beyond the constraints of summative evaluations, aligning with research studies highlighting the positive impact of formative assessment or assessment for learning on student outcomes.

Research studies, such as those cited by Adediwura, consistently demonstrate the transformative effects of SBA, particularly in shifting the role of teachers from mere conveyors of information to facilitators of learning. The shift towards a formative assessment approach, as emphasized by Black et al. (2003), engages students as active participants in the learning process. This change is monumental, as it propels students from being passive recipients of knowledge to becoming proactive contributors within the classroom. The benefits of this shift extend beyond traditional models of education, fostering an environment where students are not only recipients but also active builders of their knowledge and understanding.

Furthermore, the emphasis on formative assessment aligns with broader educational goals, nurturing a dynamic and interactive teaching and learning environment. As teachers transition into facilitators, they play a pivotal role in guiding students through their learning journeys. This collaborative approach enhances the educational experience, promoting a more profound understanding of subjects and fostering critical thinking skills. The benefits of SBA are not only confined to individual student outcomes but also contribute to the overall educational development of nations by cultivating a generation of learners equipped with critical thinking skills and active engagement in the learning process.

The widespread adoption of School-Based Assessments reflect a global acknowledgment of its transformative benefits on educational development. The shift from a testing culture to an assessment culture, particularly in developed nations, is substantiated by research evidence highlighting the positive impact of formative assessment on students' learning outcomes. This shift not only redefines the role of teachers but also propels students into active participants, fostering critical thinking and a deeper understanding of subjects. The transition to an assessment culture represents a fundamental paradigm shift, shaping the future of education towards a more dynamic and student-centered approach.

The School-Based Assessments framework serves as a catalyst for continuous evaluation and adjustments within the teaching and learning program. This dynamic process not only allows for the ongoing refinement of educational strategies but also provides teachers with a meaningful opportunity to contribute effectively to the final evaluation of the learner. By actively engaging in the assessment process, teachers become integral to shaping the educational trajectory of each student, ensuring a more personalized and adaptive learning experience.

Moreover, SBA plays a crucial role in providing professional development for teachers, enhancing their assessment skills that extend beyond the assessment itself. These acquired skills are transferable to other areas of the curriculum, positioning teachers as key contributors to education for national development. Empowered with a comprehensive understanding of assessment methodologies, teachers become pivotal in shaping the academic journey of their students, fostering a sense of ownership and responsibility for both progress and challenges in their learners.

The empowerment of teachers through SBA aligns with its emphasis on acquiring basic competencies and skills necessary for survival in the world of work, as highlighted by Tshoko (undated). This emphasis goes beyond traditional academic outcomes, recognizing the importance of equipping learners with practical skills that are essential for their future endeavors. SBA, therefore, serves as a bridge between academic learning and real-world applications, preparing students for the challenges and opportunities they may encounter beyond the classroom.

According to the research conducted by Black and William (1998), the impact of School-Based Assessments, specifically formative assessments, extends to students' motivation, self-esteem,

and confidence. This approach not only influences students' psychological well-being but also contributes to achievement gains in externally mandated examinations. The positive effects of assessment for learning, as identified by Cowie (2005), go beyond academic outcomes and manifest in students' trust and respect for the assessment process. Students' active involvement in assessment interactions with teachers and peers is influenced by their recognition of the significance of respect, creating a conducive environment for meaningful and impactful learning experiences.

The multifaceted benefits of School-Based Assessments, from stimulating continuous assessment and evaluation, and teacher contribution to professional development and emphasis on practical competencies, highlight its transformative impact on education. The integration of assessment for learning principles not only enhances academic outcomes but also nurtures students' motivation, self-esteem, and confidence. The positive effects ripple through externally mandated examinations, reinforcing the importance of SBA in shaping a holistic and empowering educational experience.

The adoption of School-Based Assessments marks a significant shift in teachers' perceptions of their roles in the educational process. As highlighted by Black et al. (2003), the introduction of SBA prompts teachers to view their role not merely as delivering curriculum content but as facilitators of students' learning. This change in perception underscores the transformative impact of SBA, encouraging teachers to embrace a more dynamic and student-centered approach to education. Rather than simply completing a set curriculum, teachers now recognize the importance of actively engaging students in the learning process and fostering a deeper understanding of the subject matter.

Furthermore, School-Based Assessments reshape teachers' perceptions of students' abilities. Instead of viewing students as possessing fixed levels of ability, teachers, with the implementation of SBA, become attuned to the potential for improvement with appropriate assistance and support. This shift in perspective aligns with the principle that every student has the capacity for growth and development, given the right educational environment. Hall et al. (1997) emphasize that the necessity to assess students throughout the school session compels teachers to plan their teaching in greater depth. This intentional planning not only facilitates ongoing assessment but also enhances teachers' awareness of the importance of closely monitoring students' work.

The heightened awareness of teachers regarding the importance of keeping a close eye on students' work translates into more informed judgments of students' abilities. This increased focus on ongoing assessment contributes to a more nuanced understanding of individual student needs, strengths, and areas for improvement. The continuous monitoring of student progress not only supports better assessment practices but also directs teachers' attention to areas where additional support or tailored teaching methods may be beneficial.

Moreover, the shift in perception brought about by SBA extends beyond the assessment process itself. Teachers, now more cognizant of the dynamic nature of student learning, become more focused on their teaching methods. The ongoing assessment requirements foster a greater emphasis on effective teaching strategies, encouraging teachers to adapt their approaches based on the evolving needs and progress of their students. This adaptability is a fundamental aspect of the transformative impact of SBA on teachers' pedagogical practices.

Finally, the introduction of School-Based Assessments significantly alters teachers' perceptions of teaching and their roles within the educational framework. The shift towards viewing teaching as a facilitative role, coupled with a nuanced understanding of students' potential for improvement, highlights the transformative nature of SBA. The ongoing assessment requirements not only prompt deeper planning and awareness but also lead to more informed judgments, better focus on teaching, and an increased emphasis on adaptability in response to students' evolving needs. This shift in perception underscores the broader impact of SBA on the educational landscape, encouraging a more dynamic and student-centered approach to teaching and learning.

2.5 Classroom Assessment Environment

The intricacies of classroom assessment tasks necessitate a nuanced understanding of the psychology of learning, emphasizing individual differences, and the social or ecological aspects inherent in the classroom context. As aptly noted by Brookhart (2001), the planning and delivery of assessment tasks within a classroom setting bring forth the need to reconcile the psychological dimensions of learning with the diverse characteristics of individual learners. This dynamic interplay between individual learning processes and the broader social context underscores the complexity of classroom assessment and necessitates a comprehensive approach to instructional strategies.

Building upon this understanding, Brookhart, and Bronowicz (2003) introduce the concept of the "classroom assessment environment." This term encapsulates the milieu in which assessments and instruction unfold, recognizing the interconnection between the psychology of individual differences and the social dynamics within a group or class. Discussions around the classroom assessment environment delve into how the unique characteristics of individual learners are situated within the broader social context of the classroom. This conceptualization is crucial in unraveling the multifaceted nature of assessments and instructional practices, acknowledging that the learning experience is not only influenced by individual cognitive processes but also by the social dynamics at play within the group.

Within the classroom assessment environment, the use of feedback by students becomes a critical aspect, both at the individual and collective levels. The influence of the assessment environment on the reception and utilization of feedback is an intricate interplay between individual learners and the broader social setting. This perspective aligns with the acknowledgment that the classroom is not merely a collection of isolated learners but a social setting where interactions, dynamics, and group processes significantly impact the learning experience. The effectiveness of feedback, therefore, becomes contingent on understanding and navigating the nuanced dynamics of the classroom assessment environment.

The amalgamation of the psychology of learning, with its emphasis on individual differences, and the social or ecological aspects of the classroom context forms the intricate tapestry of the classroom assessment environment. The concept introduced by Brookhart and Bronowicz (2003) underscores the importance of recognizing the interconnectedness of individual psychological processes and social dynamics within the classroom. This perspective prompts a holistic approach to assessment and instructional strategies, acknowledging the unique characteristics of each learner within the broader context of the classroom environment. The examination of feedback utilization at both individual and collective levels further emphasizes the need for a nuanced understanding of the classroom assessment environment to enhance the efficacy of instructional practices and assessments.

Given the significance of the classroom assessment environment and the pivotal role of individual assessment events within this environment, it becomes imperative to explore the challenges faced by teachers in executing effective classroom practices. The challenges within this context are multifaceted, encompassing aspects of preparation, execution, and feedback integration. Understanding and addressing these challenges are crucial for optimizing the

potential of classroom assessment as a holistic and impactful tool for student learning and teacher development. The decision to explore challenges faced by teachers in their classroom practices acknowledges the complex interplay of factors within this educational context and emphasizes the need for targeted interventions to enhance the efficacy of classroom assessment in promoting meaningful learning outcomes which this study assessed in the case of SBAs in Zambia.

From a cognitive constructivist standpoint, assessments serve as tools through which teachers and learners construct schemas and integrate representations into their existing frameworks of self-perception, teaching and learning, and the broader curriculum. This dynamic process involves the incorporation of knowledge and beliefs derived from assessments, leading to the formation of intentions to use and the actual implementation of assessment findings. Brookhart's recognition of the reciprocal relationship between users and assessment information underscores the transformative potential of assessments in shaping educational perspectives.

The interplay between routine teacher assessments and learners' understanding of successful learning, as emphasized by Raveaud (2004), underscores the continuous and influential role of regular assessments in shaping educational perspectives. Brookhart's (2001) cognitive constructivist perspective adds depth to this understanding by recognizing the dual agency of both learners and teachers in actively using assessment information. The integrative nature of assessments, as proposed by the cognitive constructivist perspective, extends beyond the accumulation of knowledge to the construction of comprehensive cognitive frameworks, reinforcing the transformative potential of assessments in shaping educational paradigms.

2.6 Assessment Policy in Education around the World

Across the globe, education systems are undergoing transformative reforms, encompassing changes in curriculum structures and examination methodologies. The primary goal of these reforms is to enhance the quality of education provided, fostering the development of citizens who are not only productive contributors to society but also instrumental in elevating the overall standards of the nation. As highlighted by AEAA (2018), these educational transformations have been prompted by a confluence of factors, including technological advancements, evolving demands on contemporary learners, and an expanded understanding of diverse learner needs.

The impetus for reforming educational assessments stems from a profound realization that traditional assessment paradigms are no longer aligned with the demands of the modern era. AEAA (2018) underscores the imperative nature of redefining learner assessment, recognizing that the multifaceted landscape of education requires a recalibration of assessment methodologies. This acknowledgment reflects a commitment to adapt and tailor assessments to better cater to the evolving needs and expectations of learners in the face of technological progress and dynamic educational environments.

The recognition of the ever-growing demand on the modern-day learner is a pivotal factor driving the need for assessment reform. The traditional approaches to assessment may fall short in capturing the diverse skills, competencies, and capacities that contemporary learners are expected to possess. AEAA (2018) aptly articulates the essence of this realization, emphasizing the essential role of assessments in aligning with the nuanced requirements of a technologically advanced and globally connected society.

The ongoing reforms in education, particularly in the realm of assessments, signify a paradigm shift aimed at meeting the evolving needs of learners. The multifaceted nature of these reforms, encompassing technological advancements, changing learner dynamics, and an expanded understanding of educational diversity, underscores a commitment to fostering a more responsive and effective educational system.

The education system shoulders a profound responsibility in realizing the aspirations and goals of a nation. Central to this responsibility is the process of assessment, which serves as the means of measuring the knowledge, skills, and values that learners are expected to acquire. Assessments play a crucial role in gauging the effectiveness of the teaching and learning process, offering insights into both strengths and weaknesses. This, in turn, becomes the catalyst for continuous improvements and innovations within the educational landscape.

Within the realm of assessment models, Continuous Assessments (CA) emerges as a dynamic approach that advocates for the seamless integration of assessment into the teaching and developmental aspects of learners, facilitated through ongoing feedback. Unlike traditional assessment methods, CA is not confined to isolated instances but unfolds throughout the duration of a grade or course. It operates as a dynamic process, providing a comprehensive understanding of a learner's achievements over time.

One of the distinctive features of Continuous Assessments is its commitment to informing and supporting the learner's development. The ongoing nature of assessments within this model ensures that learners receive timely and relevant feedback, fostering a more interactive and responsive learning environment. Moreover, the insights gained from continuous assessment contribute not only to individual learner development but also serve as a valuable resource for enhancing the overall learning and teaching processes.

In essence, Continuous Assessment serves as a transformative model that goes beyond mere evaluative measures. It is a dynamic tool that not only assesses learner achievements but actively contributes to the iterative improvement of the education system. Through ongoing feedback and a commitment to the developmental journey of each learner, Continuous Assessment aligns with the evolving needs of modern education, reflecting a dedication to holistic educational growth.

Continuous Assessment, embraced by numerous countries, stands out as a preferred model due to its ability to provide comprehensive evidence that uniformly covers the intended outcomes of a particular subject. This approach acknowledges the multifaceted nature of learning and aims to capture the diverse aspects of a learner's capabilities over time. The emphasis on spreading assessments evenly aligns with the recognition that a holistic understanding of a student's progress involves continuous observation and evaluation, rather than relying on singular, high-stakes evaluations.

Countries such as Australia, Finland, Greece, Malaysia, Hong Kong, Tanzania, South Africa, and Zambia have actively implemented School-Based Assessments as part of their educational strategies. The global adoption of SBAs reflects a shared acknowledgment of the limitations associated with traditional, summative assessments. SBAs, characterized by their continuous and varied evaluation methods, enable a more nuanced understanding of students' strengths and weaknesses. This approach resonates with the evolving educational philosophies that prioritize ongoing feedback and learner-centric development.

The implementation of SBAs across diverse nations underscores a universal recognition that assessments should align with the principles of equity, fairness, and comprehensive understanding. By adopting continuous assessment practices, these countries signal a departure from rigid, one-size-fits-all evaluation approaches, emphasizing a commitment to fostering a dynamic and responsive educational environment that prioritizes the individual growth and

achievement of each learner. Through this approach, countries aim to cultivate a more inclusive, supportive, and effective educational landscape.

2.6.1 Malaysian Education

According to Wilhelm and Chen Pei (2008) and Faizah A. Majid (2011), since the mid-1970s number of Asian countries have been concerned with economic reforms which in turn have brought about various improvements in the education system. Amongst the reforms that Malaysia implemented were the use of English language as a medium of instruction for mathematics and Science from 2004 to 2009, the revamp of primary education examinations in standard five and a new assessment system in Malaysian public schools to replace centralized examinations (Faizah A. Majid, 2011). These assessments were conducted centrally under close supervision from planning of examinations to preparation of the papers, administration over a period of weeks and marking and keeping of the records.

According to the Malaysian Ministry of Education, Malaysia came up against a transforming education in curriculum and assessments which saw the establishment of a new system which comprised of Centralised examinations and SBA whose policies and guidelines were tasked to Malaysian Teacher Education Division (TED) to formulate. As Faizah A. Majid (2011) puts it, teachers have been given authority to conduct assessments to their students. SBA is planned, administered, scored, recorded, and reported systematically according to procedures fixed by Lembaga Peperiksaan Malaysia (LPM) Ministry of Education, (2012) In Malaysia, SBA is considered as a new innovation which was introduced in order to replace centralized Examinations (Faizah, 2011). Before SBA was introduced, students needed to sit for three national examinations. According to the Malaysia Education Blue Print 2013-2025, students UPSR results would be derived from both SBA and national examinations.

The National Philosophy of Education declares “Education in Malaysia is an ongoing effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, Spiritually, emotionally and physically balanced and harmonious” Ministry of Education, (2012), Siti Najihah Jamal, Sharifah Nurafah S. Abd Rahman, Nor Nabila Sujak, Saravanan A/L Maniam, Sharifah Nasriag Wan Obeng, Tan Yee Ching and Vickneswary Bathumali.

SBA sits well with the pronouncement as it was “launched to assess students holistically through their intellectual, emotional, spiritual and physical aspects” Ahmad & Wartti, (2014)

thus SBA is considered “a huge effort in realizing and achieving the country’s aspirations” Siti Najihah et al. SBA in Malaysia is divided into four components as stated in the Malaysian Education Blue Print 2013-2025, Ministry of Education, (2012) and Siti Najihah et al which are “School assessments, central assessments, Psychometric assessments as well as Physical, sports and co-curricular activities. These are further broken down to different types of tests which are written tests, project work, aptitude tests assessment in physical and health education. These allow students to be assessed in various skills and not just memory skills which are usually tested in one off examinations. Learners are thus assessed in a more comprehensive and balanced way Siti Najijah et al (2013)

In terms of class size, according to Malaysian Educational Statistics, (2003) the number of students in one class could reach 30 students or maybe more than that Siti Najijah et al (2013). The study of Mansor, Vikaraman, & Medina, (2019) indicates that the participants and other researchers, training is needed for teachers to learn more about the new strategies in implementing SBA. Majid (2011) stated in his research that teachers claimed they needed time management training. One of the participants from this study claimed that she has not been for official training but had only attended the training in the school (Chapman, Tan, & Tan, 2010). The government also acknowledged the importance of training to support teachers in implementing this new system. As such, the training programmes or the workshops should be increased, and every teacher should be given the opportunity to attend these programmes (Chapman, Tan, & Tan, 2010).

The principal’s role in transferring skills, opportunity and knowledge as well as giving best support during a change in the education system is vital. In addition, there are major concerns from teachers about heavy workloads in preparing teaching or assessment materials, as well as other management work related to SBA. Although the monthly or semester-based exam have been removed, teachers still think that their workload is heavy (Majid, 2011).

The governing authorities and other stakeholders should help teachers by providing sufficient teaching materials or more collaboration time for teachers to discuss and exchange ideas and work together to decrease the time used in planning (Majid, 2011). Majid (2011), Malakolunthua and Hoonb (2010) report that the School-Based Assessment was a new venture in the Malaysian school system. Unfortunately, insufficient guidelines for teachers on the implementation of the School-Based Assessment, ineffective knowledge-base of teachers, and

lack of proper external monitoring created hurdles in the successful implementation of School-Based Assessment.

2.6.2 Finnish Education

Finland stands out as a global leader in international assessments, consistently ranking at the top in the Programme for International Student Assessment (PISA). This exceptional performance has been attributed to various factors, one of which is the absence of national examinations or standardized testing for students in Finland. Kupiaiu et al. (2009) highlight this distinctive feature, emphasizing that Finnish students are not subjected to national examinations unless they choose to pursue further education after completing secondary school, as noted by Siti Najihah Jamal et al. (2011).

A key aspect contributing to Finland's success is the limited class size, where the maximum number of students is capped at 20, with an optimal number of 12 students per class. This unique approach ensures an intimate and conducive learning environment. As Katie (2011) suggests, the smaller class sizes provide teachers with a significant advantage and they have ample time to focus on each learner individually, tailoring their teaching to cater to diverse needs. This personalized attention not only enhances the quality of instruction but also contributes to the overall well-being and academic success of students.

The emphasis on smaller class sizes in Finland positively impacts teachers' morale, fostering a sense of professional satisfaction and accomplishment. With manageable class sizes, educators can establish strong connections with their students, address individual learning styles, and create an atmosphere conducive to effective teaching and learning. The Finnish model showcases how thoughtful educational policies, such as limited standardized testing and smaller class sizes, can contribute to a successful and globally competitive education system.

In Finland, the assessment of students is approached with a focus on guiding and motivating them to engage in self-assessment and reflective practices, as highlighted by Linda (2008). The Finnish educational system employs three main types of assessments, catering to different stages of a student's academic journey. These assessments include in-classroom assessment, final assessment at the end of basic education, and the matriculation examination.

The in-classroom assessment is an ongoing process conducted by teachers during the course, using predefined criteria from the national curriculum. This type of assessment serves the

purpose of guiding students throughout their learning journey, providing regular feedback to enhance understanding and progress. The emphasis on continuous assessment during the course aligns with the broader goal of promoting self-assessment and reflection among students, fostering a sense of ownership over their learning experiences.

The final assessment at the end of basic education represents a pivotal moment in a student's academic path. Siti Najihah Jamal et al. (2011) point out that the primary objective of this assessment is to underscore the importance of studying among students. It serves as a comprehensive evaluation to determine whether the stated objectives of a course have been successfully achieved. This approach encourages students to reflect on their overall performance, providing them with valuable insights into their academic strengths and areas that may require further attention.

The matriculation examination represents the culmination of the Finnish education system and is the final form of assessment. This high-stakes examination assesses students' readiness for further education and is a significant factor for those planning to pursue tertiary studies. The multifaceted assessment framework in Finland, coupled with an emphasis on continuous assessment and reflection, contributes to a holistic and student-centric approach to education.

In Finland, the approach to assessments, as highlighted by Kasanen et al. (2003), goes beyond the conventional perception of tests solely for evaluation purposes. Tests in the Finnish education system serve a dual role, acting as tools for formative assessment while also being integrated seamlessly into the learning experiences of students. This distinctive perspective transforms tests into valuable components of the overall learning process, encouraging students to view them as integral elements of their educational journey.

The scaled National Board of Education system, as outlined by Kasanen et al. (2003), further underscores Finland's commitment to a comprehensive and student-centered assessment framework. This system incorporates various assessment methods, such as school-based assessments, open-ended tasks, and student-centered learning approaches. The diversity in assessment methodologies reflects a nuanced understanding of the multifaceted nature of learning and acknowledges the need for tailored approaches to meet individual student needs.

By intertwining assessments with learning experiences, Finland creates an environment where students perceive assessments not as isolated evaluative events but as integral components that contribute to their overall growth and understanding. This approach aligns with the broader

philosophy of fostering a holistic and student-centric educational system, emphasizing the intrinsic link between assessments and the ongoing learning journey of each student.

2.6.3 Hong Kong Education

In Hong Kong, a significant shift in the structure of secondary school education occurred in 2005, marking a departure from the traditional British model. The new framework adopted a 3+3+4 academic year structure, where students undergo three years of junior secondary education, followed by three years of senior secondary education, and finally, four years of university degree studies. This restructuring was a substantial transformation that aimed to align the educational system with evolving needs and global standards.

A crucial aspect of this educational overhaul in Hong Kong was the elimination of two national examinations, namely the Hong Kong Certificate of Education Examination (HKCEE) and the Hong Kong Advanced Level Examination (HKALE). These examinations were supplanted by a singular and comprehensive assessment known as the Hong Kong Diploma of Secondary Education (HKDSE). The consolidation of examinations aimed to streamline the assessment process and provide a more cohesive evaluation of students' academic capabilities.

Central to the reform was the introduction of school-based assessments, a novel approach that emphasizes assessments conducted within the school setting. This departure from traditional national examinations reflects an acknowledgment of the limitations of standardized testing and a commitment to a more holistic evaluation of students' abilities. The SBA framework allows for a nuanced understanding of students' progress, considering factors beyond academic performance and fostering a more comprehensive approach to education.

Hong Kong's educational restructuring demonstrates a forward-looking approach that integrates contemporary pedagogical practices. The incorporation of SBA reflects a commitment to cultivating a learning environment that recognizes the diverse talents and capacities of students, moving away from a one-size-fits-all examination system towards a more flexible and inclusive model.

The introduction of School-Based Assessment in Hong Kong heralded a transformative learning environment for students, marking a departure from conventional assessment methods. According to Peter and Wan (2006), a primary motivation behind the incorporation of SBA was to enhance the validity of assessments among students. This shift reflects a

commitment to ensuring that assessments accurately capture the diverse skills and competencies of each student, moving beyond a one-size-fits-all approach to evaluation.

An essential goal of implementing SBA in Hong Kong was to underscore student-centered learning. The emphasis on this pedagogical approach reflects a recognition of the importance of tailoring education to individual student needs and fostering a more participatory and engaging learning experience. By incorporating SBA, educators sought to move away from a rigid examination-centric model, thereby reducing the undue pressure associated with high-stakes exams.

In the context of SBA in Hong Kong, the assessment weighting is a critical aspect of the evaluation process. The allocation of specific percentages to different components, such as papers and SBA, is a deliberate effort to provide a comprehensive evaluation of students' performance. For instance, the specified distribution, such as 25% for SBA, 30% for paper 1, 20% for paper 2, and 25% for paper 3, offers transparency and fairness in determining the overall academic achievement of students. This nuanced approach allows for a more holistic understanding of students' capabilities, encompassing both formal examination results and ongoing, classroom-based assessments.

The percentage distribution not only reflects the significance of SBA in the overall assessment but also communicates a commitment to a balanced evaluation framework. This multifaceted approach aligns with the broader goals of education, emphasizing the development of critical thinking, creativity, and practical skills alongside traditional academic achievements. The introduction of SBA in Hong Kong thus signifies a commitment to fostering a dynamic, student-centric learning environment that prepares individuals for the challenges of the future.

In contrast to the scoring system employed in Malaysia, Hong Kong utilizes a nuanced approach to define students' levels of achievement through a system of cut scores. Rather than relying on broad bands, Hong Kong employs cut scores that represent five distinct levels of performance, with level 5 being the highest and "u" denoting unclassified performance falling below the cut score for level one. This meticulous grading system allows for a more granular and precise evaluation of students' capabilities, providing a detailed insight into their academic achievements.

The use of cut scores in Hong Kong's assessment framework is accompanied by a comprehensive set of standards that outline specific descriptions of what students can do for

each performance level. This emphasis on detailing the positive aspects of students' achievements fosters a constructive and encouraging learning environment. By highlighting what students can accomplish at each level, the assessment process goes beyond a mere classification of performance and becomes a tool for motivating students to strive for higher levels of accomplishment.

The positive reinforcement embedded in Hong Kong's approach to reporting student performance is pivotal in encouraging a growth mindset among students. Rather than focusing solely on limitations or areas of improvement, the emphasis on what students can do instills confidence and motivates them to work diligently toward their educational goals. This approach aligns with contemporary pedagogical philosophies that emphasize nurturing the holistic development of students, acknowledging their strengths while providing targeted support for areas that require improvement.

Moreover, the incorporation of detailed descriptions for each performance level serves as a valuable guide for both students and educators. It offers a roadmap for understanding the specific competencies associated with each level, facilitating informed discussions on progress and areas for development. This transparency enhances the educational process, promoting a collaborative effort between students and teachers to achieve academic excellence. Overall, Hong Kong's use of cut scores, coupled with positive and detailed performance descriptions, represents a forward-thinking approach to assessment that prioritizes individual growth and continuous improvement in the learning journey.

2.7 African Perspective

2.7.1 South African Education

The implementation of School-Based Assessments in various African countries, including South Africa, Tanzania, and Zambia, has been a significant shift in the approach to student evaluation. In South Africa, the National Protocol for Assessment (NPA) introduced crucial changes to the assessment landscape. Firstly, the NPA emphasizes the importance of formal assessments, alongside informal or daily assessments, providing a comprehensive view of student progress. Secondly, the framework underscores the various types of assessments and places a strong emphasis on School-Based Assessment, making it a mandatory component for progression and promotion across different school phases.

The NPA and the Curriculum and Assessment Policy Statement (CAPS) aim to evaluate learners' performance against explicit and shared criteria. This approach fosters collaboration among educators, learners, and other stakeholders in the assessment process. It ensures a clearer understanding of the skills, attitudes, and forms of knowledge that learners are expected to demonstrate as desired outcomes. This paradigm shift encourages a more holistic and learner-centric perspective in the assessment process.

Performance assessment has gained prominence in South Africa, reflecting a move towards evaluating learners in areas traditionally overlooked by traditional assessments. This includes aspects like participation in discussions, speeches, debates, and project work. The broader scope of performance assessment aligns with the evolving understanding of learning outcomes and seeks to capture a more comprehensive view of students' capabilities beyond conventional test scores.

Furthermore, the recognition of the need to diversify assessment methods and approaches is a notable aspect of the changing assessment landscape. Educators are encouraged to explore a wide range of assessment tools, recording methods, and reporting mechanisms. This recognition underscores the importance of flexibility and innovation in the assessment process, acknowledging that learners may demonstrate their understanding and skills in various ways. It also aligns with the goal of promoting a more inclusive and student-friendly evaluation system.

The implementation of School-Based Assessment in African countries reflects a broader shift in educational paradigms, emphasizing a more comprehensive, learner-centric, and performance-oriented approach to assessment. These changes aim to align assessment practices with the evolving needs of education systems and the diverse capabilities of learners, fostering a more holistic understanding of student achievement.

The transformation in the assessment framework, as outlined by the Department of Education (DoE, 2007), signifies a departure from a singular reliance on tests and examinations as the sole means of evaluation. Instead, it advocates for a diversified approach to assessment, acknowledging that tests and examinations are just one facet of a broader array of assessment strategies. This shift aligns with contemporary educational philosophies that emphasize a multifaceted evaluation system to capture the diverse capabilities and learning styles of students more accurately.

The continued inclusion of tests and examinations within the larger battery of assessment strategies implies a balanced and comprehensive approach. While these traditional assessment methods offer valuable insights into students' understanding, the broader array of strategies ensures a more nuanced and holistic understanding of their overall performance. By embracing a variety of assessment tools, educators can gain a richer perspective on students' strengths, weaknesses, and areas for improvement.

Moreover, the new assessment framework underscores a collaborative model in learning and assessment. It envisions a three-way process involving the learner, the educator, and the parent in an ongoing assessment dialogue (DoE, 2007). This collaborative approach recognizes the importance of involving all stakeholders in the educational journey, fostering a sense of shared responsibility for students' progress. By encouraging active participation from learners, educators, and parents, the assessment dialogue aims to create a supportive and constructive environment that enhances the overall learning experience.

The research conducted by Chipfiko and Maphosa (2020) in South Africa shed light on a crucial aspect requiring attention – teachers' collaboration with students and colleagues in the implementation of school-based assessment. The findings underscore the importance of fostering a collaborative environment where teachers work closely with their students and colleagues to address the challenges associated with SBA effectively. This collaboration is instrumental in navigating the complexities of the assessment process and ensuring its successful integration into the educational landscape.

According to the study, teachers expressed a need for enhanced collaboration with their students, emphasizing the importance of clarifying students' roles in the context of SBA. This points to a gap in understanding or communication that can be bridged through collaborative efforts. When students have a clear understanding of their roles within the SBA framework, it contributes to a more effective and participatory assessment process. Additionally, involving students in the assessment dialogue fosters a sense of ownership and engagement in their own learning journey.

Furthermore, the study indicates that teachers recognize the significance of feedback from students and advocate for its thoughtful consideration. Feedback from students serves as a valuable resource for educators, providing insights into the effectiveness of the assessment methods and the overall learning experience. The collaborative approach advocated by the

research encourages teachers to not only seek but also act upon relevant feedback, allowing for necessary modifications that align with the unique needs and preferences of the students. This dynamic collaboration between teachers and students becomes a cornerstone for refining the SBA process and ensuring its positive impact on the educational landscape.

According to Samsudin et al. (2014), the successful implementation of the School-Based Assessments system is contingent upon the support and provision of adequate facilities by school management. This underscores the crucial role played by educational institutions in facilitating the transition to new assessment methods. The involvement of school management is not only vital for the effective execution of the SBA system but also reflects the organizational commitment required for the successful integration of innovative educational practices.

In a parallel study conducted by Veloo et al. (2015) focusing on teachers' knowledge and readiness for SBA implementation, two noteworthy findings emerge. Firstly, the success of SBA is intricately linked to teachers' knowledge and preparedness in embracing the new assessment paradigm. This emphasizes the pivotal role that educators play in the effective implementation of SBA, as their understanding and readiness significantly influence the outcomes of the assessment process. Secondly, the study reveals that teachers often perceive their knowledge level as incomplete, indicating a potential gap in the understanding of the SBA system. This highlights the importance of continuous professional development initiatives to enhance teachers' confidence and competence in navigating the intricacies of the new assessment approach.

The research by Veloo et al. (2015) also suggests that educational authorities need to take additional initiatives to bolster teachers' confidence and readiness for SBA implementation. This recognition of the need for ongoing support and training underscores the dynamic nature of educational reforms and the importance of fostering a learning environment that equips educators with the necessary knowledge and skills to navigate transformative changes in assessment practices.

2.7.2 Zambian Educational Policy on School Based Assessment

In Zambia, the concept of continuous assessment (CA) is elucidated as an ongoing, diagnostic, and classroom-based process, utilizing diverse assessment tools to gauge learner performance, as delineated by the Ministry of Education (MOE, 2005:5). Historically, examinations in

Zambia primarily served the purposes of selection and certification, without incorporating the formal integration of school-based continuous assessment into final examinations across various grade levels. Recognizing the need for a comprehensive approach to assessment, the Ministry of Education introduced School-Based Continuous Assessment, driven by two principal objectives. Firstly, the initiative aims to enhance the quality of teaching and learning by promoting an ongoing and diagnostic assessment process within the classroom context. Secondly, it seeks to aggregate school-based marks derived from continuous assessment into the final examination marks, thereby influencing certification and selection outcomes (MOE, 2005).

This shift in assessment practices reflects a broader commitment to fostering a more holistic and student-centric approach to education in Zambia. By incorporating continuous assessment into the educational landscape, the authorities aim to create a more nuanced understanding of learner performance that goes beyond the limitations of traditional examinations. The dual purpose of improving teaching and learning while integrating school-based marks into certification underscores the multifaceted role that continuous assessment plays in shaping the educational landscape in Zambia. The introduction of School-Based Continuous Assessment aligns with the global trend toward more dynamic and formative assessment practices that cater to the diverse learning needs of students.

As Zambia endeavors to refine its educational assessment system, the incorporation of School-Based Continuous Assessment signifies a progressive step toward creating a more comprehensive and nuanced evaluation of student achievement. This move reflects an acknowledgment of the multifaceted nature of learning and aims to provide a more holistic perspective on student performance that extends beyond the confines of traditional examinations.

The advent of Outcome-Based Education (OBE) in Zambia, coupled with the concomitant Policy Framework for Assessment, reflects the nation's alignment with international educational trends and the evolving landscape of assessment practices (Pryor and Lubisi, 2002). This paradigm shift acknowledges the global discourse on reassessing the role and purposes of assessments, a phenomenon observed in various countries worldwide, including Zambia, where the National Curriculum Statement is currently implemented. The National Curriculum Statement serves as a comprehensive policy directive governing the dynamics of learning and teaching in Zambian schools. This seminal document encompasses the National

Curriculum and Assessment Policy Statement for each sanctioned school subject, delineating the guidelines for the program and promotion requirements within the broader framework of the National Curriculum Statement.

Within the purview of Outcome-Based Education, the focus shifts from traditional rote learning and examination-centered approaches to a more holistic educational experience that emphasizes the attainment of specific learning outcomes. This transformative approach to education places a premium on equipping learners with practical skills and competencies, aligning with global educational paradigms that emphasize not only academic achievement but also real-world applicability. The Policy Framework for Assessment serves as a crucial companion to OBE, delineating the principles and guidelines for evaluating learners' performance in a manner that aligns with the broader educational objectives outlined in the National Curriculum Statement.

In the Zambian context, the integration of OBE and the Policy Framework for Assessment signifies a deliberate effort to modernize and align the education system with contemporary global standards. This shift underscores the commitment to fostering a more learner-centric and competency-driven approach, where assessments serve as instruments not only for gauging academic knowledge but also for evaluating practical skills and the application of knowledge in real-world scenarios. By embracing these international trends in assessment and educational philosophy, Zambia positions itself on the forefront of educational innovation, preparing its learners for the multifaceted demands of the 21st century.

The introduction of Outcome-Based Education (OBE) in Zambia marked a transformative shift in the perception and execution of assessments. One of the key changes brought about by OBE is the explicit articulation of the purposes and criteria that govern assessments. Unlike traditional approaches, OBE provides clear guidelines and criteria that serve as a transparent framework for both learners and teachers. This transparency allows learners and educators to use assessment criteria as a foundational basis for decision-making about the learning process. Consequently, this structured approach fosters a more informed and collaborative learning environment, wherein teachers gain a comprehensive understanding of what learners know and can do.

In the context of Outcome-Based Education, assessments extend beyond a mere measurement of knowledge acquisition. They delve into the intricacies of how knowledge is acquired,

emphasizing the process of learning rather than just the outcomes. This shift signifies a departure from rote memorization and examination-centered paradigms, focusing instead on understanding the methodologies learners employ to acquire knowledge. In essence, Outcome-Based Assessments are concerned not only with the end results but also with the journey of learning, acknowledging the diverse pathways learners may traverse in their educational endeavors.

Furthermore, OBE-driven assessments are attuned to identifying and addressing barriers to achievement. By recognizing and addressing challenges faced by learners, educators can tailor interventions and support mechanisms to enhance the learning experience. This approach aligns with the philosophy that assessment is not solely about measuring success but also about identifying and mitigating impediments to success.

Lastly, Outcome-Based Assessments transcend a narrow focus on isolated aspects of learning or specific knowledge domains. Instead, they encompass the totality of a learner's educational experience. This holistic perspective recognizes that learning is a multidimensional process, encompassing not only cognitive knowledge but also practical skills, attitudes, and the application of knowledge in diverse contexts. Consequently, OBE-driven assessments contribute to a more comprehensive and nuanced understanding of a learner's overall educational journey, reflecting the diverse facets of their learning experience.

Planning for assessments holds a central position in the broader scheme of planning for effective teaching and learning. The formulation of the Programme of Assessment (PoA) by teachers is a strategic endeavor aimed at addressing the specific needs of learners within the classroom context. This planning process is intricately connected to the broader goals of facilitating teaching and fostering a conducive learning environment. As highlighted in the National Curriculum Statement (NCS) document, teaching plans are meticulously detailed, providing a comprehensive framework encompassing essential skills, subject content, and instructional strategies. The explicit delineation of teaching plans in the NCS underscores the significance of aligning assessments with well-defined educational objectives.

The Programme of Assessment (PoA) is not a standalone entity but an integral component woven into the fabric of the teaching and learning process. Its purpose is not only evaluative but also pedagogical, acting as a guide to steer the trajectory of instruction. Through thoughtful planning, teachers can tailor assessments to cater to the diverse needs, learning styles, and

capabilities of their students. This strategic alignment ensures that assessments serve as valuable tools for gauging understanding, diagnosing challenges, and providing targeted support for learners on their educational journey.

In the context of the NCS document, the clarity of teaching plans accentuates the importance of precision and intentionality in assessment planning. Teachers are empowered to structure assessments that seamlessly integrate with the broader educational framework, fostering coherence and relevance in the teaching and learning process. Thus, the act of planning assessments becomes a dynamic and responsive endeavor, intricately connected to the broader educational goals outlined in the NCS, with a focus on enhancing the overall educational experience for learners.

The Ministry of Education of Zambia (2017), as outlined in the National Learning Assessment Framework (NLAF), emphasizes the pervasive nature of continuous assessment in the educational landscape. The term 'continuous assessment' encapsulates the idea that teachers routinely employ various assessment methods as an inherent part of the teaching and learning process within their classrooms. This conceptualization signifies that assessment is not an isolated event but an ongoing, integral facet of every teacher's professional practice. The notion of continuity in assessment aligns with the dynamic nature of the teaching and learning journey.

Within the framework of continuous assessment, teachers employ diverse assessment methods seamlessly integrated into their instructional practices. These methods serve the dual purpose of gauging learner progress and providing timely feedback for instructional adjustments. The continuous nature of assessment implies an ongoing dialogue between educators and students, fostering a responsive and adaptive approach to teaching. The Ministry of Education's stance underscores the pivotal role of assessment in shaping the educational experience and ensuring that it remains an organic part of the learning environment.

While emphasizing the continuity of assessment, the Ministry of Education also issues a crucial directive that assessment should primarily serve learning and not overshadow the learning process. This perspective aligns with the contemporary understanding that assessments should be formative, contributing actively to the enhancement of learning outcomes. The NLAF's emphasis on the harmonious integration of assessment into teaching practices resonates with the overarching goal of fostering a student-centered and learning-focused educational

environment in Zambia. Continuous assessment, when wielded judiciously, becomes a powerful tool for informed instruction and student development.

The National Learning Assessment Framework (NLAF) of 2017 provides clear guidelines on the planning and execution of assessments in Zambia's educational context. The NLAF underscores the importance of careful planning in alignment with curriculum expectations, learning goals, and, to the extent possible, the diverse needs, interests, preferences, and experiences of all learners. This strategic approach to assessment planning acknowledges the individuality of students and seeks to create an inclusive assessment environment that caters to their varied learning styles and backgrounds.

In addition, the NLAF emphasizes the ongoing nature of assessments at the school level. The continuous and varied nature of assessments is highlighted as a key aspect, ensuring that assessments are not isolated events but part of an extended and comprehensive evaluation process. This aligns with the broader philosophy of continuous assessment, which is woven into the fabric of teaching and learning. By extending assessments over a period of time, learners are provided with multiple opportunities to showcase their understanding and skills, fostering a more holistic and nuanced understanding of their capabilities.

Furthermore, the NLAF advocates for assessments that go beyond mere evaluation to actively contribute to the development of learners. The emphasis on providing multiple opportunities for learners to demonstrate and develop the full range of their learning signifies a commitment to formative assessment practices. This approach seeks to nurture a learning environment where assessments serve as catalysts for growth, enabling students to continually evolve and enhance their capabilities. The NLAF's directives position assessments not just as evaluative tools but as integral components of a dynamic and learner-centric educational landscape in Zambia.

Furthermore, the guidelines provided by the Ministry of Education (MoE) in 2017 stress the pivotal role of assessments in the learning process, underscoring that teachers should view assessment strategies as integral and routine components of teaching and learning. The emphasis on recognizing the central role of assessment highlights its significance as an ongoing and embedded practice rather than a standalone event. In this context, assessments are not merely evaluative tools but are fundamental to shaping teaching approaches and adapting them to meet the specific needs of learners.

The (MoE, 2017) specifically notes that the majority of assessment activities undertaken by teachers are formative in nature. Formative assessments play a crucial role in providing real-time insights into student understanding and learning progress. By incorporating formative assessment practices, teachers gain valuable information that enables them to tailor their instructional methods, address learning gaps, and optimize teaching strategies based on the unique needs of their students. This iterative feedback loop contributes to the continuous improvement of teaching and learning experiences.

Moreover, the (MoE, 2017) underlines the dual responsibility of both teachers and learners in utilizing assessment information for ongoing improvement. While teachers are responsible for planning and implementing assessments, the resulting information should be actively used by both educators and students. The emphasis on routine use of assessment data for enhancing learning signifies a commitment to a feedback-driven educational ecosystem. Through regular feedback loops, learners receive insights into their performance, allowing them to make informed adjustments and facilitating a collaborative learning environment that involves both educators and learners in the continuous pursuit of educational excellence.

Furthermore, according to the Ministry of Education (MoE) guidelines in 2017, the use of assessment extends beyond its formative role and encompasses a summative aspect. Summative assessment involves leveraging evidence from assessments to communicate and report on learners' achievements and overall progress. This phase of assessment serves as a comprehensive review, providing a snapshot of the learners' performance over a specific period. The emphasis here is on generating a holistic understanding of what learners have accomplished and the progress they have made.

The (MoE, 2017) underscores the significance of this summative use of assessment in fostering effective communication with parents and guardians. Clear and transparent reporting on learners' achievements becomes a crucial tool for engaging parents in their child's educational journey. By sharing evidence-based insights into learners' progress, educators create opportunities for constructive dialogue with parents, enabling them to actively participate in supporting their child's academic development. This collaborative approach acknowledges the influential role that parents and guardians play in shaping positive learning environments at home.

In this context, the utilization of assessment data for communication and reporting aligns with the broader goal of creating a supportive educational ecosystem. The (MoE, 2017) recognizes the positive impact that engaged parents can have on learners' progress, emphasizing that effective communication fosters a sense of shared responsibility for the educational journey. By incorporating parents into the assessment discourse, educators strengthen the bridge between the classroom and home, promoting a collaborative partnership focused on the holistic development of learners.

In line with the guidelines provided by the National Learning Assessment Framework (NLAF, 2017) and the Guidelines for the Administration of School-Based Assessments (2019), both school administrators and teachers play pivotal roles in the development and implementation of effective assessment practices. As highlighted in these guidelines, it is imperative for schools to establish their own policies on assessment, reflecting a commitment to fostering high-quality assessment practices that positively impact teaching, learning, and learner outcomes. These policies should serve as a blueprint for creating a conducive assessment environment within the school.

Furthermore, the NLAF and Guidelines emphasize the importance of developing specific procedures and implementing robust systems that support the effective implementation of these assessment policies. This entails creating structures within schools that facilitate the seamless execution of assessment practices, ensuring that they align with educational objectives and contribute to the continuous improvement of teaching and learning. Establishing clear procedures and systems not only enhances the consistency of assessment practices but also provides a framework for ongoing evaluation and refinement.

Moreover, the NLAF (2017) emphasizes the need for well-structured teaching plans that delineate the minimum content to be covered per term. These teaching plans should incorporate a prescribed sequence of content and specify the allocated time for each segment. The guidelines highlight the importance of creating a realistic approximation of the time required to cover the content, enabling teachers to pace their instruction effectively. This structured approach aids teachers in designing comprehensive work schedules aligned with textbooks, ensuring a systematic and thorough coverage of content per term. Teachers, therefore, are encouraged to meticulously plan their instructional strategies, considering appropriate sequences and paces that optimize student learning experiences.

The NLAF (2017) and Guidelines for the Administration of School-Based Assessments (2019) underscore the critical role of school administrators and teachers in establishing effective systems for the analysis of assessment information. This imperative task is aimed at leveraging assessment data to support teachers' performance and self-evaluation. By systematically examining assessment outcomes, educators gain valuable insights into the effectiveness of their teaching methods and the impact on student learning. This analytical process serves as a catalyst for professional growth, encouraging teachers to reflect on their classroom practices and identify areas for improvement.

Moreover, the NLAF emphasizes the need for a culture of continuous professional development in assessment practices within schools. School leaders are urged to formulate and implement robust plans for ongoing professional development, specifically tailored to enhance teachers' proficiency in utilizing assessment as a tool for improving learning outcomes. This involves providing educators with targeted training and resources that empower them to employ assessment effectively in the classroom. By investing in the professional development of teachers, school leaders contribute to building a cadre of educators well-equipped to navigate the evolving landscape of educational assessment.

Furthermore, the NLAF (2017) stresses the importance of encouraging and challenging teachers through the use of assessment data. This dual approach prompts educators to reflect on their teaching methodologies and how these practices influence student learning. Through the integration of thoughtful reflection and constructive challenges, teachers are motivated to refine their instructional strategies, fostering a dynamic and responsive teaching environment. This reflective process aligns with the overarching goal of continuous improvement in learning outcomes and creates a culture of accountability and growth within the school community.

2.7.3 ECZ Stipulated Guidelines for Administration of SBA in Sciences

The Examinations Council of Zambia plays a pivotal role in shaping the assessment landscape, particularly regarding School-Based Assessment. To ensure uniformity and adherence to standards, the ECZ has provided schools with comprehensive general guidelines on the implementation of SBA across various subjects. These guidelines serve as a roadmap for schools, outlining the mandatory nature of SBAs for all learners, irrespective of the type and setup of the school. This commitment to standardization aligns with the broader educational vision of the Ministry of Education in Zambia, emphasizing the provision of quality lifelong education accessible to all, as articulated in the Ministry's vision statement from 1996.

In the context of science education, which is compulsory for all learners in Zambia from Early Childhood Education to Secondary School, the ECZ guidelines affirm the inclusive nature of SBA. This underscores the importance of science as a foundational subject that contributes significantly to the holistic development of learners. The guidelines stipulate that SBAs in science and other subjects shall contribute a predetermined percentage to the final mark for each subject and at each grade. This standardized approach ensures consistency in the evaluation process, emphasizing the relevance and importance of practical assessments in gauging learners' understanding and skills.

A noteworthy aspect of the ECZ guidelines is the emphasis on the compulsory nature of SBAs for all learners, regardless of the school type or setup. This inclusivity aligns with the principles of accessibility and relevance embedded in the Ministry of Education's vision. Furthermore, the guidelines introduce a consequential element, asserting that if SBA component marks are not presented to the ECZ, learners will be considered absent from the examination, even if they participate in the final Grade 9 internal, Grade 9 external, Grade 12, or GCE examination. This provision places a significant responsibility on teachers to diligently administer and submit SBA component marks, highlighting the critical role educators play in ensuring compliance with assessment protocols.

The ECZ's provision of general guidelines for SBA implementation underscores a commitment to standardized and inclusive assessment practices. The compulsory nature of SBAs for all learners, coupled with the specified contribution to final marks, reflects a holistic approach to evaluation that goes beyond traditional examination methods. The alignment of these guidelines with the broader educational vision of the Ministry of Education reinforces the commitment to quality and accessible lifelong education for all. This approach not only ensures uniformity in assessment practices but also emphasizes the active role of teachers in administering and submitting SBA component marks, ultimately contributing to a robust and equitable education system in Zambia.

The guidelines provided by the Examinations Council of Zambia underscore the mandatory nature of School-Based Assessment, emphasizing its integral role in the overall evaluation of learners. A significant consequence is highlighted in the guidelines, making it explicit that the non-conduct of SBA will result in learners being deemed absent, regardless of their participation in theory papers. This directive places a compelling responsibility on teachers to ensure the administration of SBA, reinforcing the significance of practical assessments in the

educational evaluation system. The consequence of being deemed absent underscores the critical role that SBA plays in the holistic assessment of learners, and it serves as a clear incentive for teachers to diligently implement this component of the assessment process.

In the context of SBA administration, the guidelines further stipulate that teachers are obligated to administer SBA tasks, irrespective of their level of knowledge. This requirement highlights the ECZ's commitment to the implementation of SBA as an integral aspect of the assessment process. The directive places an affirmative responsibility on teachers, compelling them to undertake the administration, marking, and recording of SBA tasks. This aspect of the guidelines not only underscores the importance of practical assessments in evaluating learners' understanding and skills but also emphasizes the role of teachers as key facilitators in the successful execution of the SBA process.

Moreover, the guidelines specify that all assessment tasks, including SBA tasks, should be prepared in accordance with subject-specific guidelines outlined in the document. This aspect ensures that there is a standardized and consistent approach to the development, administration, marking, and recording of SBA tasks across different subjects. The subject-specific guidelines serve as a framework to maintain the quality and relevance of assessments, aligning with the broader goal of ensuring that SBA contributes meaningfully to the learners' final results. This approach not only provides clarity to teachers on the expectations for SBA tasks but also promotes consistency and fairness in the overall assessment process.

The above can be summed up that the guidelines from the ECZ reinforce the compulsory nature of School-Based Assessments and establish clear consequences for non-compliance, emphasizing its indispensable role in the final assessment of learners. The directive that teachers must administer SBA tasks, regardless of their knowledge level, underscores the commitment to the implementation of practical assessments. Additionally, the requirement for adherence to subject-specific guidelines ensures a standardized and consistent approach, contributing to the overall quality and fairness of the assessment process. These guidelines collectively highlight the importance of SBA and the pivotal role teachers play in its successful execution within the Zambian education system.

The guidelines provided by the Examinations Council of Zambia for the administration of School-Based Assessments in science establish a systematic and well-defined process for teachers to follow. Within the realm of science education, the guidelines specifically highlight

the importance of six scientific skills that each SBA task is intended to measure. These skills encompass various facets of scientific inquiry, emphasizing a comprehensive approach to assessing learners' proficiency in scientific concepts and methodologies. The explicit identification of these skills underscores the commitment to a nuanced and well-rounded evaluation that aligns with the broader educational objectives.

The incorporation of the six scientific skills in the guidelines signifies a deliberate effort to create a framework that addresses multiple dimensions of scientific learning. These skills likely encompass critical aspects such as observation, experimentation, data analysis, and scientific reasoning. By delineating these skills, the guidelines provide both teachers and learners with a clear understanding of the specific competencies that SBA aims to develop and assess within the science curriculum. This strategic alignment with the broader educational objectives ensures that the SBA tasks in science are purposeful and contribute meaningfully to the overall educational outcomes.

In essence, the inclusion of the six scientific skills serves as a guiding principle for educators, shaping the design and implementation of SBA tasks in science. Teachers are thus empowered to create tasks that not only evaluate factual knowledge but also probe into the application of scientific principles and the development of essential skills. This approach fosters a more dynamic and participatory learning experience for students, as SBA tasks become opportunities for active engagement, critical thinking, and the practical application of scientific concepts.

Finally, the guidelines for SBA in science, as outlined by the ECZ, embrace a systematic approach that prioritizes the measurement of six specific scientific skills. This intentional focus on skills development reflects a commitment to a well-rounded and holistic assessment within the science curriculum. The guidelines provide a structured framework that enables teachers to design tasks that align with these identified skills, fostering a more comprehensive evaluation of learners' scientific proficiency. Ultimately, this approach contributes to the cultivation of a scientifically literate and competent student population.

The guidelines set forth by the Examinations Council of Zambia emphasize the pivotal role of the subject teacher in the School-Based Assessments process within the context of science education. Beyond a mere facilitator, the teacher's responsibilities extend to the strategic planning of SBA activities. This planning phase is a critical component that requires thoughtful consideration to design tasks that effectively measure the six identified scientific skills. The

deliberate inclusion of this planning responsibility underscores the importance of intentionality in crafting SBA tasks that align with the curriculum objectives and contribute meaningfully to the educational outcomes.

In the planning phase, the subject teacher plays a central role in ensuring that SBA tasks are not only meaningful but also relevant to the learning objectives. This involves a careful examination of the identified scientific skills and a thoughtful design of tasks that can authentically assess these skills. The emphasis on meaningfulness highlights the intention to create SBA activities that resonate with real-world applications, fostering a deeper understanding of scientific concepts and their practical implications. The alignment with curriculum objectives ensures that the SBA tasks contribute directly to the overall educational goals, reinforcing the idea that assessment is an integral part of the learning process.

The guidelines' explicit call for careful planning in SBA activities reflects an awareness of the impact that well-designed tasks can have on the quality of assessment. Intentionality in planning ensures that SBA tasks are not arbitrary but purposefully crafted to capture the targeted scientific skills. This approach goes beyond a checklist of skills to create a holistic and interconnected assessment framework that mirrors the complexities of scientific inquiry. Ultimately, the planning phase becomes a cornerstone in the SBA process, shaping the nature of assessments and their effectiveness in gauging learners' scientific proficiency.

The guidelines underscore the proactive role of the subject teacher in planning SBA activities, emphasizing the importance of intentional design to measure the identified scientific skills. This planning phase is not only crucial for the authenticity and relevance of assessments but also aligns with broader curriculum objectives. The teacher's thoughtful consideration during planning contributes to the creation of meaningful SBA tasks that go beyond rote memorization, fostering a deeper and more comprehensive understanding of science. As a result, the guidelines recognize and emphasize the significance of the planning phase in shaping the success of SBA in science education.

The role of the subject teacher in School-Based Assessments extends beyond planning to the crucial task of setting SBA tasks, a responsibility outlined in the guidelines provided by the Examinations Council of Zambia. This phase is pivotal in translating the planned assessments into tangible and meaningful tasks that align with the identified six scientific skills. The teacher's responsibility involves creating tasks that not only challenge learners but also provide

them with opportunities to actively demonstrate their understanding and application of scientific principles. This emphasizes the dynamic nature of the SBA process, moving beyond traditional assessments to tasks that engage students in practical applications of scientific concepts.

The act of setting SBA tasks underscores the need for assessments that go beyond rote memorization, encouraging learners to apply their knowledge in real-world scenarios. The challenges embedded in the tasks aim to stimulate critical thinking, problem-solving, and practical application of scientific skills. By providing opportunities for students to actively engage with scientific principles, the SBA tasks contribute to a more holistic evaluation process. This emphasis on active demonstration ensures that learners are not merely assessed on theoretical knowledge but are also evaluated on their ability to practically apply scientific concepts in diverse situations.

Furthermore, the guidelines emphasize the importance of tailoring SBA tasks to measure the intended learning outcomes, ensuring a focused and purposeful evaluation process. This targeted assessment approach aligns with the overarching goal of SBA, which is to assess specific competencies identified in the curriculum. Each SBA task is designed to be a deliberate and strategic evaluation tool, contributing to a nuanced understanding of learners' proficiency in the identified scientific skills. This tailored approach enhances the validity and reliability of the assessment, ensuring that the SBA tasks effectively measure what they intend to evaluate.

The responsibility of the subject teacher in setting SBA tasks is a critical phase in the assessment process outlined by the ECZ guidelines. This step transforms the planned assessments into actionable tasks that challenge learners and provide opportunities for practical application of scientific principles. The emphasis on specific skills and tailored assessment aligns with the broader objectives of SBA, fostering a more dynamic and purposeful evaluation process that goes beyond traditional testing methods. As a result, setting SBA tasks becomes an integral aspect of the SBA process, contributing to a comprehensive assessment of learners' scientific proficiency.

Following the setting of School-Based Assessment tasks, the subject teacher assumes a multifaceted role that includes the administration, marking, and awarding of marks to each learner. This comprehensive involvement underscores the integral role of the teacher in the assessment process, moving beyond a passive facilitator to an active participant in gauging

learners' proficiency. The direct administration of SBA tasks by the teacher ensures a hands-on approach, providing a nuanced understanding of individual learners' abilities and challenges.

In administering SBA tasks, the teacher has the opportunity to observe firsthand how learners engage with the assessment, gaining insights into their practical application of scientific skills. This direct involvement enables the teacher to identify areas of strength and areas that may require additional support. The hands-on approach contributes to a more personalized assessment, allowing teachers to tailor their observations to the unique characteristics and learning styles of each student. This personalized perspective is instrumental in capturing a holistic view of learners' abilities, going beyond standardized testing to recognize diverse strengths and areas for improvement.

Marking SBA tasks is a crucial aspect of the teacher's responsibilities, requiring a meticulous evaluation of each learner's performance. This direct engagement in marking fosters a deeper understanding of the learners' grasp of scientific concepts and their application of the identified skills. The teacher becomes a key player in the assessment process, contributing valuable insights into learners' achievements and areas that may require further development. Moreover, this direct involvement allows for the provision of constructive feedback to learners, offering specific guidance on how to enhance their understanding and application of scientific principles. The feedback loop becomes an essential component in fostering continuous improvement and supporting learners in their educational journey.

The teacher's multifaceted role in administering, marking, and awarding marks in the SBA process is pivotal for a comprehensive and personalized assessment. The direct involvement of the teacher ensures a hands-on approach, allowing for nuanced observations of individual learners' abilities. This personalized perspective contributes to a more holistic understanding of learners' strengths and areas for improvement. The teacher's engagement in marking and feedback provision further supports ongoing development, emphasizing the teacher's integral role in shaping and enhancing the educational experience of each learner.

In the concluding stages of the School-Based Assessments process, the subject teacher is tasked with the responsibility of recording and submitting the marks. This step is a critical component that contributes to maintaining transparency and accountability in the assessment process. Meticulous record-keeping ensures that there is a clear and comprehensive documentation of

each learner's performance, fostering a transparent evaluation process that adheres to established guidelines and standards.

The recorded marks are not only kept at the school level but are also submitted to school management, marking the beginning of a centralized and standardized data collection system. This systematic approach facilitates the organization and management of assessment data, allowing for efficient monitoring of learners' progress over time. The submission of marks to the Examinations Council of Zambia portal further consolidates the data, establishing a centralized repository that aligns with national assessment standards. This centralized system contributes to the uniformity and consistency of data management, reinforcing the integrity of the assessment process.

Moreover, the sharing of marks with district and provincial offices serves to enhance transparency and accountability within the education system. This practice aligns with broader goals of promoting quality and fairness in assessments. By extending the visibility of assessment outcomes beyond the school level, the education system ensures that there is oversight and scrutiny at various administrative levels. This multi-level approach supports the maintenance of standards, quality assurance, and the equitable treatment of learners across different regions, fostering a sense of fairness and credibility in the assessment process.

The teacher's role in recording and submitting marks in the final stages of the SBA process is instrumental in upholding transparency and accountability. Meticulous record-keeping establishes a clear documentation of learners' performance, contributing to a transparent evaluation process. The centralized data collection system, involving submission to school management and the ECZ portal, ensures uniformity and consistency in data management. Sharing marks with district and provincial offices reinforces the commitment to fairness and quality in assessments, aligning with broader educational objectives. This multi-level approach to record-keeping and data submission supports the credibility and integrity of the School-Based Assessment process within the Zambian education system.

All in all, the guidelines for SBA in science outline a structured process that places significant responsibilities on subject teachers. From planning and setting tasks to administration, marking, and submission of marks, the teacher's role is integral to the success of the SBA process. The explicit mention of the six scientific skills underscores the specific competencies that SBA aims to assess, providing clarity and focus to the assessment framework. This

systematic approach ensures that SBA in science aligns with educational objectives, promoting a comprehensive and purposeful evaluation of learners' scientific abilities.

The requirement for the subject teacher to derive assessment tasks from the approved syllabus serves as a crucial mechanism for keeping educators aligned with the prescribed curriculum. This alignment ensures that the School-Based Assessments remains closely tied to the educational objectives outlined in the syllabus, fostering a coherent and structured approach to assessing learners' progress. By adhering to the approved syllabus, teachers are guided in delivering assessments that directly reflect the intended learning outcomes, reinforcing the connection between SBA and the broader curriculum.

Moreover, the stipulation that SBA must be conducted in a natural learning environment and assess learners' progress during the course of study emphasizes the distinctiveness of SBA from traditional examinations. This distinction is pivotal in recognizing the limitations of one-off examinations, which often lack the versatility to comprehensively assess various practical aspects and diverse topics covered in the syllabus. The natural learning environment allows for a more varied and comprehensive assessment, providing a holistic view of learners' capabilities across multiple dimensions.

Additionally, the emphasis on conducting SBA in a familiar learning environment contributes to the removal of anxiety and panic among learners. This familiar setting enables students to feel more at ease, fostering an environment conducive to improved performance. The opportunity for collaboration among learners becomes more feasible, promoting a supportive learning community where students can engage with and learn from each other. Moreover, the provision of several chances to re-do tasks if not conducted adequately encourages a growth mindset, promoting continuous learning and improvement.

A significant benefit of conducting assessments in a familiar environment is the enhanced safety of girl children. In an unfamiliar setting, especially with unfamiliar teachers, girl children may be vulnerable to abuse and manipulations. SBA in a familiar environment helps safeguard against such risks, providing a secure and conducive space for all learners. This aspect is crucial in fostering an inclusive and protective learning environment, ensuring that all students, irrespective of gender, can engage in the learning process without fear or discomfort.

The integration of SBA tasks derived from the approved syllabus and the emphasis on a natural learning environment for assessment contribute to the effectiveness and inclusivity of the

assessment process. This approach aligns SBA with educational objectives, allows for comprehensive topic coverage, reduces anxiety among learners, and ensures a safe and supportive environment. The multifaceted benefits of SBA in a familiar setting underscore its role in promoting a holistic and student-centric approach to assessment within the Zambian education system.

The inclusivity of the guidelines for School-Based Assessments is evident in their consideration for Learners with Special Educational Needs (LSEN). The guidelines explicitly address the unique requirements of LSEN, affirming that teachers responsible for LSEN learners should design tasks that are appropriate for their specific needs. This acknowledgment underscores the commitment to ensuring that the assessment process caters to the diverse learning needs of all students, recognizing the importance of equity and accessibility in education.

Furthermore, the guidelines grant schools the autonomy to provide special access arrangements for LSEN during the conduct of SBA tasks. This recognition of autonomy acknowledges the variability in the nature and severity of disabilities among LSEN learners. Special access arrangements may include extensions of preparation and assessment time, as well as the provision of ancillary aids and special assistance during the assessment tasks. These measures aim to create an inclusive and supportive environment, allowing LSEN learners to actively participate in the assessment process and demonstrate their capabilities.

After the completion of SBA tasks, the subject teacher assumes the responsibility of marking and compiling the marks for each learner. The guidelines prescribe a specified number of tasks per grade level, contributing to a standardized and structured assessment process. The feedback generated from these assessments is crucial for identifying learners' strengths and areas that may require remedial work. Depending on the number of classes and learners, feedback may be provided promptly at the end of the task or within a short time frame, facilitating timely interventions and support for learners' improvement.

The integration of remedial work into the assessment process highlights the guidelines' commitment to supporting learners' continuous development. By addressing areas of difficulty promptly, teachers can tailor their instructional strategies to meet individual learning needs, fostering a dynamic and responsive learning environment. This proactive approach to remedial

work aligns with the broader educational goals of ensuring that every learner, including those with special educational needs, has the opportunity to thrive and succeed.

To maintain a centralized and systematic record of assessment outcomes, the recorded marks are entered into the Examinations Council of Zambia Online Marks Entry Systems (OMES) by the school. This systematic data entry process ensures accuracy and consistency in the recording of learners' performance, contributing to the overall integrity of the assessment system. The annual entry of marks into OMES reflects a commitment to transparency and accountability within the education system, providing a comprehensive overview of learners' achievements.

Lastly, the guidelines for SBA exhibit a commendable commitment to inclusivity and responsiveness to the needs of Learners with Special Educational Needs. The autonomy granted to schools in providing special access arrangements demonstrates a flexible and individualized approach to assessment. The incorporation of timely feedback, remedial work, and systematic record-keeping through OMES further underscores the guidelines' dedication to fostering an equitable and supportive educational environment for all learners.

The provision of sufficient time for teachers and schools to conduct remedial assessments following the online capture of marks is a strategic and constructive element in the School-Based Assessments process. This allows educators to engage in targeted interventions, offering additional support to learners who may require further assistance or improvement in specific areas. The emphasis on remedial assessments aligns with the principle of continuous improvement, ensuring that the learning process remains dynamic and responsive to the evolving needs of each student.

The role of the Head Teacher in overseeing the printing and submission of a hard copy of the captured marks to the Provincial Education Officer (PEO) through the District Education Board Secretary (DEBS) office adds an essential layer of accountability and transparency to the assessment process. This administrative procedure establishes a tangible record of learners' performance, enhancing the reliability and accuracy of the assessment data. By involving educational administrators at the district and provincial levels, the SBA system fosters collaboration and allows for a comprehensive review of learners' scores at higher administrative levels.

The submission of hard copies of assessment scores to education administrators provides them with a valuable opportunity to preview the academic performance of learners. This preview serves as a proactive measure, enabling administrators to gain insights into the strengths and weaknesses of learners across different schools within their jurisdiction. Armed with this information, education administrators can strategize and plan targeted interventions or support programs to address systemic challenges or enhance successful practices within the education system.

Moreover, the involvement of education administrators in reviewing learners' scores at a higher administrative level promotes a collaborative approach to educational planning. By having access to comprehensive assessment data, administrators can engage in evidence-based decision-making, developing informed strategies to enhance the overall quality of education. This collaborative review process facilitates a more holistic understanding of the educational landscape and empowers administrators to implement targeted initiatives that can positively impact the learning outcomes of a broader student population.

Finally, the provision of time for remedial assessments, coupled with the systematic submission of hard copies of assessment scores to education administrators, contributes to the effectiveness and transparency of the School-Based Assessment process. This approach ensures that educators have the necessary tools and opportunities for intervention, while administrators can engage in data-driven decision-making to improve the overall quality of education at both the school and administrative levels.

The School-Based Assessments guidelines demonstrate a thoughtful consideration for learners on transfer, recognizing the importance of maintaining continuity and equity in their educational journey. The guidelines specifically stipulate that all learners on transfer are required to retain their SBA results. This provision ensures that learners carry with them a comprehensive record of their academic achievements, contributing to a seamless transition between schools. The emphasis on preserving SBA results acknowledges the value of continuous assessment in capturing a learner's progress and accomplishments beyond traditional examinations.

In instances where a learner on transfer has not completed the SBA component, the guidelines further outline a procedure to address this situation. The Head Teacher of the transferring school is mandated to provide a letter confirming that the learner had undertaken the SBA.

Additionally, if the SBA component is incomplete, the Head Teacher is required to draft a letter detailing the content covered and marks obtained by the learner. This documentation not only serves as a record of the learner's academic engagement but also provides insights into the specific areas of the curriculum that were addressed during the SBA period.

Upon receiving a transfer student, the Head Teacher of the new school assumes a critical role in ensuring educational equity. The guidelines specify that the receiving Head Teacher must take measures to address the topics that were not covered in the SBA of the transferring learner. This commitment to addressing any gaps in the curriculum aims to provide an equitable learning experience for the transfer student, aligning with the broader principles of fairness and inclusivity in education. It acknowledges that each learner brings a unique educational background, and efforts should be made to harmonize their learning experiences.

The provision for addressing uncovered topics upon transfer underscores the commitment to holistic and continuous learning. It recognizes that educational experiences can vary between schools, and the receiving school plays a pivotal role in ensuring that learners receive a comprehensive and cohesive education. This approach fosters a supportive environment for transfer students, helping them integrate seamlessly into the new academic setting and minimizing any potential disruptions to their educational progress.

All in all, the SBA guidelines exhibit a considerate and comprehensive approach to learners on transfer. The emphasis on retaining SBA results, coupled with the documentation of covered content and marks for incomplete SBAs, reflects a commitment to transparency and continuity. The directive for receiving schools to address uncovered topics further reinforces the principle of educational equity, ensuring that all learners, regardless of transfer status, have access to a well-rounded and continuous learning experience.

The guidelines on record keeping in School-Based Assessment underscore the importance of maintaining a thorough and accurate documentation system within schools. According to these guidelines, schools are explicitly instructed to ensure that evidence for assessed and scored SBA tasks is consistently preserved. This meticulous record-keeping is deemed essential as it may be subject to verification by Standards Officers and the Examinations Council of Zambia at any given time. The emphasis on evidence preservation reflects a commitment to transparency and accountability in the SBA process.

The Head Teacher, being the immediate officer responsible for maintaining standards within the school, plays a pivotal role in overseeing the implementation of the SBA guidelines. The guidelines explicitly state that the Head Teacher should ensure thorough supervision of School-Based Assessment. This supervision role involves not only monitoring the administration of SBA tasks but also ensuring that the documentation of evidence is diligently executed. The involvement of the Head Teacher in this process highlights the leadership's commitment to upholding the standards and integrity of the SBA system within the school.

2.8 Attitude of Teachers Towards the use of School Based Assessments

Attitudes, as defined by Ajzen and Fishbein (2000), encapsulate an individual's positive or negative judgment about a specific subject. These judgments are shaped through the analysis of information pertaining to the outcomes of actions and the subsequent positive or negative evaluations of those outcomes. In the context of education, studies have illuminated a significant connection between teachers' attitudes and their utilization of School-Based Assessments. Teo's (2008) research demonstrates that teachers with a favorable attitude towards SBA are more likely to exhibit a higher level of competence in its application, emphasizing the pivotal role attitudes play in shaping instructional practices.

To comprehend attitudes more comprehensively, the ABC model (affect, behavior, and cognition) provides a framework, as proposed by Goodings and Portland (1995). Affective responses encompass the emotional aspect, expressing an individual's degree of preference for a particular entity, such as SBA in the case of teachers. Behavioral intentions denote verbal indications or typical behavioral tendencies, reflecting an individual's inclination towards a particular course of action. Cognitive responses involve a cognitive evaluation of the entity, representing an individual's beliefs about the object in question. Attitudes, therefore, manifest through a combination of emotional, behavioral, and cognitive dimensions, shaping an individual's stance toward a given subject or practice.

The formation of attitudes is rooted in the ABC model, and these attitudes often emerge from either direct experiences or observational learning from the environment, as highlighted by Goodings and Portland (1995). In the context of teachers' attitudes towards SBA, their experiences with implementing and observing the outcomes of SBA practices influence their overall stance on this assessment method. Additionally, the interplay between personal characteristics and disposition significantly influences teachers' attitudes. This interconnection

suggests that the attitudes teachers hold towards educational practices, such as SBA, are not isolated but rather intertwined with their inherent qualities and predispositions.

Recognizing the impact of attitudes on instructional practices, it becomes imperative to address and understand the factors that contribute to the formation of these attitudes. Teachers' perceptions of the effectiveness, relevance, and benefits of SBA are likely to influence their attitude towards its implementation. As educational systems evolve and integrate new methodologies, understanding and potentially reshaping teachers' attitudes become essential components for successful adoption and implementation.

In the realm of School-Based Assessment, teachers or instructors face the additional challenge of adapting to a new assessment paradigm. The successful implementation of SBA requires educators to have the right attitude towards this approach. Positive attitudes towards SBA, as emphasized by Goodings and Portland (1995), are instrumental in supporting teaching and learning. An open-minded and constructive attitude facilitates the integration of SBA into instructional practices, enabling teachers to harness its benefits in promoting a more student-centered and holistic approach to assessment.

Teachers' attitudes towards SBA are pivotal in determining the effectiveness of its implementation. An attitude that embraces SBA as a valuable tool for enhancing teaching and learning transforms the assessment process into a collaborative and empowering experience. This mindset encourages teachers to view assessment not as a daunting task but as an opportunity to tailor instruction to the unique needs of each student, fostering a positive and growth-oriented educational environment.

Lastly, while assessment poses significant challenges for teachers, acknowledging its importance and approaching it with the right attitude is fundamental for effective teaching. Goodings and Portland's insights underscore the core principle that assessment should be viewed as a means to improve instruction. This perspective becomes especially crucial in the context of SBA, where a positive attitude towards this innovative approach is essential for its successful integration into teaching practices and its potential to support a more student-centered learning experience.

Understanding teachers' ideas and perceptions is critical as they have a profound impact on teaching methodologies, learning outcomes, and curriculum development. This recognition is evident in the research of Clark and Peterson (1986, Pajares, 1992 and Calderhead, 1996),

which underscores the significance of studying teachers' perceptions of school-based assessment. Teachers' beliefs about teaching, learning, and curricula shape their instructional practices and influence what students ultimately learn or achieve. The implications of these perceptions are far-reaching, emphasizing the need for a nuanced understanding to enhance educational practices.

As highlighted by Asch (1976), teachers' perceptions extend beyond the technical aspects of assessment and are closely linked to their choices of evaluation techniques. This suggests that teachers' views on students' work, creativity, morale, and self-confidence play a pivotal role in determining the assessment methods they employ. The interplay between teachers' perceptions and evaluation techniques underscores the subjective nature of assessment and the potential impact of educators' attitudes on the overall learning experience. Recognizing and exploring these perceptions becomes imperative for fostering a more student-centric and supportive educational environment.

Tittle's (1994) proposition of educators creating schemas or integrating assessment representations into preexisting conceptions of the curriculum, teaching and learning, and the self adds depth to the understanding of teachers' perceptions. This concept implies that teachers do not approach assessment in isolation but rather integrate it into their broader understanding of education. The incorporation of assessment into these cognitive frameworks influences how teachers conceptualize their roles, the learning process, and the overall educational landscape. Unraveling these intertwined perspectives is crucial for addressing the complexity of teachers' decision-making in the assessment realm.

Moreover, teachers' perceptions of assessment have implications for professional development and the evolution of educational practices. By understanding how teachers conceptualize and integrate assessment into their pedagogical approaches, educators and policymakers can tailor professional development programs to address specific needs. This targeted approach aims to align teachers' perceptions with best practices in assessment, fostering a more cohesive and effective educational system.

The research by Clark and Peterson (1986, Pajares, 1992, Calderhead, 1996, Asch, 1976, and Tittle, 1994) collectively emphasizes the significance of studying teachers' perceptions of school-based assessment. Teachers' beliefs about teaching, learning, and curricula shape their choices in assessment methods, impacting student outcomes. Recognizing the

interconnectedness of teachers' perceptions and evaluation techniques is crucial for fostering a student-centric and supportive learning environment. Additionally, understanding how teachers integrate assessment into their broader cognitive frameworks provides insights for targeted professional development initiatives, promoting more effective and cohesive educational practices.

Cizek et al.'s (1995) survey of elementary school teachers in Kenya sheds light on the intricate relationship between teachers' assessment policies and their individual teaching philosophies and values. The study suggests that due to the highly individualized nature of assessment methods, teachers often formulate their assessment policies based on personal beliefs about teaching and learning. This finding underscores the complexity of assessment practices, indicating that teachers' unique perspectives play a significant role in shaping the evaluation approaches employed in elementary classrooms. The diverse range of teaching philosophies and values among educators contributes to the variety of assessment methods observed in Kenyan elementary schools.

Kahn's (2000) study of high school English classrooms in Kenya further elucidates the impact of teachers' eclectic beliefs and practices on assessment approaches. The research argues that teachers, influenced by a mix of transmission-oriented and constructivist teaching and learning ideologies, employ a wide range of seemingly contradictory evaluation approaches. This eclecticism highlights the fluidity and adaptability of teachers in selecting assessment methods based on the specific context and their evolving beliefs about effective teaching. The coexistence of diverse philosophies and practices within the same educational system underscores the complexity and diversity inherent in teachers' approaches to assessment.

Despite the seemingly personal and individualized nature of teachers' ideas and practices, Van den Berg's (2002) perspective introduces the notion that shared cognitive configurations or occurrences exist within a society and culture. This suggests that while teachers may exhibit individual variations in their assessment philosophies, there are underlying cognitive patterns that are influenced by broader societal and cultural factors. The shared cognitive configurations may manifest in common educational values, cultural expectations, or societal norms that influence the ways teachers conceptualize and implement assessment practices.

The research by Cizek et al. (1995), Kahn (2000), and Van den Berg (2002) collectively emphasizes the personalized nature of teachers' assessment policies, shaped by their individual

teaching philosophies and values. The studies highlight the diversity of assessment approaches within Kenyan elementary and high school classrooms, indicating the influence of individual beliefs on evaluation methods. However, Van den Berg's insight introduces the notion of shared cognitive configurations within a societal and cultural context, suggesting that while individual variations exist, there are underlying patterns influenced by broader cultural factors that contribute to the diversity observed in teachers' assessment practices.

Kahn's (2000) assertion underscores the pervasive influence of teachers' beliefs on various educational facets, encompassing teaching, learning, assessment, curriculum, and teacher efficacy. The beliefs teachers hold significantly shape their pedagogical practices, including their perceptions and evaluations of student behavior and performance, particularly in the context of school-based assessment. This insight emphasizes the interconnected nature of educators' cognitive frameworks and their instructional decisions. Teachers' beliefs serve as a guiding force that influences how they approach assessment, highlighting the importance of understanding and addressing these foundational convictions for effective professional development.

The complexity of these beliefs necessitates a clear and observable elucidation of the connections between them and their impact on pedagogical acts. This is crucial for both researchers and educators alike, as it facilitates a deeper understanding of the intricate interplay between teaching philosophies, assessment practices, and other educational artifacts. Clarity in these notions becomes especially important when considering initiatives aimed at changing instructors' concepts, as emphasized by Borko (1997). Professional development activities, which strive to enhance teachers' skills and understanding, must be informed by a comprehensive grasp of the interconnected web of beliefs that shape instructional decisions.

Professional development activities are inherently geared towards fostering positive changes in instructors' concepts and practices. To achieve this goal, it is imperative to recognize the deep-rooted influence of teachers' beliefs on their instructional decisions, particularly in the realm of assessment. Borko (1997) underscores the significance of aligning professional development initiatives with a nuanced understanding of teachers' cognitive frameworks. Addressing these beliefs requires strategic interventions that target specific areas of development, allowing educators to evolve in their conceptualization of teaching, learning, and assessment.

Kahn's (2000) assertion on the impact of teachers' beliefs across various educational domains highlights the intricate connections between teaching philosophies, assessment practices, and other educational artifacts. The imperative to make these notions clear and observable is emphasized, particularly when the goal is to change instructors' concepts, as articulated by Borko (1997). Understanding and addressing teachers' beliefs becomes a crucial aspect of effective professional development, ensuring that initiatives are well-informed and capable of fostering positive changes in instructional practices.

Certain studies, such as the one conducted by Norani and Saifulazri (2010) in Nigeria, highlight a notable unpreparedness among some teachers when it comes to the implementation of School- Based Assessments(SBA). The research reveals that a portion of educators expressed reluctance to carry out SBA, citing a lack of willingness to administer the assessment. Moreover, the study identifies a key contributing factor to this hesitancy—some teachers felt unprepared due to a deficiency in necessary training. The absence of proper training inadvertently led to a lack of confidence among these educators, showcasing the critical importance of providing adequate preparation for teachers before introducing new assessment methods like SBA.

In a similar vein, Stiggins' (2005) study in the USA delves into the reasons behind instructors' hesitancy to adopt new evaluation systems for classroom learning, which extends to the realm of SBA. The findings suggest that the reluctance observed among teachers is rooted in their limited opportunities to acquire effective assessment approaches. This highlights a systemic issue where educators, potentially due to insufficient professional development or support, are not adequately equipped with the knowledge and skills required to implement innovative assessment strategies successfully. The study underscores the necessity for comprehensive training programs that address educators' needs and build their capacity for embracing new evaluation systems.

The identified hesitancy among teachers to adopt SBA can have broader implications for the overall effectiveness of educational reforms. The resistance observed in both Nigeria and the USA suggests a need for targeted interventions to address the underlying factors contributing to teachers' apprehension. The importance of not only providing training opportunities but also creating a supportive environment that encourages the adoption of new assessment methods cannot be overstated. This involves recognizing and addressing the specific challenges faced by teachers, whether related to training, resources, or broader institutional support.

The cited studies collectively emphasize the existing challenges and hesitancy among teachers in adopting Student-Based Assessment. Norani and Saifulazri's (2010) research in Nigeria points to educators' unwillingness and lack of training as contributing factors, leading to a lack of confidence in implementing SBA. Stiggins' (2005) study in the USA highlights a broader issue of instructors' reluctance stemming from limited opportunities to acquire effective assessment approaches. Addressing these challenges requires comprehensive training programs and systemic support to empower teachers to successfully embrace and implement innovative assessment methods like SBA.

Stiggins' (2005) research delves into the multifaceted nature of instructors' readiness to use assessment for learning, revealing a broad spectrum of activities that contribute to effective implementation. A key aspect highlighted is the establishment of clear performance goals and curriculum-based standards of achievement for students. This suggests that teachers must be proactive in defining specific learning objectives and expectations, providing a framework for both instruction and assessment. Clarity in performance goals ensures that assessments align with educational objectives, contributing to a more purposeful and effective learning experience.

In addition to setting clear goals and standards, teachers, as per Stiggins' findings, must be prepared to engage in ongoing documentation of lessons learned. This involves systematically recording insights gained from student performance and understanding the effectiveness of instructional strategies. Documentation serves as a valuable tool for teachers to reflect on their teaching practices, make informed adjustments, and tailor future assessments to address identified areas of improvement. This continuous cycle of reflection and documentation is crucial for maintaining an adaptive and responsive approach to assessment for learning.

Furthermore, instructors' readiness to use assessment for learning extends to the active measurement of student participation. Stiggins (2005) emphasizes the importance of gauging the degree of student engagement in the learning process. This involves not only assessing the outcomes but also understanding the dynamics of student involvement, collaboration, and interaction within the classroom. Monitoring student participation provides teachers with insights into the effectiveness of their instructional methods and helps tailor assessments to better suit the diverse needs and learning styles of the student population.

Another critical component of instructors' readiness highlighted by Stiggins is the maintenance of organized records. Teachers are tasked with systematically documenting and organizing assessment data, ensuring accessibility and coherence. Organized records enable teachers to track individual student progress, identify trends, and make informed decisions about instructional adjustments. This aspect of readiness is essential for maintaining transparency, accountability, and effectiveness in the assessment for learning process.

In conclusion, Stiggins' (2005) research sheds light on the comprehensive nature of instructors' readiness to use assessment for learning. This readiness involves establishing clear performance goals and curriculum-based standards, ongoing documentation of lessons learned, active measurement of student participation, and the maintenance of organized records. These elements collectively contribute to a dynamic and responsive approach to assessment, ensuring that teachers are well-equipped to support student learning effectively through thoughtful and purposeful assessment practices.

Alaba's (2012) study on teachers in Nigeria reveals a reluctance among educators to administer School-Based Assessment in teaching and learning scenarios. The findings indicate a notable hesitancy within the teaching community, raising concerns about the effective integration of SBA into classroom practices. Furthermore, the study brings to light a prevalent unfavorable opinion held by over half of Nigerian educators regarding the impact of SBA on the teaching and learning processes. This negative sentiment suggests a substantial gap between the perceived benefits of SBA and the practical experiences and beliefs of teachers in the Nigerian context.

In response to the identified challenges, Alaba (2012) recommends targeted interventions, including in-service training for all instructors. The recommendation underscores the importance of professional development initiatives tailored to address the specific needs and concerns of teachers regarding the implementation of SBA. In-service training becomes a crucial component in bridging the knowledge gap, providing teachers with the necessary skills and understanding to administer SBA effectively. This aligns with broader goals of enhancing educational practices through continuous learning and skill development.

The study highlights a concerning statistic where only 40.7% of Nigerian teachers, less than half of the sample, were deemed truly prepared to administer SBA in a classroom setting. This low percentage underscores the urgency for comprehensive measures to enhance teachers'

readiness and confidence in implementing SBA. The identified concerns among teachers include the need for a deeper comprehension of SBA requirements, protocols, assessment criteria, the system itself, and opportunities for further professional development. These insights emphasize the multifaceted nature of challenges faced by educators and underscore the need for targeted interventions that address each aspect systematically.

Effective monitoring of the implementation process is another key recommendation from Alaba (2012). Monitoring becomes a critical element in ensuring the successful integration of SBA into teaching and learning practices. By actively tracking the progress, challenges, and outcomes of SBA implementation, education authorities can identify areas of improvement, provide timely support to educators, and refine policies and training programs. This recommendation aligns with the broader goal of creating a supportive and accountable framework for the effective adoption of innovative assessment methods in the Nigerian education system.

Alaba's (2012) study highlights the challenges and concerns among Nigerian teachers regarding the administration of School-Based Assessment. The reluctance to adopt SBA, coupled with unfavorable opinions among educators, underscores the need for targeted interventions. Recommendations for in-service training, effective monitoring, and addressing specific concerns emphasize the importance of a comprehensive approach to enhance teachers' readiness and confidence in implementing SBA in the Nigerian education context.

Stiggins' (2005) observations highlight the varied attitudes of teachers towards School-Based Assessments, which span a spectrum from positive to negative. Despite recognizing the positive motivations behind SBA and its potential benefits for students, many teachers harbor reservations about its practical implementation and translating these ideas into classroom pedagogical practices.

On the positive side, a significant number of teachers acknowledge the good intentions and motivations behind SBA. They recognize the potential advantages it offers to students, such as fostering a more student-centered learning environment, providing timely and personalized feedback, and promoting a holistic understanding of student capabilities. The positive attitude towards SBA reflects an appreciation for the underlying principles and goals of this assessment approach.

However, amidst the acknowledgment of the positive aspects, teachers express reservations about the practicality of implementing SBA in the classroom. These reservations may stem from various concerns, including the perceived challenges in integrating SBA seamlessly into existing pedagogical practices, aligning it with curriculum requirements, and managing the additional workload associated with a more individualized assessment approach. Teachers, while recognizing the theoretical benefits, may face uncertainties about the feasibility of translating these ideals into everyday teaching practices.

The gap between positive motivations and reservations about practical implementation suggests a need for targeted support and professional development. Teachers' concerns may be addressed through training programs that offer practical strategies, resources, and guidance on effectively incorporating SBA into their teaching routines. Providing a bridge between the conceptual understanding of SBA and its day-to-day application can help alleviate teachers' reservations and enhance their confidence in embracing this assessment approach.

In conclusion, Stiggins' (2005) insights reveal a nuanced picture of teachers' attitudes towards SBA, encompassing both positive recognition of its motivations and reservations about its practical implementation. Addressing this duality requires a comprehensive approach that not only highlights the benefits but also provides tangible support and resources to guide teachers in translating the principles of SBA into successful classroom practices.

The study conducted by Kamaruddin and Leong (2011) in Brunei sheds light on the challenges faced by teachers in implementing School-Based Assessments. The research highlights that the perceived difficulty in executing SBA demands more time and preparation from teachers. The findings suggest that the complexity of SBA requires educators to invest additional effort in understanding and incorporating this assessment approach into their teaching practices. The study reflects the importance of recognizing the specific needs of teachers as they navigate the intricacies of SBA, emphasizing the necessity for comprehensive support mechanisms.

According to the participating teachers in Kamaruddin and Leong's (2011) study, the need for time and preparation in implementing SBA is underscored by their recommendations for relevant courses. The teachers express a desire for SBA-compliant courses that align with their specific needs. The identified demands include proficiency in math instruction and learning, proficiency in computer use, access to the internet, and familiarity with instructional tools in schools. These recommendations highlight the multifaceted nature of the skills and knowledge

required for effective SBA implementation, emphasizing the importance of targeted training programs.

In a related study, Tan (2010) discovered that teachers exhibited a lower willingness to use SBA. This reluctance is attributed to instructors' perceived lack of preparation for the new assessment system. The study underscores the critical link between teacher preparedness and their willingness to embrace innovative assessment approaches. The reluctance to use SBA, as highlighted by Tan's findings, has significant implications for the legitimacy and fairness of the grades assigned by teachers. Lack of preparation can compromise the validity and reliability of assessments, affecting the overall integrity of the evaluation process.

Addressing the challenges identified by Kamaruddin and Leong (2011) and Tan (2010) requires a holistic approach to teacher support and professional development. Comprehensive courses tailored to the specific demands of SBA, as recommended by participating teachers, can play a crucial role in equipping educators with the necessary skills and knowledge. Additionally, initiatives that focus on addressing teachers' willingness and readiness to adopt SBA are imperative to ensure the successful integration of this assessment approach into the educational system.

In conclusion, the studies by Kamaruddin and Leong (2011) and Tan (2010) collectively highlight the challenges faced by teachers in implementing SBA. The need for more time and preparation, as identified by Kamaruddin and Leong, emphasizes the complexity of SBA and the specific demands it places on educators. Tan's findings on teachers' lower willingness underscore the critical importance of adequately preparing teachers for the successful adoption of SBA, thereby ensuring the legitimacy, fairness, and overall effectiveness of the assessment process.

Veloo, Krishnasamay, and Md-Ali's (2015) study conducted in Malaysia offers insights into the multifaceted nature of teachers' preparedness for School- Based Assessments. The findings suggest that, in certain aspects, teachers demonstrate adequate readiness for SBA participation. Noteworthy areas of strength include the readiness of teachers to engage with SBA, possess relevant information about the assessment approach, provide constructive feedback within the SBA framework, and conduct assessments aligned with SBA principles. These positive aspects indicate a foundational level of preparedness among educators, establishing a solid base for the integration of SBA into their teaching practices.

However, the study also identifies specific facets where teachers exhibit a lack of preparedness for SBA. One such area is the teachers' perceived unpreparedness to facilitate student interactions regarding lesson material in alignment with SBA. This suggests a potential gap in incorporating collaborative learning strategies within the SBA framework, highlighting the need for targeted professional development to enhance teachers' capabilities in fostering student collaboration and engagement.

Additionally, teachers express a sense of unpreparedness in assisting students with lower levels of achievement to reach higher proficiency bands within the SBA system. This reveals a potential challenge in addressing the diverse learning needs of students, particularly those who may require additional support to progress academically. Strategies for differentiated instruction and personalized assistance may need to be emphasized in teacher training programs to address this aspect of SBA preparedness.

Another facet where teachers may lack readiness, as identified by the study, is the utilization of a variety of teaching methods to ensure consistent mastery of skills among students. This points to the importance of incorporating diverse pedagogical approaches within the SBA framework to cater to different learning styles and preferences. Enhancing teachers' readiness in this area could contribute to a more comprehensive and effective implementation of SBA in the Malaysian educational context.

In conclusion, Veloo, Krishnasamay, and Md-Ali's (2015) study provides a nuanced perspective on teachers' preparedness for SBA in Malaysia. While certain aspects demonstrate satisfactory readiness, identified gaps in facilitating student interactions, assisting lower-achieving students, and employing varied teaching methods call for targeted interventions. Tailored professional development initiatives that address these specific areas can enhance teachers' overall preparedness for successful SBA implementation, ensuring a more robust and inclusive educational environment.

2.9 School-Based Assessment and Students' Performance

Omoifo (2006) highlights a critical distinction between the prevailing natures of assessments in many schools. He asserts that the predominant form of assessment is often characterized as summative, final, administrative, rigorous, and content-driven. This characterization suggests an emphasis on assessments that serve as conclusive evaluations at the end of an instructional period, with a focus on administrative processes and a rigorous, content-centered approach. In

contrast, Omoifo draws attention to the less common formative assessment, which he describes as diagnostic, private, suggestive, and goal oriented. This perspective on formative assessment aligns with its intended purpose of providing ongoing feedback to shape and enhance the learning process rather than concluding it.

Summative assessment, as emphasized by Omoifo, tends to center around final examinations and is often the focal point for teachers, parents, and students. The significance placed on summative assessments underscores their role in determining academic achievement at the culmination of a specific instructional period. In this context, Omoifo sheds light on the prevailing emphasis on grading and the administrative aspects of assessment in many educational settings.

However, Omoifo raises a thought-provoking observation regarding the surprising orientation of formative assessment. Instead of primarily focusing on cultivating essential skills such as problem-solving, critical thinking, and life skills, formative assessments are perceived as contributing to the consolidation of students' performance in final examinations. This raises questions about the alignment of formative assessment practices with their intended purpose of providing timely and constructive feedback to support students' ongoing learning and development. The commentary suggests a need for a reevaluation of the goals and practices associated with both summative and formative assessments in the educational landscape.

Kellaghan and Greany (2003) advocate for the recognition of continuous assessment as a potent mechanism for enhancing student achievement, emphasizing that its effectiveness is heightened when significant consequences are attached to performance. Their perspective underscores the notion that the impactful implications of continuous assessment can directly influence the teaching and learning processes. This perspective aligns with the idea that assessments, when coupled with meaningful consequences, become a powerful tool in shaping and improving the educational experiences of students.

In the Nigerian context, Onuka (2006) emphasizes the comprehensive application of evaluation and feedback as integral components of the educational system. The purpose of this approach is to enhance the effectiveness of the educational system by ensuring the successful attainment of students' learning objectives. This echoes the viewpoint of Onuka and Oludipe (2005), who assert that leveraging the feedback mechanism derived from learners' formative evaluations plays a crucial role in rectifying and improving subpar performance. The emphasis on

continuous assessment and feedback mechanisms in the Nigerian educational system underscores a commitment to refining the learning process and fostering positive academic outcomes.

The alignment of these perspectives emphasizes the interconnectedness of assessment, feedback, and overall educational improvement. It suggests that continuous assessment, coupled with meaningful consequences and a robust feedback mechanism, can serve as a catalyst for positive changes in teaching, learning, and student achievement.

Etienne's (2007) narrative underscores a significant episode in France during May 1968 when students mobilized to protest against the prevailing system of final examinations. This collective action served as a poignant expression of students' discontent with what they perceived as an inequitable and precarious method of assessing their academic performance. Students used this opportunity to articulate their concerns, vehemently arguing that final examinations merely captured a singular moment's performance, failing to reflect the sustained efforts exerted throughout the entire academic year. Their stance highlighted the inherent limitations of final assessments as an accurate representation of students' overall learning journeys.

Central to the students' protest was their emphasis on the inherent risks associated with final assessments. They astutely pointed out the unpredictability of a student encountering difficulties on the day of the examination, thus challenging the validity of such assessments. In response to these perceived shortcomings, students advocated for a paradigm shift towards continuous assessment, positioning it as a more reliable and equitable evaluation method. The call for continuous assessment stemmed from a collective desire to mitigate the risks associated with a single high-stakes examination, even though the implementation of continuous assessment was acknowledged to present its own set of challenges, particularly during the execution of recap exercises.

Etienne's (2007) examination of the student protests in France during 1968 unveils a compelling narrative of discontent with traditional assessment practices and a fervent call for a more comprehensive and student-centric approach. The students' demand for continuous assessment reflects a broader shift in perspective, prioritizing ongoing evaluation over a single culminating event. This historical account provides valuable insights into the evolving

discourse on assessment methodologies and the persistent quest for fairer and more nuanced ways of gauging academic achievement.

Graume and Naidoo's (2004) investigation into School-Based Assessments in Uganda brought attention to the prevalent assessment practices at the high school level, primarily relying on terminal, half-yearly, and annual examinations. This observation aligns with the conventional assessment methods employed in many educational systems, emphasizing summative evaluations conducted at specific intervals. Carnoy (1999) supports the idea that sustained application of assessment tools over time offers insights into the trajectory of improvement or lack thereof. This longitudinal perspective allows educators to gauge the effectiveness of teaching strategies and identify areas that require targeted intervention.

Moreover, Ogunnyi's (1984) assertion underscores the cumulative nature of assessment, emphasizing that decisions made about a student at any given point consider their academic history. In this context, continuous assessment emerges as a dynamic process that integrates previous evaluations, offering a comprehensive understanding of a student's progress. The cumulative approach acknowledges the evolving nature of students' learning journeys and the need to consider their educational development holistically.

The concept of continuous assessment, as articulated by Ogunnyi (1984), extends beyond a mere evaluative tool; it is an instructional strategy that provides students with ongoing opportunities to learn and demonstrate their knowledge, skills, and attitudes throughout the teaching-learning process. This iterative approach recognizes the fluidity of the educational experience and aims to capture students' multifaceted growth. Continuous assessment, in this sense, becomes a pedagogical tool that not only informs evaluative decisions but also enriches the learning environment by fostering active student engagement and promoting a deeper understanding of subject matter.

In summary, the insights from Graume and Naidoo's (2004) study, combined with the perspectives of Carnoy (1999) and Ogunnyi (1984), underscore the multifaceted nature of assessment. The conventional summative examinations prevalent in high school settings are juxtaposed with the notion of continuous assessment, which emphasizes the ongoing and cumulative nature of evaluating student progress. This holistic approach not only refines the assessment process but also aligns with a broader educational philosophy centered on continuous learning and development.

In the secondary schools of Masaka district in Ghana, the significance of assessing different domains cannot be overstated, as it serves as a valuable tool for enhancing learning objectives and outcomes (Carnoy, 1999). The measurement of various domains aligns with the broader educational goal of fostering a comprehensive understanding of students' abilities and competencies. This approach to assessment is particularly crucial in the context of Masaka, where Kalleghan and Greany (2003) identified deficiencies in the assessment practices, echoing a broader trend observed in African educational systems, including Uganda.

Carnoy's (1999) emphasis on assessment as a means to improve learning objectives underscores the pivotal role of evaluation in shaping the educational landscape. The observed variation in performance among schools and students in Masaka's secondary schools may be attributed, in part, to the disparities in assessment practices. The deficiency noted by Kalleghan and Greany (2003) may contribute to inconsistencies in evaluating student progress, potentially impacting the overall academic performance across institutions.

The introduction of School-Based Assessments, involving students in various tasks, presents an opportunity to positively influence their performance. The multifaceted nature of SBA, encompassing diverse tasks, allows for a more nuanced and comprehensive evaluation of students' skills and knowledge. As a result, SBA becomes a catalyst for enhancing learning outcomes, providing a more accurate reflection of students' abilities beyond what traditional assessment methods may capture.

In conclusion, the adoption of SBA in Masaka's secondary schools signifies a progressive approach to assessment, offering a platform to address deficiencies and improve the overall quality of education. The integration of diverse tasks under SBA aligns with the call for comprehensive assessment practices, as emphasized by Carnoy (1999). This shift has the potential to positively impact learning objectives and outcomes, contributing to a more equitable and effective educational environment in Masaka.

2.10 Challenges and Issues with regard to School Based Assessments

In the realm of classroom assessment practices, Webb (2005) identifies several influential factors that educators must consider in order to conduct effective assessments. Among these factors are school organization, traditions, and routine. The organizational structure of a school, its established traditions, and the routines followed in day-to-day operations significantly shape the assessment practices of teachers. These institutional elements create a backdrop against

which educators design and implement their assessment strategies, showcasing the interconnectedness of school culture and classroom assessment.

Webb (2005) further underscores the impact of class periods' length on teachers' assessment practices. Specifically, shorter class periods, typically those lasting less than forty minutes, pose unique challenges. According to Webb, these brief timeframes often limit sustained learner engagement, hinder the depth of classroom discussions, and curtail opportunities for reflection. The temporal constraints inherent in shorter class periods necessitate a careful recalibration of assessment approaches to ensure meaningful evaluation within the available time, showcasing the need for adaptability in assessment practices.

Moreover, Webb (2005) draws attention to learner enrolment in the classroom and the system's expectations for grade-level content as additional factors influencing teachers' assessment practices. The number of students in a class and the overarching academic expectations set by the educational system significantly shape how teachers approach assessments. The diverse needs of varying class sizes and the overarching curriculum requirements contribute to the complexity of assessment design and implementation. Educators must navigate these factors with a keen awareness of the individualized needs of their students and the broader educational context. This holistic understanding is crucial for tailoring assessments that effectively gauge student learning and contribute to overall educational goals.

Teachers play a pivotal role in adapting their instructional strategies to align with the evolving landscape of assessment methods. With the implementation of different assessment approaches, teachers bear the responsibility of ensuring that students are well-acquainted with these methods. This shift in assessment practices has reverberated across teaching planning and daily instructional strategies. Teachers are now compelled to infuse creativity and innovation into their pedagogical approaches to cultivate students' curiosity for learning. The dynamic interplay between assessment methods and teaching practices underscores the integral connection between how knowledge is delivered and how it is assessed.

The impact of changing assessment methods is not confined to the mechanical aspects of testing; rather, it extends to the broader realm of fostering student interest in learning. In response to evolving assessment practices, teachers are challenged to design instructional plans that captivate students' attention and fuel their enthusiasm for knowledge acquisition. This shift underscores the transformative role teacher's play in not only imparting information but also

kindling a genuine curiosity for learning. Teachers become architects of an engaging learning environment that goes beyond rote memorization, aiming to nurture the innate creativity and innovation of each student.

Nitko's (2001) observations emphasize the significant challenges faced by basic school instructors in implementing School- Based Assessments, particularly in the context of large class sizes. The sheer magnitude of students in a single classroom presents a formidable obstacle for teachers attempting to integrate SBA into their pedagogical practices. In large classes, the task of administering, assessing, and documenting each student's progress becomes a daunting responsibility for instructors, impacting the feasibility and effectiveness of SBA implementation.

Building on this perspective, Kapambwe's (2010) formative assessment study in Zambia sheds further light on the specific difficulties encountered by teachers participating in the SBA pilot program at the basic school level. A key challenge highlighted by teachers is the size of most basic school classes, often comprising sixty students or more. The prevalence of such large classes exacerbates the workload for instructors, particularly in the context of SBA, where individualized assessment and documentation are integral components. The strain on teachers to manage and evaluate the progress of a considerable number of students compromises the intended benefits of SBA and raises questions about its practicality in settings with resource constraints.

The challenges posed by large class sizes have broader implications for the overall success of SBA implementation. Instructors, overwhelmed by the demands of assessing and documenting each student's performance, may struggle to provide timely and meaningful feedback, hindering the formative nature of SBA. The educational system's capacity to cater to the diverse needs of students may also be compromised, as large class sizes limit the personalized attention and support that teachers can offer.

Addressing the challenge of large class sizes in the context of SBA implementation requires a comprehensive approach. Policy interventions and resource allocation aimed at reducing class sizes can alleviate the burden on teachers and enhance the feasibility of individualized assessment. Additionally, targeted professional development for instructors in strategies to manage large classes effectively within the SBA framework is crucial. Ensuring that educators

have the necessary tools, support, and training can contribute to a more sustainable and successful integration of SBA in basic schools.

The challenges associated with large class sizes pose a significant obstacle for basic school instructors attempting to implement SBA. Nitko's (2001) insights and Kapambwe's (2010) study in Zambia highlight the practical difficulties teachers face in managing extensive workloads and individualized assessment within the context of SBA. Addressing the implications of large class sizes requires a multifaceted approach that encompasses policy changes, resource allocation, and targeted professional development to empower educators and optimize the benefits of SBA in basic schools.

The 2013 report published by the Hong Kong Professional Teachers' Union (PTU) underscores the overwhelming workload imposed by School-Based Assessment on both teachers and students. For students, the demands of SBA are characterized by high expectations regarding the quality and quantity of their work, often surpassing their capacity. This places a considerable burden on students, potentially affecting their well-being and overall educational experience. The report suggests that the intensity of SBA requirements may hinder students' ability to balance their academic responsibilities with participation in extracurricular activities, limiting their holistic development.

Kapambwe's (2010) study in Zambia aligns with these findings, emphasizing the substantial impact of SBA-related workload on students. The study reveals that the heavy workload stemming from SBA often results in additional lesson time, as students strive to meet the demands of the assessment approach. This extended lesson time, while intended to accommodate SBA requirements, inadvertently curtails students' opportunities to engage in extracurricular activities. The limitations imposed by the demanding nature of SBA can potentially hinder students' participation in diverse learning experiences beyond the traditional curriculum.

Teachers, too, bear a significant burden arising from the implementation of SBA. The additional responsibilities of hosting extra lessons and marking the vast amount of students' SBA work contribute to the overwhelming workload faced by educators. This dual role of instructing and assessing, coupled with the individualized nature of SBA, amplifies the challenges for teachers in managing their time and resources effectively. The report from the

Hong Kong PTU and Kapambwe's study collectively underscore the need for a balanced approach to assessment that considers the well-being of both students and teachers.

Addressing the issue of overwhelming workload associated with SBA necessitates a holistic approach. This includes exploring ways to streamline and optimize the assessment process to ensure that it aligns with students' capabilities and does not compromise their overall educational experience. Additionally, providing teachers with adequate support, resources, and training can help manage the additional responsibilities imposed by SBA, fostering a more sustainable and effective implementation.

The reports from the Hong Kong PTU and Kapambwe's study in Zambia highlight the overwhelming workload imposed by SBA on both students and teachers. The demands on students may limit their participation in extracurricular activities, impacting their holistic development. Simultaneously, teachers face challenges in managing the additional responsibilities associated with SBA. A comprehensive approach that considers the well-being of both students and teachers is essential to address the workload concerns and optimize the benefits of SBA in the educational context.

Research conducted by Chen (2003), Edelenbos and Kubanek-German (2004), and Hsu (2005) underscores the crucial role of classroom management training for teachers, emphasizing its potential influence on their utilization of School-Based Assessment (SBA). Classroom management skills are identified as a pivotal factor that may shape teachers' ability to effectively implement SBA in their instructional practices. This training becomes especially significant in fostering an environment conducive to individualized assessment, ensuring that teachers can navigate the challenges posed by SBA with confidence and competence.

In alignment with the importance of professional development, Brown (2002) highlights classroom evaluation as a paramount aspect of teacher growth. The emphasis on classroom evaluation underscores its role in continuous professional development, providing teachers with the tools and insights necessary for effective SBA implementation. Classroom evaluation, when integrated into professional development programs, becomes a means for teachers to refine their assessment practices and align them with the goals and principles of SBA.

John's (2000) insights contribute to the understanding of challenges faced by teachers in implementing SBA. The scarcity of readily available SBA resources emerges as a significant hurdle, leading to potential discontinuation or misuse of SBA by teachers. This highlights the

importance of ensuring that educators have access to the necessary tools, materials, and guidelines to effectively integrate SBA into their teaching methodologies.

In organizing suitable professional development for instructors, it is imperative to delve into teachers' thoughts, opinions, perceptions, and attitudes toward SBA. This holistic understanding enables the tailoring of professional development initiatives to address specific needs and challenges faced by teachers. By incorporating insights into teachers' experiences and concerns, professional development programs can be more targeted and effective, providing the necessary support to enhance SBA implementation.

The research by Chen (2003), Edelenbos and Kubanek-German (2004), Hsu (2005), Brown (2002), and John (2000) collectively emphasizes the significance of classroom management training, classroom evaluation, and the availability of resources in influencing teachers' use of SBA. Professional development initiatives should consider these factors, aiming to empower teachers with the skills and resources needed to navigate the challenges associated with SBA implementation effectively. A tailored and comprehensive approach to professional development ensures that educators are well-equipped to embrace and maximize the benefits of SBA in their teaching practices.

Scholarly research by Chen (2003), Edelenbos and Kubanek-German (2004), and Hsu (2005) collectively suggests that various factors such as demographics, teacher beliefs, teacher training, class size, and teacher experience in actual classroom teaching play pivotal roles in influencing teacher practices related to School-Based Assessments. These demographic and experiential elements contribute to the nuanced landscape of teachers' engagement with SBA, shaping their approaches, preferences, and effectiveness in implementing this assessment methodology.

Yoloye's (1991) insights further illuminate the intricate connection between teachers' understanding, beliefs, opinions, and perceptions and their assessment practices. Specifically, teachers' beliefs regarding the educational advantages of SBA and the pedagogical benefits of implementing classroom assessment are crucial determinants of their assessment practices. This highlights the significance of delving into teachers' perspectives and attitudes to gain a comprehensive understanding of their approaches to assessment, particularly in the context of SBA.

The direct impact of teachers' knowledge on the implementation of SBA is underscored in McMillan's (2000) study. McMillan emphasizes the imperative for teachers to possess knowledge and understanding to effectively conduct assessments on student learning. The study reveals that teachers lacking sufficient knowledge on assessments struggle to integrate assessment practices into their teaching methodologies. Moreover, their inability to employ effective approaches, techniques, and strategies hinders their capacity to enhance students' competencies. This underscores the pivotal role of teacher knowledge as a catalyst for positive learning outcomes in schools.

In conclusion, the collective findings of these scholars emphasize the multifaceted nature of factors influencing teacher SBA practices. Demographics, teacher beliefs, training, class size, and experience all contribute to the complex landscape of how teachers engage with and implement SBA. Yolo's insights underscore the intricate connection between teachers' beliefs and assessment practices, while McMillan highlights the critical role of teacher knowledge in effective assessment implementation. Acknowledging and addressing these factors are essential steps in promoting successful SBA integration and optimizing learning outcomes for students.

The challenge of absenteeism emerges as a significant obstacle in the seamless management of pupil participation in School-Based Assessments records. Yolo's (1991) study provides insights into the adverse effects of irregular attendance, particularly in the context of rural areas. In these settings, some pupils opt to stay away from schools due to the perceived difficulty of the academic work, creating a climate of fear around challenging educational tasks. The fear of rigorous academic demands serves as a deterrent, contributing to irregular attendance and absenteeism among students in rural areas.

Yolo's findings suggest that the issue of absenteeism goes beyond occasional non-attendance and can escalate to a more serious problem. The study indicates that some students, faced with the challenges of SBA and other academic pressures, may eventually choose to drop out of school altogether. The link between absenteeism and dropout rates underscores the potential long-term consequences of irregular attendance, adversely affecting students' educational journeys and compromising the objectives of SBA.

Addressing absenteeism as an obstacle to SBA participation necessitates targeted interventions that go beyond the immediate concerns of assessment management. Strategies should be

developed to understand and mitigate the underlying factors contributing to irregular attendance, especially in rural areas. This may involve creating supportive learning environments, offering additional academic assistance, and addressing the perceived challenges that deter students from attending school regularly.

Moreover, collaboration between educators, communities, and policymakers is crucial to developing comprehensive solutions that address both the fear of challenging work and the systemic issues contributing to absenteeism. Implementing measures to enhance the relevance and inclusivity of SBA, along with fostering a positive learning environment, can play a role in minimizing the impact of absenteeism on the successful implementation of SBA and preventing students from dropping out.

Yoloye's study sheds light on how absenteeism poses a significant challenge to the management of pupil participation in SBA records, particularly in rural areas. The fear of challenging work contributes to irregular attendance, leading to potential dropout situations. Tackling absenteeism requires a multi-faceted approach, including addressing underlying factors, creating supportive learning environments, and fostering collaboration between stakeholders to ensure the continued success of SBA and the overall well-being of students.

Etienne's (2007) observations in Malaysia reveal a noteworthy discrepancy between the intended practice of School-Based Assessments and the actual behaviors of teachers in schools. Despite the provision of intensive in-service training and guidelines encouraging the adoption of SBA, a considerable number of teachers persisted in the practice of continuous testing. This manifested as the administration of assessments or tests at specific intervals, such as the end of the first and second months of the academic term. The tendency to revert to traditional assessment practices suggests a gap in teachers' understanding or acceptance of the continuous and integrated nature of SBA.

One notable challenge highlighted by Etienne's observations is the resistance among a significant number of teachers to administer assessments on an ongoing basis, such as weekly or fortnightly, or after covering a specific topic. This reluctance to embrace a more frequent and integrated assessment approach may stem from ingrained teaching habits, concerns about time constraints, or a lack of appreciation for the pedagogical benefits of continuous assessment within the SBA framework.

Furthermore, the perception of time as a limiting factor becomes apparent in teachers' attitudes toward SBA in Malaysia. Despite the emphasis on integrating SBA into the teaching and learning processes, many teachers expressed concerns about the time-consuming nature of SBA practices. Etienne notes that teachers in Malaysia were apprehensive about the perceived excessive time spent on remediation and enrichment activities associated with SBA. This concern raises questions about the perceived feasibility of completing the syllabus within the parameters of school assessment policies.

The challenges identified by Etienne highlight the need for targeted interventions and support mechanisms to bridge the gap between policy intent and classroom practices. Professional development initiatives should address teachers' apprehensions, providing them with the necessary skills, understanding, and resources to seamlessly integrate SBA into their teaching routines. Emphasizing the pedagogical benefits and long-term impact of continuous assessment can contribute to shifting teachers' perspectives and fostering a more conducive environment for successful SBA implementation.

In summary, Etienne's observations in Malaysia uncover challenges in the adoption of SBA among teachers, including a preference for traditional testing practices, resistance to more frequent assessments, and concerns about time constraints. Addressing these challenges requires strategic interventions that prioritize professional development, emphasizing the alignment of teaching practices with the principles and goals of SBA.

Numerous studies, including research by Chapman, Tan, and Tan (2010), advocate for a holistic approach to assessment that encompasses communication, critical thinking, and teamwork skills. These scholars suggest that teachers should incorporate these essential skills into their assessment practices, with School-Based Assessments serving as a conduit for evaluating such competencies. The call for assessing a broader set of skills reflects an acknowledgment of the multifaceted nature of education, emphasizing the need to prepare students not only for academic success but also for the challenges of a dynamic and interconnected world.

In principle, the evolving landscape of assessment methods necessitates a paradigm shift in teaching practices. Teachers are at the forefront of this transformative journey, adapting their approaches to inspire curiosity, foster creativity, and evaluate a comprehensive set of skills that extend beyond traditional academic measures. This symbiotic relationship between assessment

and teaching underscores the profound influence teachers wield in shaping the educational experiences of their students.

The landscape of education is continually shaped by innovations, new creations, and unfamiliar practices, all of which may give rise to differences in opinion and present various challenges. As we navigate the evolving terrain of educational assessment, a critical examination of the modern-day learner's evaluation becomes paramount. However, this exploration raises an unanswered question concerning the capacity of assessment bodies to effectively address the multifaceted issues at hand (AEAA, 2018). The imperative now lies in a comprehensive deliberation over factors such as human resources, financial investments, and infrastructural support needed to implement the necessary transformations in assessment.

Addressing the evolving needs of educational assessment requires meticulous consideration of the resources that underpin these transformations. Human resources, encompassing skilled professionals and educators, play a pivotal role in shaping the landscape of assessment practices. Financial investments become a critical component, ensuring that adequate funding is allocated to research, development, and the implementation of innovative assessment methodologies. Infrastructural support is equally vital, as it provides the technological and logistical backbone necessary for the seamless execution of modern assessment practices. These factors collectively form the bedrock upon which the edifice of reformed assessment procedures stands.

In the pursuit of educational assessment reform, maintaining essential principles such as fairness, validity, reliability, and practicability remains non-negotiable (AEAA, 2018). The assurance of fairness underscores the commitment to equal opportunities and unbiased evaluation for all learners. Validity ensures that the assessment genuinely measures what it intends to measure, while reliability guarantees consistency and dependability in the results obtained. Practicability emphasizes the feasibility of implementing assessment methodologies within the educational system. Balancing these core principles is a delicate yet indispensable aspect of ushering in effective and sustainable changes to the assessment landscape.

As we contemplate the future of educational assessment, it is crucial to engage in a thoughtful and inclusive dialogue that considers the multifaceted dimensions of implementation. The transformative journey requires a harmonious interplay of human expertise, financial investments, and robust infrastructure, all guided by the unwavering commitment to uphold the

fundamental tenets of assessment integrity. By navigating these considerations, we can pave the way for an assessment framework that aligns seamlessly with the dynamic needs of the modern-day learner and the ever-evolving landscape of education.

Teachers grapple with escalating challenges in the realm of classroom assessment, a daily struggle that researchers have keenly observed. The landscape is fraught with complexities, as demands for social reform and the provision of adequate educational resources create a turbulent environment for educators (Rakometsi, 2000). The evolving nature of educational reform introduces diverse approaches from various stakeholders, adding another layer of intricacy to the teacher's role and responsibilities (Tladi, 2000). In the quest to establish a robust culture of teaching and learning, educators find themselves navigating through a maze of educational philosophies and methodologies, each vying for attention and validation (Kotze, 2002).

Central to the challenges faced by teachers is the pervasive controversy surrounding the meaning, management, and measurement of classroom assessment. This multidimensional predicament encompasses philosophical debates on the purpose and essence of assessment, practical issues related to its effective implementation, and the ongoing quest for reliable measurement tools (Chisholm, 2005). The clash of perspectives on assessment methods and their interpretation further compounds the challenges, leaving teachers at the forefront of a complex and sometimes contradictory discourse.

Educational reform, as highlighted by these challenges, necessitates a nuanced understanding of the multifaceted issues that educators grapple with daily. The demands for social reform underscore the broader societal expectations placed on education, and the availability of resources becomes a critical determinant of educational success. Differing approaches to reform introduce a layer of complexity that requires teachers to navigate with dexterity. Moreover, the establishment of a robust culture of teaching and learning is a fundamental but intricate undertaking. In the midst of these challenges, the controversies surrounding classroom assessment demand careful consideration and strategic resolution to pave the way for effective educational practices. Balancing these elements is essential for educators as they chart a course through the ever-changing landscape of educational reform.

The challenges highlighted underscore the critical need for ongoing dialogue, research, and professional development to equip teachers with the knowledge and skills required to navigate

the intricacies of classroom assessment. By acknowledging and addressing these challenges, educational stakeholders can collaboratively work towards fostering an environment that supports both educators and learners in their pursuit of academic excellence.

The introduction of new curricula is often driven by a desire to address pressing social issues, with a particular focus on aspects like equity, access, redress, and accountability, as argued by these scholars. In the Zambian context, the provision of educational resources is recognized as only a partial solution to the challenges facing the education system. The intricate web of issues affecting the Zambian education system is deeply rooted in historical disadvantages, complicating efforts to achieve meaningful progress. Historical legacies have left enduring imprints, influencing the present educational landscape, and contributing to the complexities faced by educators (Carrim, 2002).

Within the Zambian educational context, the application of a politically oriented education policy adds another layer of complexity. The intertwining of political considerations with educational practices introduces challenges related to the alignment of policy goals with broader educational objectives. The impact of such policies resonates throughout the system, shaping not only the content of curricula but also the dynamics within classrooms and the relationships between educators and learners.

Another significant challenge arises from the rejection of education by certain learners as a form of political resistance. This phenomenon underscores the intricate relationship between education and broader societal dynamics. Learners' resistance to education can be rooted in historical grievances, political dissent, or a sense of exclusion from the benefits promised by the educational system. Addressing this challenge requires a nuanced understanding of the socio-political context in which education operates (Carrim, 2002).

Furthermore, the challenges faced by the Zambian education system include a lack of discipline and the absence of a robust culture of teaching and learning. Discipline is foundational to effective teaching and learning environments, and its absence can impede the educational process. Cultivating a culture of teaching and learning requires concerted efforts from educators, policymakers, and the broader community to create an environment that values education, encourages active participation, and fosters a passion for lifelong learning.

In summing up on the above discussed, the challenges confronting the Zambian education system are multi-faceted and deeply rooted in historical, political, and sociocultural dynamics.

Addressing these challenges requires a comprehensive approach that considers not only the provision of resources but also the alignment of educational policies, engagement with historical legacies, and the cultivation of a conducive learning culture. Collaborative efforts from all stakeholders are essential to navigate the complexities and bring about meaningful transformation in Zambia's education landscape.

The perception of assessment as a significant source of problems for schools and teachers is a sentiment echoed by Chisholm (2005). The intricacies surrounding the issue of assessment are further compounded by the ongoing debates regarding two distinct possibilities for school leaving and examinations assessment: an input-based, summative form of assessment or an outcomes-based model for formative and continuous assessment. These divergent approaches to assessment introduce a layer of complexity, requiring careful consideration of their respective merits and implications for educational practices and policies (Chisholm, 2005).

The challenges faced by teachers in the realm of assessments are multifaceted and underscore the critical role assessments play in the education system. Whether grappling with the demands of summative assessments that focus on inputs or navigating the nuances of outcomes-based formative and continuous assessment, teachers find themselves at the forefront of implementing and adapting to diverse assessment models. These challenges necessitate a thorough examination of assessment policies to ensure they are not only aligned with educational goals but also attuned to the practical realities faced by educators in classrooms (Chisholm, 2005).

Moreover, the ongoing discourse on assessment highlights the broader implications for educational policies and practices. The choice between input-based summative assessment and outcomes-based formative assessment reflects fundamental perspectives on the purposes and priorities of education. This ongoing debate prompts a reconsideration of the foundational principles that underpin assessment policies, encouraging a more nuanced and context-specific approach that recognizes the diverse needs and challenges faced by teachers and learners alike.

The challenges associated with assessment in education illuminate the need for a comprehensive and nuanced approach to policy formulation. The ongoing debates regarding assessment models underscore the complex interplay between educational philosophies and practical implementation in classrooms. Addressing the multifaceted challenges requires a careful examination of the merits and drawbacks of different assessment approaches, with a

keen awareness of the impact on teachers, students, and the overall educational landscape (Chisholm, 2005).

Brookhart and Bronowicz (2003) assert that learners often perceive assessment as a tool primarily designed to identify failure rather than to document their development and success. This perception is rooted in the learners' understanding of the learning process, where the emphasis is placed on identifying and reproducing correct answers to well-defined problems with predetermined solutions. The prevailing view among learners is that assessment is more concerned with pinpointing shortcomings than recognizing and celebrating progress.

The learners' perspective on assessment is reflective of a broader issue in education, where the relationship between assessment practices and teaching and learning is characterized as highly eclectic and idiosyncratic. Adams (2001), Gao and Watkins (2002), and Brown (2003) allude to the complexity and diversity of assessment practices, highlighting the individualistic nature of how teachers approach assessment. Brown (2004), in particular, conducted a survey of elementary school teachers and argued that the idiosyncratic values and conceptions of teaching held by individual teachers often shape their assessment policies.

The survey conducted by Brown (2004) indicates that many teachers develop assessment practices based on their unique values and conceptions of teaching. This highly individualistic approach leads to a diverse landscape of assessment strategies within the educational system. Teachers influenced by their personal beliefs and perspectives on teaching, shape assessment policies that may not always align with standardized or universally accepted practices. This diversity raises questions about the consistency and fairness of assessment practices across different educational contexts.

The learners' perception of assessment as a tool primarily focused on identifying failure underscores broader issues within the educational system. The eclectic and idiosyncratic nature of assessment practices, as highlighted by various scholars, suggests a need for more standardized and universally accepted approaches. Achieving a balance between recognizing the individuality of teaching styles and ensuring consistency and fairness in assessment practices remains a challenge that requires careful consideration and ongoing dialogue within the education community.

There is a burgeoning body of literature (Rueda and Garcia, 1994; Sugrue, 1997; Tillema, 1997; Brown, 2004; Harris, 2008) emphasizing the profound impact of teachers' beliefs on their

perceptions, judgments, and subsequent behavior in the classroom. These belief systems are regarded as integral to enhancing both professional preparation and teaching effectiveness (Korthagen, 1993). The interconnectedness between teachers' beliefs and their instructional practices underscores the need for a comprehensive understanding of the factors influencing classroom dynamics.

Empirical studies on classroom assessments reveal a diversity of perspectives and understandings among teachers (Akyeampong, Pryor, and Ampiah, 2006; Berry, 2006; Vandeyar and Killen, 2007; Brown and Hirschfield, 2008; Harris, 2008). Maclellan (2001) delved into the experiences of tutors in a specific higher education institution, shedding light on assessment practices encompassing student diagnosis, learning evaluation, and teaching assessment. This multifaceted approach to assessment acknowledges its role in shaping both the teaching and learning processes.

Begum and Farooqui (2006) conducted a study titled "School Based Assessment: Will it really Change the Education Scenario in Bangladesh?" to explore the impact of the School-Based Assessments system in Bangladesh. The research involved four SBA trainers and 18 secondary teachers, with participants selected through "Typical Case Sampling," a purposive sampling strategy (Wiersma & Jurs, 2005). Employing both qualitative and quantitative methods, data were gathered through interview surveys, semi-structured interviews, and document analysis.

The research incorporated two separate questionnaires with open-ended questions tailored for teachers and trainers. By gathering insights from those directly involved in the implementation of SBA, the study aimed to provide a comprehensive understanding of the challenges, perceptions, and potential benefits associated with the SBA system in the context of Bangladesh's secondary education.

Exploring the experiences and perspectives of SBA trainers and secondary teachers from both suburban and urban areas, the study sought to uncover nuances that may influence the effectiveness of the SBA system in diverse educational settings. The inclusion of both qualitative and quantitative data allowed for a nuanced analysis, capturing the richness of teachers' and trainers' experiences and perceptions regarding the SBA system.

The study by Begum and Farooqui (2006) contributes valuable insights into the nuanced landscape of School-Based Assessment in Bangladesh. By considering the perspectives of trainers and teachers, the research sheds light on the multifaceted nature of SBA

implementation, providing a foundation for further discussions and potential improvements in the education system.

The study's findings revealed a sense of optimism among trainers regarding the successful transformation of the assessment system through the implementation of the School-Based Assessments system. This optimism suggests a belief in the potential positive impact of SBA on the existing education system in Bangladesh. However, the teachers' perspectives were more varied, reflecting a divided opinion on whether the SBA system would indeed bring positive changes to the current educational landscape.

A noteworthy discovery from the research was the prevalent lack of training among teachers for the effective implementation of the SBA system. Despite the government's initiation of the SBA system, a significant portion of teachers had not undergone the necessary training essential for its successful execution. This knowledge gap among teachers could lead to an ineffective understanding of the underlying concepts of SBA, hindering their ability to distribute marks effectively. It is imperative to recognize that untrained teachers attempting to implement a new assessment system may face challenges, potentially jeopardizing the integrity and functionality of the system.

The findings underscore the critical role of teacher training in ensuring the successful implementation of educational reforms such as the SBA system. Training is essential not only for familiarizing teachers with the new concepts but also for equipping them with the skills necessary to navigate the complexities of the assessment framework. Without proper training, teachers may struggle to align their classroom practices with the ministerial guidelines, creating a significant gap between the intended policy at the ministerial level and the practical reality within classrooms.

The potential collapse of the SBA system due to inadequate teacher training is a substantial concern highlighted by the study. If the implementation proceeds without addressing this crucial aspect, it risks undermining the intended benefits of the SBA system. The mismatch between ministerial aspirations and classroom reality could impede the system's effectiveness and compromise the quality of assessment outcomes.

In essence, the findings underscore the need for a holistic approach to educational reform, emphasizing the importance of comprehensive teacher training programs. These programs should not only focus on the theoretical aspects of the SBA system but also provide practical

insights and strategies for its seamless integration into daily classroom practices. Bridging the gap between policy formulation and classroom execution requires concerted efforts in ensuring that teachers are adequately prepared and supported throughout the implementation process.

The study's findings shed light on the nuanced challenges associated with the introduction of the School-Based Assessments system in Bangladesh. The emphasis on teacher training emerges as a critical factor influencing the potential success or failure of the SBA system. As policymakers consider further educational reforms, addressing the training needs of teachers becomes paramount for fostering a positive and effective learning environment. The study serves as a valuable contribution to the ongoing discourse on educational reform and underscores the importance of aligning policy implementation with the practical realities of the classroom.

Although teachers and trainers were quite optimistic about bringing a positive change in education through SBA, there was a widespread apprehension that teachers would misuse the SBA project to give high numbers to the students who take private tuition. It was important to implement policies that suit the local culture. To ensure proper evaluation of a student, recommendations have been provided below:

- a) Academic supervisors should be given this responsibility of monitoring
- b) Head teachers should call meeting and check all teachers' record keeping in each term
- c) A committee can be formed in each school to check the records
- d) Guardians should be aware of the fact that their children may not fall victim to any teacher, if suspected, guardians should place immediate complain to the head teacher
- e) Head teachers should sit for a guardian's meeting after each term and try to solve the complaints placed by the guardians.
- f) An element of guidance and counselling may be introduced. It will provide an opportunity to know teachers' problems while implementing the new assessment system. These are some of our reflections conceived through this survey, it is our assumption that if the suggestions can be maintained properly only then we can foresee desirable outcome from SBA.

The study conducted by Lingam and Lingam (2016), titled "Developing School Heads as Instructional Leaders in School-Based Assessment: Challenges and Next Steps," utilized a mixed-method design to investigate the challenges faced by school heads in effectively

utilizing School-Based Assessments. The findings of the study revealed that the difficulties in the successful implementation of SBA were primarily attributed to limitations in knowledge and skills among school heads. One key factor contributing to the knowledge and skill limitations identified in the study was the inadequacy of initial teacher training programs. The study highlighted that these training programs provided minimal coverage of assessment-related topics, leaving school heads ill-equipped to navigate the complexities of SBA. This deficiency in their foundational training had repercussions on their ability to serve as effective instructional leaders in the context of school-based assessments.

However, the study also pointed towards a potential solution to address these knowledge and skill limitations. Participants who participated in a dedicated assessment course reported a positive impact on their understanding and application of best practices in school-based assessment. This implies that targeted professional development, specifically focusing on assessment practices, could play a pivotal role in enhancing the knowledge and skills of school heads, enabling them to effectively lead and implement SBA within their schools.

Lingam and Lingam's study highlights the critical role of knowledge and skills in the successful utilization of School-Based Assessments by school heads. The inadequacies in initial teacher training underscore the need for targeted professional development initiatives, such as assessment courses, to empower school heads with the necessary competencies. By addressing these limitations, education systems can better support school leaders in becoming effective instructional leaders in the realm of school-based assessments.

In their 2017 study titled "Differences in the quality of school-based assessment: Evidence in Grade 9 mathematics achievement," Van Staden and Motsamai utilized a qualitative case study approach to explore the factors influencing the quality of school-based assessments in Grade 9 mathematics. The findings of the study revealed several key challenges that contributed to variations in the quality of SBA across different settings.

One significant issue identified was a lack of adherence to policy, suggesting that the existing guidelines and regulations related to SBA were not consistently followed. This non-compliance could lead to inconsistencies in assessment practices, potentially compromising the reliability, validity, and credibility of the assessments. Additionally, the study pointed out variations in classroom practices as another source of divergence in SBA quality. The way teachers

implement assessment strategies in the classroom can significantly impact the overall effectiveness and fairness of the assessment process.

Furthermore, the study highlighted the importance of monitoring and moderation practices in ensuring the consistency and fairness of SBAs. However, the findings indicated that inconsistent monitoring and moderation practices were prevalent, potentially contributing to variations in the quality of assessments. Notably, heads of departments (HODs) and principals were identified as lacking knowledge and understanding of their roles in enhancing the reliability, validity, and credibility of SBA. Similarly, teachers, as implementers, were found to lack the necessary capacity, effective induction, and training, emphasizing the need for comprehensive professional development in the realm of school-based assessment.

In summary, Van Staden and Motsamai's study shed light on the multifaceted challenges influencing the quality of school-based assessments in Grade 9 mathematics. The identified issues, including non-compliance with policy, variations in classroom practices, and inadequate monitoring, underscore the importance of targeted interventions and professional development initiatives to address the underlying factors contributing to variations in SBA quality.

In their 2015 study titled "Teachers' Knowledge and Readiness towards Implementation of School-Based Assessments in Secondary Schools (Malaysia)," Arsaythamby et al. utilized a quantitative survey design to explore teachers' perceptions regarding their knowledge and readiness to implement school-based assessment in secondary schools. The findings of the study provided valuable insights into the relationship between teachers' knowledge and their readiness to implement SBA.

The study reported that all teachers surveyed agreed that they possessed knowledge about school-based assessment. This acknowledgment of knowledge suggests that teachers were cognizant of the principles and concepts related to SBAs. However, the study also revealed that although teachers reported having a good understanding of SBAs, they expressed less readiness to actually implement it in their teaching practices. This apparent gap between knowledge and readiness could imply that teachers might lack confidence in their ability to apply their knowledge effectively in the context of SBAs.

The discrepancy between teachers' knowledge and readiness underscores the importance of addressing factors that may contribute to a lack of confidence among educators. Professional

development programs and interventions may be necessary to bridge this gap and enhance teachers' confidence in implementing SBAs. Additionally, the study findings suggest that while teachers may have acquired theoretical knowledge about SBAs, practical readiness requires additional support and resources to translate that knowledge into effective classroom practices.

In conclusion, Arsaythamby et al.'s study highlights the nuanced relationship between teachers' knowledge and their readiness to implement school-based assessment in Malaysian secondary schools. The identified gap between knowledge and readiness emphasizes the need for targeted interventions and ongoing support to empower teachers in confidently applying SBA principles in their day-to-day teaching activities.

In their research study titled "Impact of COVID-19 on the Administration of School-Based Assessments and Learners' Performance in Final Examinations in Selected Districts across Zambia," Hamusunga, Kombe, and Simunchembu employed a mixed methods cross-sectional survey design, specifically utilizing a concurrent triangulation mixed methods research design. The study aimed to investigate the repercussions of the COVID-19 pandemic on the implementation of School-based assessments and learners' performance in final examinations across selected districts in Zambia.

The findings of the study revealed significant challenges faced by both head teachers and teachers due to the extended closure of schools caused by the COVID-19 pandemic. A substantial percentage of head teachers (82.91%) and teachers (71%) reported that the prolonged closure had a detrimental impact on the implementation of SBA in schools. Additionally, a notable proportion of both teachers (45.7%) and head teachers (69.1%) acknowledged the difficulties encountered in conducting assessments during the pandemic.

The difficulties experienced during the pandemic were further exemplified by delayed feedback to learners, as reported by some head teachers (26.8%) and teachers (14.6%). These delays in providing feedback to learners could have implications for their educational progress and understanding. The study's findings suggest that, under the challenging circumstances imposed by the pandemic, schools may have faced obstacles in adhering strictly to the standards set by the Ministry of Education (MoE) and the Examinations Council of Zambia in the administration of assessments.

In conclusion, the study shed light on the substantial challenges posed by the COVID-19 pandemic on the administration of school-based assessments and subsequent impacts on learners' performance in final examinations in selected districts across Zambia. The reported challenges highlight the need for flexible and adaptive strategies to ensure the effective implementation of assessments during unprecedented disruptions such as a global health crisis.

2.11 Challenges Faced by Teachers in Implementing School Based Assessments

The implementation of School-Based Assessments in basic schools has encountered a significant hurdle, as identified by Nitko (2001), in the form of large class sizes. This challenge was further elucidated in a formative evaluation study conducted in Zambia, specifically focusing on the pilot program's implementation at the basic school level (Kapambwe, 2010). Teachers involved in the study emphasized the formidable nature of dealing with large classes, a prevalent issue in many basic schools. Notably, it is not uncommon to find classrooms accommodating 60 students or more.

The adverse impact of large class sizes on teachers' ability to effectively implement SBAs was explicitly highlighted by the teachers themselves. The increased workload emerged as a prominent concern, directly linked to the necessity of assessing and documenting the progress of each individual learner. The sheer number of students in a class presented a practical challenge for teachers to meaningfully engage with SBA requirements, particularly in terms of thorough assessment, feedback, and record-keeping.

Teachers' testimony on the challenges posed by large class sizes underscores the need for a nuanced approach to SBA implementation. The workload resulting from the obligation to assess and track the progress of a substantial number of students can impede the effectiveness of the assessment process. Addressing the issue of large class sizes becomes imperative to ensure the practical viability of SBA, allowing teachers the necessary time and resources to implement meaningful assessments that contribute to students' educational development.

The challenge of large class sizes constitutes a formidable barrier to the successful implementation of SBAs in basic schools. Recognizing and addressing this issue is crucial for devising strategies that enable teachers to effectively carry out the assessment tasks associated with SBAs. By mitigating the impact of large class sizes, educational authorities can contribute to the creation of a conducive environment for teachers to implement SBA in a manner that aligns with its intended objectives.

A comprehensive report published by the Hong Kong Professional Teachers' Union in 2013 sheds light on the overwhelming workload imposed by School-Based Assessments on both teachers and students. According to the report, students grapple with the demanding nature of SBA, which places a high burden on them in terms of both the quality and quantity of work. The challenges extend to the point where the demands of SBAs surpass the students' capacities to cope effectively. This suggests that the intricate requirements of SBAs might not always align with the diverse abilities and learning capacities of students, potentially hindering their educational experience.

Moreover, the study emphasizes the significant impact of the heavy workload associated with SBA on students' extracurricular activities. The demanding nature of SBA often results in students having to allocate additional time to meet the assessment requirements. Consequently, this can limit their participation in various extracurricular pursuits, impacting their overall development beyond the academic realm. This finding underscores the need for a balanced approach to assessment that considers the broader well-being of students.

Teachers, too, find themselves grappling with the consequences of the SBAs workload. Hosting extra lessons to accommodate the demands of SBAs places an additional burden on educators. The need for extra lesson time reflects the challenges associated with incorporating SBAs into the regular curriculum, requiring adjustments to the traditional teaching schedules. Moreover, teachers face the arduous task of marking the substantial volume of students' SBA work, further contributing to the overall strain on educators.

In summary, the PTU report underscores the multifaceted challenges posed by the overwhelming workload brought about by SBA. From students struggling with the demands to teachers navigating extra lessons and extensive marking, the study highlights the intricate dynamics that impact the educational landscape. Balancing the requirements of SBAs with the well-rounded development of students and the practical consideration for teachers emerges as a key consideration in optimizing the effectiveness of the assessment approach.

2.12 Zambian Perspective on the Challenges in implementing School Based Assessment

The assertion that findings from existing research in other countries, such as Arsaythamby et al. (2015), Majid (2011), Lingam & Lingam (2016), and Van Staden & Motsamai (2017), cannot be presumed transferable to the Zambian context is grounded in the recognition of multifaceted contextual differences. Arsaythamby et al. (2015) explored Teachers' Knowledge

and Readiness towards Implementation of School-Based Assessment in Secondary Schools in Malaysia, while Majid (2011) likely examined a distinct educational landscape. Lingam & Lingam's (2016) study focused on Developing School Heads as Instructional Leaders in School-Based Assessment in an unspecified context, and Van Staden & Motsamai (2017) investigated Differences in the quality of school-based assessment in Grade 9 mathematics achievement. The acknowledgment of political, economic, social, technological, cultural, and legal variations emphasizes the need for a nuanced understanding of the unique Zambian educational environment.

In Zambia, there is a paucity of publications specifically addressing the implementation of school-based assessment, further underscoring the importance of conducting research within the local context. The lack of relevant literature highlights a gap in understanding the intricacies of SBA implementation in the Zambian educational system. Given the unique socio-economic and cultural factors that characterize Zambia, extrapolating findings from studies conducted in different countries may lead to misinformed conclusions. Consequently, the call for context-specific research is essential to generate insights that align with Zambia's educational policies, practices, and challenges.

The disparities in political, economic, and cultural environments, coupled with the evolving nature of educational systems, emphasize the necessity for research that is temporally and contextually relevant. By acknowledging these distinctions, educational stakeholders can make informed decisions, develop tailored interventions, and shape policies that resonate with the specific needs and dynamics of the Zambian educational landscape. The call for localized research acts as a catalyst for generating knowledge that is directly applicable and beneficial to the Zambian context, contributing to more effective and contextually sensitive educational practices.

One of the publications is Kapambwe (2010) who found out that there were many challenges that would arise from the implementation of SBA ranging from the difficulty level of the assessment, the time-consuming nature of these tasks, and a lack of resources to complete the tasks effectively. Kapambwe in his study, titled "An Assessment of School-Based Assessment Implementation in Zambian Primary Schools: Challenges and Opportunities," aimed to comprehensively examine the implementation of the SBA Scheme and Guidelines in Zambian primary schools. The first objective assessed teachers' awareness and understanding of the

SBA Scheme and Guidelines, revealing a generally positive reception among teachers who acknowledged its significance in monitoring pupil progress.

As part of the second objective, the study delved into the extent of training received by teachers for conducting formal monthly assessments, specifically in Week 5 and Week 10. The findings highlighted the critical role of teacher training in influencing the successful implementation of SBA. However, challenges were noted in conducting individual assessments and scoring within the allocated time, indicating the need for targeted interventions in this area.

Exploring teachers' perceptions and experiences constituted the third objective. Despite facing challenges, teachers recognized several benefits associated with the SBAs implementation, including the development of remedial interventions and noticeable improvements in pupils' performance. This positive feedback underscored the potential positive impact of SBAs on instructional practices and overall learning outcomes.

The fourth objective focused on identifying challenges encountered by teachers in the implementation of SBAs, emphasizing issues such as class size, time constraints, and the availability of teaching and assessment materials. These challenges were identified as significant hurdles that could impede the effective execution of SBAs in Zambian primary schools. Lastly, the study aimed to provide recommendations based on the findings to improve the implementation of School-Based Assessments. The identified challenges, particularly those related to resource constraints and teacher training, underscored the need for targeted interventions and ongoing professional development programs. The study's holistic approach offers valuable insights for policymakers and educational authorities seeking to enhance the effectiveness of SBA in the Zambian primary education system.

Further, one significant hurdle encountered during the implementation of School-Based Assessments in Zambian primary schools was the prevalent issue of excessively large class sizes. Teachers consistently identified the formidable challenge posed by classes often exceeding 60 students or more. This widespread phenomenon across primary schools in Zambia significantly contributed to heightened workloads for teachers. Managing and accessing the progress of each learner within such expansive class settings proved to be a formidable task, intensifying the burden on teachers who were required to meticulously mark assessments and maintain comprehensive records for a large number of students (Kapambwe, 2010).

Despite extensive in-service training initiatives and the provision of guidelines encouraging the adoption of continuous assessment practices, a noteworthy observation was the persistence of a significant number of teachers resorting to traditional testing approaches. Instead of embracing the recommended continuous assessment model, numerous teachers in the pilot schools continued the practice of administering assessments or tests solely at the culmination of the first and second months. This revealed a prevalent resistance or lack of understanding among some teachers regarding the essential nature of conducting assessments on an ongoing basis. The reluctance to integrate assessments regularly, such as weekly or fortnightly, demonstrated a gap in comprehension among certain educators about the fundamental principles of SBA and its emphasis on continuous, systematic evaluation (Kapambwe, 2006).

The impact of large class sizes on the effective implementation of SBA was evident in the teachers' struggle to align with the recommended assessment frequency. The disparity between prescribed guidelines and actual classroom practices highlighted the need for targeted interventions, including further training and support, to enhance teachers' understanding of and adherence to the principles of School-Based Assessments. Addressing challenges associated with class sizes and promoting a shift from traditional testing to continuous assessment practices emerged as crucial focal points for improving the overall effectiveness of SBA in Zambian primary schools (Kapambwe, 2006).

In the realm of challenges faced during the School-Based Assessment implementation in Zambian primary schools, the elevated pupil-to-teacher ratio emerged as a prominent issue. The inadequacy in staffing levels led to an imbalance in the distribution of teachers, resulting in some educators being tasked with handling more than one class simultaneously. This heightened pupil-to-teacher ratio not only strained the individual teachers but also had broader implications for the quality of education, as educators grappled with the demands of managing multiple classes within a single teaching assignment.

Adding complexity to the staffing challenge was the recurrent issue of fluctuating staffing levels within schools. The inconsistency in staffing levels created a dynamic environment where schools experienced frequent changes in the number of teaching staff. This volatility further compounded the burden on teachers, as they had to adapt to shifts in staffing configurations, potentially affecting their ability to maintain continuity and consistency in implementing School-Based Assessment practices (Kapambwe, 2006).

The dual challenges of high pupil-to-teacher ratios and the instability in staffing underscored the multifaceted nature of obstacles encountered during the SBAs rollout. Addressing these challenges necessitated not only a strategic approach to allocate resources and optimize staffing but also initiatives to establish a more stable and supportive environment for teachers (Kapambwe, 2006). The recognition of these staffing-related hurdles emphasized the imperative for comprehensive solutions to enhance the effectiveness of SBA in the Zambian primary education landscape.

Despite the integral role continuous assessment (CA) plays in the seamless integration with teaching and learning, a significant portion of educators expressed reservations about its time-consuming nature. Many teachers conveyed concerns that the implementation of continuous assessment placed a substantial burden on their time. Specifically, they perceived that the process demanded an extensive investment of time, particularly in terms of remediation and enrichment activities. This perceived time constraint raised apprehensions among teachers about their ability to cover the entire syllabus within the framework of continuous assessment (Ministry of Education, 2007).

The issue of time allocation for remediation and enrichment became a focal point of contention among teachers. A considerable number of educators contended that the time dedicated to addressing the individual learning needs of students through remediation, as well as providing additional challenges through enrichment, was excessive. This concern was exacerbated by a prevailing skepticism among teachers, with many expressing doubt about the feasibility of completing the syllabus within the designated timeframe while actively engaging in the processes associated with continuous assessment (Mutanekelwa and Kapambwe, 2002).

The tension between the perceived time demands of continuous assessment and the imperative to cover the syllabus highlighted a critical aspect of the challenges faced by teachers in implementing CA. Striking a balance between the comprehensive integration of assessment practices and the efficient progression through the curriculum emerged as a key consideration (Kapambwe, 2012). Addressing these concerns required a nuanced approach to time management within the educational framework, emphasizing the need for effective strategies to streamline continuous assessment processes without compromising on the essential components of remediation and enrichment.

The issue of pupil absenteeism emerged as a significant impediment to the effective management of continuous assessment (CA) records, adding a layer of complexity to the overall process. The irregular attendance of some pupils posed a challenge in maintaining consistent and reliable performance records within the framework of CA. This challenge was particularly pronounced in rural areas, where factors such as the perceived difficulty of the academic workload contributed to pupils staying away from schools intermittently. The fear of confronting highly challenging coursework was identified as a primary reason for absenteeism in these regions (Mutanekelwa and Kapambwe, 2002).

In rural settings, the problem of absenteeism transcended sporadic non-attendance and, in some cases, escalated to the point of pupils dropping out of schools entirely. The fear and apprehension associated with the perceived difficulty of the academic curriculum played a pivotal role in exacerbating absenteeism and, consequently, contributing to the alarming rates of students discontinuing their education. This issue underscored the intricate interplay between educational challenges and broader socio-economic factors, emphasizing the need for targeted interventions to address the root causes of pupil absenteeism in rural areas (Kapambwe, 2006).

The multifaceted nature of the absenteeism challenge necessitated a comprehensive approach, considering both the immediate impact on CA records and the longer-term consequences on overall school attendance and retention rates. Mitigating pupil absenteeism required not only addressing the fear of challenging work but also implementing strategies to create a supportive and inclusive learning environment, particularly in rural schools.

A prevalent challenge highlighted by a majority of teachers was the insufficiency of teaching and learning resources, a factor significantly impeding the effectiveness of the teaching process. Teachers expressed widespread dissatisfaction with the availability of adequate materials crucial for facilitating learning in the new curriculum. The deficiency in learning materials was particularly pronounced in certain subject areas, such as Community Studies and Creative and Technology Studies, where a complete absence of materials was evident. This inadequacy created a substantial barrier to implementing the new curriculum effectively.

The scarcity of teaching and learning materials was identified as a critical issue, necessitating urgent attention and intervention. Teachers emphasized the need for comprehensive support, particularly in the form of essential materials and equipment. These included stationery,

computers, and photocopiers, which were deemed essential for enhancing the instructional environment and ensuring that educators had the tools necessary for effective teaching. The lack of such resources not only hindered the immediate teaching and learning processes but also underscored the broader systemic challenges in educational infrastructure and resource allocation.

The dire need for materials and equipment highlighted the importance of targeted initiatives to address resource gaps in schools. A strategic and collaborative approach involving educational authorities, policymakers, and relevant stakeholders was deemed imperative to ensure the provision of essential resources. Moreover, it was acknowledged that addressing this challenge required a multifaceted effort, combining short-term measures to alleviate immediate resource shortages and long-term strategies to enhance the overall educational infrastructure. In essence, the insufficiency of teaching and learning resources emerged as a critical bottleneck affecting the quality of education delivery, demanding urgent and sustained efforts to bridge resource gaps and create an environment conducive to effective teaching and learning (Kapambwe, 2006).

The establishment and implementation of collaborative efforts among groups of schools within districts to create shared end-of-term tests proved challenging in practice. The difficulties encountered in bringing schools together were substantiated by findings from monitoring visits and the Formative Evaluation Study. These challenges were attributed to various factors that hindered effective collaboration among schools.

One significant impediment to collaborative initiatives was the scarcity of materials, exacerbating the difficulties schools faced in coordinating joint efforts. The shortage of essential resources hindered the ability of schools to come together and engage in meaningful collaboration. This lack of materials not only affected the individual capacities of schools but also created barriers to effective coordination and joint planning (Kapambwe, 2002).

Coordination challenges were identified as a key factor contributing to the struggles experienced in implementing collaborative endeavors. The absence of a streamlined coordination mechanism hindered the schools' ability to pool resources and work collectively on developing common end-of-term tests. The findings underscored the need for a more robust and organized approach to facilitate effective networking among schools within districts.

Addressing the challenges related to teacher networking and collaboration necessitated targeted interventions aimed at mitigating the identified barriers. These interventions could encompass providing necessary materials, establishing coordination mechanisms, and offering support structures to facilitate collaborative activities. Furthermore, acknowledging and addressing the specific reasons impeding collaboration were deemed crucial for fostering a conducive environment for collective efforts among schools.

The difficulties encountered in implementing collaborative initiatives highlighted the need for strategic interventions to enhance teacher networking. Overcoming material shortages and improving coordination mechanisms were identified as essential steps to facilitate collaborative efforts among schools within districts, ultimately contributing to the successful development of common end-of-term tests (Kapambwe, 2002).

The process of monitoring and providing feedback emerged as a challenging aspect of the overall implementation of the continuous assessments system. Both the findings from monitoring visits and the Formative Evaluation Study concurred that the existing monitoring mechanisms faced significant challenges. One of the key issues identified was the insufficient monitoring conducted by district officials responsible for overseeing and supporting teachers in the implementation of CA (Kapambwe, 2010). The inadequacy in monitoring practices raised concerns about the effectiveness of the support system for teachers.

The shortcomings in monitoring were highlighted by the need for more proactive involvement from district offices to closely oversee teachers' implementation of CA. The findings underscored the necessity for district officials to play a more hands-on role in monitoring teachers' progress. This hands-on approach would enable district offices to identify areas requiring additional support and interventions promptly. Strengthening the monitoring process was deemed essential for ensuring the successful execution of the CA system at the grassroots level.

To address the challenges in monitoring, there was a call for enhanced support mechanisms from district offices. This support was seen as crucial for providing teachers with the necessary assistance and guidance in effectively implementing CA. The findings emphasized the importance of establishing a robust monitoring framework that would enable district officials to regularly assess the implementation status and offer timely feedback to teachers. This

approach aimed to create a more responsive and supportive environment for teachers involved in CA.

The challenges related to monitoring and feedback in the implementation of CA highlighted the imperative for a more proactive and involved role of district officials (Kapambwe, 2010). Strengthening the monitoring practices, coupled with enhanced support mechanisms, was identified as essential for ensuring the successful implementation of CA. The findings emphasized the need for continuous improvement in the monitoring processes to address emerging challenges and foster a more supportive educational ecosystem.

2.13 Interventions to mitigate Challenges faced when implementing School Based Assessment.

2.13.1 Global Perspective

As outlined in a study conducted by Mansor, Vikaraman, and Medina (2019), assessment serves as a vital means to furnish both teachers and students with valuable insights into the outcomes, strengths, and weaknesses of student learning. The essence of assessment in education lies in its role as a tool for obtaining information that facilitates responsive adjustments in teaching and learning practices, aligning with the overarching goal of enhancing educational outcomes (Mansor, Vikaraman & Medina, 2019). Despite the increasing global acceptance of School-Based Assessment practices, there remains a notable scarcity of empirical research evaluating its implementation, success, strengths, and weaknesses. The international landscape of SBA research has primarily been shaped by a comprehensive study conducted by the Organisation for Economic Co-operation and Development (OECD) in 2005. This extensive investigation delved into SBA best practices in eight Western countries, encompassing Australia, Canada, Denmark, England, Finland, Italy, New Zealand, and Scotland. However, the conspicuous absence of a substantial number of SBA research studies in Asian countries poses a significant concern, as noted by Mowlaei (2017).

In the realm of education, Mansor, Vikaraman, and Medina (2019) assert that assessment is fundamentally geared towards providing valuable insights into the outcomes, strengths, and weaknesses of student learning. This information, derived from the assessment process, serves as a cornerstone for effecting responsive changes in teaching and learning practices. The overarching aim is to create a dynamic educational environment that continuously adapts to enhance student learning outcomes. Despite the growing international recognition of School-

Based Assessment practices, there remains a discernible dearth of empirical research examining the implementation of SBA, its successes, as well as its strengths and weaknesses. A landmark study conducted by the Organisation for Economic Co-operation and Development (OECD) in 2005 stands out as one of the most comprehensive investigations into SBA practices, encompassing eight Western countries. These countries include Australia, Canada, Denmark, England, Finland, Italy, New Zealand, and Scotland. However, Mowlai (2017) draws attention to the significant gap in SBA research studies, particularly in Asian countries.

Mansor, Vikaraman, and Medina (2019) emphasize the pivotal role of assessment in education, serving as a means to furnish teachers and students with insights into learning outcomes. This information, obtained through assessment practices, is integral to making responsive changes in teaching and learning strategies, thereby fostering continuous improvement. Despite the increasing global acknowledgment of School-Based Assessments practices, a notable insufficiency exists in empirical research that critically evaluates its implementation, successes, as well as strengths and weaknesses. The Organisation for Economic Co-operation and Development (OECD) conducted a seminal study in 2005, offering a comprehensive examination of SBA best practices in eight Western countries. These nations, including Australia, Canada, Denmark, England, Finland, Italy, New Zealand, and Scotland, formed the basis of the OECD's investigation. However, the dearth of comparable research studies on SBAs in Asian countries, as highlighted by Mowlai (2017), raises concerns about the global comprehensiveness of SBA research.

In the context of education, Mansor, Vikaraman, and Medina (2019) posit that assessments serve as a crucial tool for providing teachers and students with invaluable insights into learning outcomes, strengths, and weaknesses. This information, derived from assessment practices, plays a pivotal role in steering responsive changes in teaching and learning methodologies. The overarching objective is to create a learning environment that continually adapts to enhance educational outcomes for students. Despite the growing acknowledgment of School-Based Assessment practices at the international level, there exists a noticeable paucity of empirical research scrutinizing the implementation of SBA, its achievements, and its inherent strengths and weaknesses. A seminal study conducted by the Organisation for Economic Co-operation and Development (OECD) in 2005 remains a cornerstone in the exploration of SBA best practices, drawing insights from eight Western countries. These countries, including Australia, Canada, Denmark, England, Finland, Italy, New Zealand, and Scotland, formed the basis of

the OECD's extensive investigation. Nevertheless, Mowlai's (2017) observation regarding the scarcity of comparable SBA research studies in Asian countries underscores a noteworthy gap in the global understanding of SBA practices.

The research conducted by Mansor, Vikaraman, and Medina (2019) highlighted a discernible level of awareness regarding the significance of collaborative efforts among teachers. This awareness is echoed in various studies, suggesting that teachers could foster cooperation by organizing field trips. Such trips provide students with the opportunity to explore and utilize facilities at other schools, thereby enhancing learning experiences beyond the confines of the classroom (Chapman et al., 2010). According to Mansor et al. (2019), participants in their study acknowledged the importance of collaboration in reducing the planning workload. Many teachers attempted to alleviate this burden by engaging in collaborative efforts, sharing experiences, and exchanging strategies to support weaker students. Notably, the participants reported employing similar strategies, such as pulling students out of the classroom, conducting extra lessons, offering individual assistance, implementing differentiation, encouraging peer support, providing additional time for assessments, delivering further explanations, presenting information in different languages, and emphasizing keywords.

The research by Mansor, Vikaraman, and Medina (2019) shed light on the awareness among educators about the importance of collaborative initiatives. This sentiment is echoed in studies proposing that teachers can enhance cooperation by organizing field trips, enabling students to utilize facilities at other schools for enriched learning experiences (Chapman et al., 2010). Mansor et al. (2019) found that participants in their study recognized the value of collaborative efforts in reducing the planning workload. Teachers, in an effort to streamline their responsibilities, engaged in collaborative practices, sharing insights and strategies to support struggling students. Interestingly, the participants reported employing similar strategies, including pulling students out of the classroom, conducting additional lessons, providing personalized assistance, implementing differentiation, fostering peer support, extending assessment time, offering supplementary explanations, presenting information in alternative languages, and emphasizing key concepts.

The study conducted by Mansor, Vikaraman, and Medina (2019) underscored the awareness among teachers regarding the significance of collaboration. This sentiment aligns with research suggesting that teachers could foster cooperation by organizing field trips, allowing students to utilize facilities at other schools for diverse learning experiences (Chapman et al., 2010).

Mansor et al. (2019) revealed that participants in their study recognized the importance of collaborative efforts in alleviating the planning workload. Teachers, seeking to reduce their planning burden, actively participated in collaborative endeavors, sharing experiences and strategies to support weaker students. Interestingly, the participants reported employing similar strategies, such as pulling students out of the classroom, conducting supplementary lessons, providing individualized assistance, implementing differentiation, promoting peer support, extending assessment time, offering additional explanations, presenting information in different languages, and emphasizing crucial keywords.

The research conducted by Mansor, Vikaraman, and Medina (2019) illuminated the awareness among teachers regarding the significance of collaborative initiatives. This sentiment is echoed in studies suggesting that teachers can foster cooperation by organizing field trips, providing students with opportunities to utilize facilities at other schools for enhanced learning experiences (Chapman et al., 2010). According to Mansor et al. (2019), participants in their study acknowledged the value of collaboration in reducing the planning workload. Teachers, in an attempt to streamline their responsibilities, actively engaged in collaborative practices, exchanging insights and strategies to support struggling students. Notably, the participants reported employing similar strategies, such as removing students from the classroom, conducting additional lessons, offering personalized assistance, implementing differentiation, encouraging peer support, extending assessment time, providing supplementary explanations, delivering information in different languages, and highlighting key concepts.

2.13.2 Zambian perspective

Effective implementation of continuous assessment involves regular evaluation of teaching and learning activities to support students' learning progression, as emphasized by Chiyenge (2017). According to this perspective, diverse assessment needs call for a variety of assessment strategies and tools. The absence of rigorous assessments often correlates with lower academic performance among students, highlighting the pivotal role of thorough continuous assessments in enhancing students' achievements (Chiyenge, 2017). A study conducted by Chiyenge in 2017 at the University of Zambia in Lusaka revealed that the pass percentage for Solwezi District at grade 9 level in 2016 was recorded at forty-five percent (45%), indicating a decline compared to previous years (ECZ, 2016). Despite the acknowledged importance of continuous assessment as a crucial tool in the teaching and learning process, Zambia lacks comprehensive

studies that investigate interventions to address challenges encountered during the implementation of school-based assessment.

Chiyenge (2017) emphasizes the necessity of regularly assessing teaching and learning activities to provide necessary support for students' educational development. Various assessment needs require diverse strategies and tools, underscoring the importance of tailoring assessments to specific educational contexts (Chiyenge, 2017). The absence of rigorous assessments often results in subpar academic performance among students, reinforcing the significance of thorough continuous assessments in fostering students' success (Chiyenge, 2017). Chiyenge's 2017 study at the University of Zambia in Lusaka brought attention to the declining pass percentage for Solwezi District at grade 9 level in 2016, standing at forty-five percent (45%) compared to previous years (ECZ, 2016). Despite continuous assessment being recognized as a fundamental tool in the teaching and learning process, Zambia faces a notable gap in research exploring interventions to tackle challenges in the implementation of school-based assessments.

Chiyenge (2017) advocates for the regular assessment of teaching and learning activities to support students' educational progress, emphasizing the need for varied assessment strategies and tools based on different assessment needs. The absence of rigorous assessments is often associated with lower academic performance, highlighting the crucial role of thorough continuous assessments in enhancing students' achievements (Chiyenge, 2017). A study conducted by Chiyenge in 2017 at the University of Zambia in Lusaka revealed a decline in the pass percentage for Solwezi District at grade 9 level in 2016, reaching forty-five percent (45%) compared to previous years (ECZ, 2016). Despite the acknowledged significance of continuous assessment in the teaching and learning process, Zambia lacks comprehensive studies addressing interventions to mitigate challenges during the implementation of school-based assessment.

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9 level in 2016, recording forty-five percent (45%) compared to previous years (ECZ, 2016). Despite the recognized significance of continuous assessment in the teaching and learning process, Zambia faces a notable research gap in exploring interventions to address challenges during the implementation of school-based assessment.

2.14 Summary of Literature Review

Table 2.1

S/ N	Author	Gap	Information	Year
1	Cheng, P	The study did not address the roles of other stakeholders in the implementation of SBA. It did not address the monitoring and supervision aspects of SBA but rather brought out the uncertainty in teachers playing the role of a facilitator and an assessor.	This paper is explored in greater detail, the degree of similarities and differences in the implementation of SBA, specifically between Singapore and Malaysia.	2020
2	Siti, N and Jamal, S, N, S. et al.	Siti Najihah's 2013 study on School-based Assessment in Malaysia analyzed its structure, implementation strategies, and outcomes. The study compared Malaysia to Finland, focusing on its advanced system. In Zambia, the study aimed to evaluate SBA policies, identify gaps, and propose interventions to improve delivery, particularly in science education. The research gap between the two studies lies in their focus on science education, assessment of implementation challenges, and proposed interventions. The gap highlights the need for subject-specific evaluations and interventions to address challenges in SBA implementation.	This Study revealed all the information related to school-based assessment in Malaysia. It further analysed the implementation of SBA in Finland which was perceived to have gone ahead of Malaysia	2013
3	Astuti, A.	Astuti Azis's 2012 study explores teachers' conceptions and beliefs influencing teaching practices, including assessment methodologies. The study focuses on the implementation of School-Based Assessments in Zambia, particularly in science education, addressing challenges due to the COVID-19 pandemic. The research aims to evaluate SBA practices, identify implementation gaps, and propose interventions to enhance SBA delivery. The gap between the two studies lies in their distinct focuses and methodologies, bridging the gap by integrating theoretical perspectives with empirical evidence.	The Study looked at teachers' conceptions and beliefs which the author assumed influences teaching practices, including assessment. This study revealed several studies on teachers' conceptions and practices of assessment conducted in six different countries.	2012
4	Chipindi, F. M., Serenje-Chipindi, J and Daka, H.	The research gap between these two studies lies in their distinct foci and methodologies. While the epistemological analysis paper examines	This paper provides illustrative analyses of three central epistemological standpoints that are possible in education related	2020

		the philosophical underpinnings of educational research and its implications, the SBA investigation focuses on practical challenges related to policy implementation, particularly in the context of science education within Zambian secondary schools. The former provides insights into the theoretical frameworks guiding educational research, whereas the latter offers a pragmatic assessment of the challenges and opportunities associated with implementing specific educational policies in real-world settings.	research. The authors used these analyses to show how epistemological persuasions shape the content, approach, and foci of educational research	
5	Daka, H, Mulenga-Hagane, L, M, Mukalula-Kalumbi, M and Lisulo, L.	The research gap between these two studies lies in their distinct focuses and objectives. While Daka et al. examine the role of feedback in teaching and learning dynamics, the investigation on SBA implementation in Zambian secondary schools addresses practical challenges associated with policy execution, particularly in the context of science education. While feedback is crucial for refining teaching practices, the SBA study highlights the complexities of implementing educational policies amidst real-world challenges, including the COVID-19 pandemic.	The researchers' discussed the importance of feedback in response to teaching where it was being said to be a tool used for continuous learning in an effort to determine learner awareness of desired goals	2021
6	Silwamba, V and Daka, H.	The research gap lies in their distinct foci and objectives. While Silwamba and Daka's study centers on the challenges of monitoring and evaluating teacher performance, the SBA investigation addresses broader issues related to policy implementation and assessment practices in secondary schools, particularly in the field of sciences.	This study aimed at establishing whether there were any particular challenges that school administrators and Education Standards Officers faced in their Monitoring and Evaluation of selected secondary school teachers' performance.	2021
7	Changwe, R, Mwanza, C, Daka, H and Ng'onomo, M.	The research gap between these two studies lies in their distinct focuses and objectives. The curriculum adoption study highlights obstacles to the effective implementation of localized curriculum initiatives, while the SBA investigation and addresses challenges specific to implementing SBA policies, particularly in the sciences, amidst the COVID-19 pandemic.	The study aimed to enhance the adoption of the localized curriculum. It found that implementation encountered obstacles mainly because the Ministry of Education (MoE) lacked practical measures. Challenges included insufficient teaching and learning materials, inadequate capacity building for teaching staff, and low motivation levels among learners, teachers, and community members, among others.	2022
8	Mulenga-Hagane, M., Daka, H., Msango, H. J., Mwelwa, K and Kakupa, P	The study did not address the conduct and administration of School based assessments as well as the use of practical formative assessment to improve the performance of learners. the study generally considered CA given to the learners in form of weekly, monthly tests	This study was aimed at analyzing classroom-based formative assessment that may identify needs and in the process shape teaching.	2019

9	Kapambwe, K	The paper focused on the pilot program that the MoE and ECZ conducted to ascertain the suitable ways of implementing CA. the study did not address the SBA in secondary section and sciences which are practical oriented.	The paper discussed the transition from continuous testing to continuous assessment in school-based continuous assessment programs. It examined the implementation of the program, the nature of the scheme, its school-based assessment component, challenges faced during implementation, the impact of school-based assessment aspects, and lessons learned from monitoring and evaluation activities.	2010
10	Kapambwe, W and Mweemba, M	The research reveals a gap in the utilization of peer and self-assessment and data for instruction. In contrast, the study investigates the implementation of School-Based Assessments in selected schools in Zambia, particularly in sciences. The research gap lies in their distinct focuses and contexts.	This study explores classroom assessments, Assessment for Learning (AfL), and Data-Based Decision Making (DBDM) in Dutch secondary education, and the prerequisites for their implementation. It found that although teachers use diverse forms of classroom assessments, AfL and DBDM are not fully integrated. Peer and self-assessment occur in only 10% to 25% of lessons, and data are used for instruction in only 25% to 50% of lessons. A positive attitude towards AfL and DBDM was considered crucial.	2018
11	Chiyenge, F.	The research gap between these two studies lies in their specific focuses and scopes. While Chiyenge's study delves into the challenges and practices related to continuous assessment monitoring within a specific district, the SBA investigation addresses the broader challenges of implementing a national policy across secondary schools in Zambia. Chiyenge's study provides insights into localized challenges and recommendations, whereas the SBA investigation aims to assess the alignment of SBA practices with guidelines and proposes interventions at a national level.	The study in Solwezi district examined continuous assessment monitoring in secondary schools. Findings showed that head teachers depend on tests and homework temporarily. Challenges include insufficient funding, furniture, and overcrowding. Recommendations entail improved assessment strategies, increased funding, and prioritizing student learning.	2022

12	Mansor, A. N., Vikaraman, S. S., Medina, N. I.	The research gap between these two studies lies in their geographical focus, educational levels, and contextual challenges. While Mansor et al. (2019) examined the challenges of implementing SBA in primary schools in Malaysia, the investigation in Zambia focuses on secondary schools and addresses the broader impact of the COVID-19 pandemic on educational assessment practices. Although both studies explore challenges related to the implementation of SBA, they offer insights into different educational contexts and underscore the need for context-specific interventions to address the challenges hindering effective assessment practices. Integrating insights from both studies can contribute to a more comprehensive understanding of the factors influencing the successful implementation of SBA across different educational settings and help inform policy and practice improvements in educational assessment globally.	The study found that educational attempt to improve school performance involves the implementation of school-based assessment (SBA). However, challenges such as administrative support, teacher readiness, technical support, and professional support from the state education department hinder the successful implementation of SBA in 10 primary schools in Malaysia.	2019
13	Van Staden, S., & Motsamai, P.	The research gap between these two studies lies in their educational levels, and contextual challenges. While Van Staden and Motsamai (2017) focused on Grade 9 mathematics assessment practices, this investigation in Zambia investigates into the challenges of implementing SBAs at the secondary level amid the COVID-19 pandemic.	The study was conducted in the Northern Cape of South Africa, examining the quality of Grade 9 mathematics school-based assessment (SBA), revealed discrepancies in policy adherence, classroom practices, and monitoring procedures among Department heads.	2017
14	Lingam, G.I. and Lingam, N.	The research gap between these two studies lies in there educational contexts, and specific challenges addressed. Lingam and Lingam (2016) focus his emphasis on deficiencies in teacher training programs, while the investigation in Zambia centers on the challenges of implementing SBA at the secondary level, particularly in the context of the COVID-19 pandemic. While both studies address aspects of educational assessment, they operate within different contexts, highlighting the need for tailored approaches to address assessment challenges in diverse educational settings. Integrating insights from both studies can contribute to a more comprehensive understanding of effective assessment practices and inform policy and interventions to enhance educational assessment across various contexts.	The study highlighted the challenges faced by educational leaders in the Solomon Islands in implementing school-based assessment, highlighting deficiencies in initial teacher training programs and the need for increased focus.	2016

15	Gruaume, P., & Naidoo, D.	The research gap between these two studies lies in their focus and scope. Gruaume and Naidoo (2004) concentrate on formative assessment practices within classroom settings, while the investigation in Zambia centers on the challenges and implementation of school-based assessments at the secondary level, particularly in the context of the COVID-19 pandemic. While both studies address aspects of educational assessment, they operate within different contexts and emphasize distinct challenges and interventions. Integrating insights from both studies could provide a more comprehensive understanding of effective assessment practices across various educational settings and help inform policy and interventions to enhance educational assessment practices.	The article reviews literature on classroom formative assessment, emphasizing its positive effects on student learning. It discusses innovations improving student feedback and teachers' strategies, including self-assessment and mastery learning. Additionally, it examines feedback's nature, suggesting ways to enhance formative assessment practices through theoretical models.	2004
16	Webb, M.	The research gap between these two studies lies in their focus and methodology. Webb's study focuses on professional development and the adoption of formative assessment practices among primary school teachers, while the investigation in Zambia centers on evaluating the implementation of SBAs at the secondary level, particularly in the context of the COVID-19 pandemic. While both studies address aspects of educational assessment, they operate within different educational levels and contexts, highlighting the need for tailored approaches to address assessment challenges across different educational settings.	In this paper, classroom practice of primary school teachers underwent professional development to implement formative assessment in their classrooms. This change was driven by a contradiction between teachers' beliefs about learning and the existing classroom culture. Activity theory was used to analyze changes in practice, students' experiences, and pedagogical decision-making. The formative assessment philosophy and mediating artefacts enabled the change in classroom practice and improved student learning.	2009
17	John H, L.	The study did not address the implementation of SBA in sciences which bare practical oriented than theory.	A School-based assessment was introduced in Malaysia in 2011 to reduce examination-oriented learning and evaluate students' learning. However, a comparative qualitative study was conducted in East Malaysia, focusing on English language teachers. The study found that initial implementation was hindered by a lack of training and clear policy direction. However, since its implementation, the policy has gained greater clarity with increased support from the Ministry of Education through further training opportunities.	2020

18	Brown, G.T.	The aim and objectives of these two investigations differ, creating a research gap. While Brown's study in New Zealand looks at how elementary school teachers conceptualize the purpose of assessments, the SBA investigation in Zambia looks at the real-world difficulties of putting SBA policies into practice, especially when it comes to science education in the wake of the COVID-19 pandemic. To close this gap, it would be necessary to use the knowledge gained from the two studies to create all-encompassing plans that address the practical difficulties of putting assessment policies into practice in a variety of educational settings and match assessment procedures with learning objectives. Policies and educators can seek to promote efficient assessment procedures that support student learning and development by incorporating results from studies on assessment purposes and SBA implementation.	In New Zealand, a study on primary school teachers showed agreement on four main purposes of assessment: improving teaching and learning, school, and student accountability, and not regarding assessment as solely for student accountability. The survey found no significant differences in mean scale scores for each conception, implying potential implications for policy and teacher development.	2004
19	Begum, M. and Farooqui, S.,	The study by Begum and Farooqui (2008) explores the implementation of School Based Assessment policies in Bangladesh's education system. The research aims to address deficiencies in the existing assessment system and promote a more comprehensive approach to education. In contrast, the study in Zambia focuses on the challenges faced in implementing SBA policies, particularly in science education, amid the COVID-19 pandemic. The research gap between the two studies lies in their contextual focus and objectives. Bridging this gap would involve developing comprehensive strategies for holistic education and improved assessment practices.	Bangladesh's assessment system prioritizes memorization and comprehension over vital skills like oral presentation, leadership, and social values. As a result, learners heavily depend on memorization, lacking essential societal contributions. To tackle this issue, the government implemented School Based Assessment for holistic development in junior secondary education. This paper explores the current state and potential of SBA in Bangladesh.	2008
20	Daka, H., Chilala, M, Hamatanga, O, Chirwa, B, Mumba, A and Kaoma, C	Daka's 2021 study investigates learner absenteeism and its impact on Zambia's educational system, highlighting its negative effects on academic achievement. The study also investigates the implementation of School-Based Assessments in selected schools, particularly in sciences, to address challenges posed by the COVID-19 pandemic. The research gap between the two studies lies in their distinct focuses and methodologies. Integrating insights from both studies can help develop comprehensive strategies to improve educational quality and outcomes in Zambia's schools.	The study investigated the causes of learner absenteeism and its impact on academic Performance and also ways of averting absenteeism. It established that performance of learners' who were perpetually absent was average and extremely bad as these learners result in disruption course materials as well as disruption of class instruction delivered by the teacher.	2021

21	Mandyata, J Masaiti, G Habwanda, E and Kapamba, M.	Joseph Mandyata, Gift Masaiti, Edith Habwanda, and Mary Kapamba conducted a study on the preparedness of pre-service teachers in Zambia for primary reading instruction. They found discrepancies between training and actual teaching practices, particularly concerning Zambia's language of instruction policy. The study also investigated the effectiveness of School-Based Assessments policies in selected schools, particularly in science education. The research gap lies in the focus and scope of the two studies, requiring comprehensive research that integrates teacher training programs with practical realities of implementing educational policies in Zambia's school systems.	The paper examined how two pre-service teacher education programs in Zambia prepared teachers for primary reading instruction. College and university lecturers and in-service primary grade teachers participated in focus groups and interviews. The researchers identified gaps between training and practice within the framework of Zambia's language of instruction policy. They also found that pre-service teacher preparation was generally theoretical and not practical	2023
22	Kalimaposo, K, Daka, H Ndubakwenda , H Phiri, C and Kaulu, G.	The study did not address the supervision of the conduct and administration of SBA. The study did not address whether the SBA has been assessed and evaluated since its roll out in 2019.	This study explored the opportunities and challenges faced by learners, teachers and head teachers with respect to School-Based Assessment during the COVID 19 pandemic. It also looked at the stakeholders' perception of SBA and showed that due to the past influences of the traditional objective-based assessment, some teachers found it difficult to change to the outcomes-based assessment. Absenteeism on the part of learners emerged with most of them being apathetic towards SBA. The study also showed that inadequate teachers due to lack of training and lack of resources to implement the SBA programme compounded the problem further. The study did not address the supervision of the conduct and administration of SBA. The study did not address whether the SBA has been assessed and evaluated since its roll out in 2019.	2024

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

The previous chapter reviewed literature related to the research with the major focus on what School Based Assessment is and how it has been conducted in other countries that have implemented it. It highlighted the purpose of its implementations; the achievements and the challenges teachers and other stakeholders have faced including measures put in place to address the challenges. This chapter presents research paradigm. It further provides the rationale of the choice of the research design, the research sites, and the recruitment of participants. In addition, it provides a detailed description of the data collection process and the instruments used in the study, with the section on threats to reliability, validity, and trustworthiness of the research instruments. Further on, data collection procedure, data analysis and data interpretation has been looked at and finally ethical consideration. The chapter concludes with an exposition of the importance of the study to the broader educational context.

3.2 Research Paradigm

A philosophical framework of research refers to the underlying philosophical orientation or perspective that guides the methodology and approach used in conducting a research. It is a common set of beliefs and agreements shared between scientists about how problems should be understood and addressed (Kuhn, 1970). Research paradigms form a basis on which a philosophical framework can thrive. It creates a foundation of the study as it provides an overall perspective on which a study is designed and conducted. It also offers a pattern of beliefs and understandings on which theories and practices of research can operate. Mackenzie and Knipen (2006) emphasized that without using a paradigm as the first step, there cannot be any basis of choosing methodology, methods.

According to (Antwi and Hamuza, 2015) a research paradigm is made up of four components; Ontology, epistemology axiology and methodology. Ontology is the philosophical study of being. It is concerned with what is true and real, and usually deals with view of reality, to what extent that “reality” exists and can be captured. Ontology deals with the nature of reality and the existence of entities. This research was conducted within the Constructivism and Interpretivism frameworks and employed descriptive survey design approach. The

interpretivist (or constructivist) believes that individuals or groups construct reality based on interactions with the social environment.

Given the social nature of education and the Constructivist view of learning, the researchers' ontological view of school based assessments, knowledge and learning is subjective or socially constructed through interactions and experiences with SBA policy. The researcher focused on understanding how school based assessment practices are socially constructed within the educational setting, shaped by practices of stakeholders at school level and how the social factors are influencing its conduct. The researcher concentrated on exploring how different stakeholders perceive and construct knowledge about SBAs and its role in education.

Epistemology is the theory of knowledge and usually refers to the principle of what can be known and how you can know it. It is also concerned with how knowledge is acquired, validated and interpreted as well as addressing questions about the nature of knowledge and the methods used to generate it.

A constructivist epistemological stance emphasizes understanding the subjective experiences, meaning and interpretations formed within the target population. In the context of SBAs, the researcher used qualitative methods to explore the meanings and interpretations that learners, teachers, school administrators and education standards officers attach to school based assessment policy. The researcher also sought to uncover the beliefs, values and underlying assumptions that shape individuals understanding of SBAs and its purpose.

While the theory of methods is known as methodology and refers to the overall theoretical rationale and the principles that define how a research question, set of methods and data are embedded within a perspective, methods are tools and techniques that are used to collect and analyze data.

Axiology deals with values, ethics and the role of the researchers' values in the research process. It involves considering the ethical implications of the research and the values that underpin the research process. In this study the researcher took an epic stance while being sensitive to the values of participants and the broader educational community. Furthermore, the researcher engaged in reflexivity, ensuring the research was conducted ethically, respecting the rights and dignity of participants through critically reflecting on her own values, assumptions and biases. The researcher prioritized the impact of the research on educational

policies, practices and stakeholders and its aim to positively contribute to the sustainability of quality SBAs.

By considering the ontology, epistemology and axiology that underpin this research, the researcher ensured that the exploration of the implementation of School Based Assessments in sciences is theoretically sound, methodologically rigorous and ethically responsible.

Research paradigms influence the way different schools undertake their research. The researcher should first identify the most suitable research philosophy before selecting an appropriate methodology. The choice of the philosophical framework is of great importance in the planning of research project as various philosophical traditions have inferences on the choice of research method.

The study used Constructivism and interpretivism philosophical paradigms. Constructivism paradigm, ontologically emphasizes how individuals actively constructs their own notions of reality through their cognition (Lincoln and Guba, 1985; Schwandt, 1997) resulting in the existence of multiple realities. The Constructivism and Interpretivism paradigm were carefully chosen as these philosophical frameworks allows the researcher to explore how stakeholders engage with and make meaning from the school based assessment process. A constructivist approach recognizes that stakeholders actively construct knowledge through experience. In the context of implementing SBAs, appreciating the perceptions, beliefs and engagement of learners, teachers, school administrators and Education Standards Officers in the process was paramount. The adoption of a constructivist and interpretivist paradigm for investigating the implementation of SBAs in sciences, represents a deliberate choice to unravel the complexities, challenges, and opportunities concealed in the implementation of SBAs, thus, contributing to the improvement of science education practices and policies in Zambia.

3.3 Research Design

Researchers can break their inquiries into a number of paradigms depending on their most suitable choice. The research design is a plan of any scientific research from the first step to the last (Bless and Achola, 1998). It is a blueprint of how the researcher intend to conduct the research (Barbbie and Mouton 2004). It is also defined as the function of a research as it refers to the overall strategy that one would choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring effective address the research problem; it constitutes the blueprint for collection, measurement, and analysis of data (Yin 2013).

Research design is also a plan that is used to collect data in order to realize the desired information or results. Bless and Achola (1988) and Ndonyo (2018) also state that a research design is a plan of any scientific research from the first to the last step. For example, constructivism or interpretivism philosophical frameworks work very well with qualitative methodologies while positivism philosophical paradigm supports quantitative methodology.

In considering the research design for exploration of the implementation of school-based assessments in sciences, the descriptive survey design was employed. Descriptive survey design approach focuses on describing the characteristics of a phenomenon and aims at providing an in-depth understanding of the subject at hand. This design focuses on providing a comprehensive overview of the subject under investigation. Its primary aim is to provide a detailed and accurate description of the characteristics, behaviors, opinions, or attitudes that exist within the target population.

Additionally, it allows the use of qualitative method to provide a holistic understanding of the research problem. Descriptive survey design allows the collection of data through surveys such as questionnaires, interview guides and focus group discussions.

In this study, it was critical that the researcher understands how SBAs are being implemented hence the qualitative method was best method to provide sufficient data. Conducting a survey among teachers, school administrators and education standards officers was important as these stakeholders are directly linked to the conduct and administration at school level as well as submission of marks to Examinations Council of Zambia. The stakeholders' fidelity to guidelines, acceptability of SBA reform and the challenges faced forms the basis to gain insights into the implementation process.

Within the descriptive survey approach, qualitative research methodology is applied. As alluded to by Daka (2023), qualitative researchers tend to be skeptical about the use of statistical analysis methods for the study of humans' feelings, attitudes, and perceptions unlike quantitative research which imposes restrictions on the scope of investigations which requires rigidly adhering to some procedures like sampling, data analysis techniques Bernard and Ryan, (2010). The qualitative research, firmly rooted in the Constructivists and interpretivists paradigm, prioritizes the exploration of subjective meanings, social interactions, and contextual realities (Denzin & Lincoln, 2018). Interpretivism recognizes the complexity of human

experiences and acknowledges that reality is socially constructed and contextually bound (Guba & Lincoln, 1994).

Descriptive survey approach suits well with my study of how school based assessments were being implemented in Zambia. Thus, questionnaires, in-depth interview guides and focus group discussions as tools were used for data collection

By embracing a descriptive survey research design, researchers gain the flexibility to delve deeply into the lived experiences, perceptions, and attitudes of key stakeholders through the qualitative component in the methodology. In the context of this study, the perceptions of Education Officers, school administrators, teachers and learners were collected, analyzed, and the results were used as learning points for all stakeholders involved in the implementation of SBAs in Science. Thus, qualitative methodology in descriptive survey research design was the best design to explore the implementation of SBA in sciences. It facilitated to uncover rich, contextually embedded data that light up the complexities of SBA implementation in Zambia.

Furthermore, qualitative method facilitated bring out of the desired results through analysis of data collected from questionnaires, in-depth interview guides, focus groups, and participant observation. It also aided the exploration of the underlying socio-cultural, institutional, and pedagogical factors that influence the implementation of SBAs in science education. By engaging directly with stakeholders and allowing them to articulate their perspectives, qualitative methodology provided insights into the opportunities, challenges, and aspirations shaping the implementation setting.

With descriptive survey research approach, the researcher is allowed the flexibility to adapt to emergent themes and explore unexpected ways of inquiry, consenting the researcher to capture the dynamic nature of educational processes and practices. By immersing into the situated realities of Zambian schools, the researcher was able to generate deeper understandings, identify contextual details, and uncover hidden dynamics that may not be readily apparent through quantitative methods alone.

In the context off this study, the qualitative data was appropriate to clearly explain and construct meanings and behaviors of stake holders in implementing SBA. The descriptive survey design allows for a deep exploration of the engagement and perceptions of key stakeholders, including Education Officers, school administrators, teachers, and learners, regarding the implementation of SBAs in sciences. By employing qualitative techniques such as in-depth interviews, focus

group discussions, and observations, the researcher delved into the contextual intricacies, socio-cultural influences, and institutional dynamics that shape the implementation of SBA Policy.

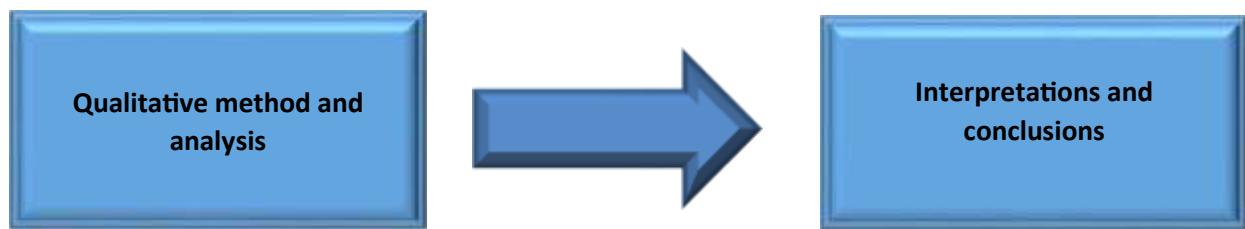
The qualitative method was used to collect, analyze, and interpret data by observing what people do and say. Considering the number of participants involved, the study employed write-in responses on questionnaires as a form of data collection method from teachers and learners. It also included one-on-one interview and focus group discussions. The in depth interview guides were designed for Education Officers, Head teachers, deputy head teachers, heads of departments while focus group discussions were conducted with heads of natural science department and science teachers.

Unlike quantitative approaches that rely on structured questionnaires and predetermined response options, qualitative methods enable researchers to adopt an inductive strategy, allowing theories and insights to emerge organically from the data itself. Through open-ended questioning and interactive dialogue, qualitative researchers can uncover rich, contextually embedded narratives and understandings that capture the multifaceted nature of SBA implementation.

The decision to utilize descriptive survey approach exclusively is informed by the recognition that the implementation of SBAs is a socially constructed process, influenced by a number of factors ranging from pedagogical practices to resource constraints and socio-cultural norms. By engaging directly with stakeholders and allowing them to describe their experiences, challenges, and aspirations, qualitative research offers a detailed understanding of the complexities involved in integrating SBAs into teaching and learning of science.

Furthermore, descriptive survey research design provides the flexibility to adapt to emergent themes and explore unanticipated avenues of inquiry, thereby capturing the dynamic nature of educational practices and policies over time. Through iterative data collection and analysis, researchers can uncover hidden patterns, identify areas for improvement, and generate actionable insights that inform policy and practice.

Figure 3.1: Research Design by Method



Source: Field data, 2023

3.4 Study Setting

The study was conducted exclusively within the Eastern Province of Zambia, encompassing a diverse range of educational settings, including urban, peri-urban, and rural areas. To ensure comprehensive coverage, three districts were purposefully selected to represent these different socio-geographic contexts. Within each district, three schools were purposefully selected, with the aim of including full-fledged secondary schools, combined schools, and mission/boarding schools, thus providing a representative sample of the various types of schools present in the country. A total of three schools from three Districts were purposefully sampled, resulting in a total of nine schools participating in the study. This approach allowed for an extensive exploration into the implementation of school-based assessments across different school settings, thereby capturing a broad spectrum of experiences and perspectives.

Serious attention and dedication were emphasized in the selection process, recognizing the critical importance of examinations and their implications for the integrity of the nation's education system. By conducting the study in a focused manner within one province, the researcher aimed to gain deep insights into the practices, challenges, successes, and areas for improvement regarding SBA implementation in science. Data collection involved, engaging with stakeholders at various levels of the education system, including Provincial, District, and school levels. This ensured a balanced representation of perspectives from top, middle, and lower management, as well as teachers and learners directly involved in the implementation of SBAs in science education.

The tables below, provides a summary of the population, samples, and participants involved in the study. Table 3.1 outlines the distribution of population, samples, and participants across the three selected Districts within the Eastern Province. It shows the total population of each district, the number of samples taken from each district, and the corresponding number of participants engaged in the study. Table 3.2 further breaks down the composition of participants

involved at each level of the education system. It specifies the number of interviewees from top management (provincial officers), middle management (district officers), lower management (school management), science teachers, and learners in grades 10-12. This comprehensive breakdown illustrates the diversity of perspectives captured in the study, ranging from high-level decision-makers to frontline educators and learners.

Overall, the study setting, and participant selection were carefully designed to ensure a thorough exploration of the implementation of SBAs in sciences across different contexts within the Eastern Province of Zambia. By involving a wide array of stakeholders, the research aimed to generate insights that could inform policy and practice, ultimately contributing to the enhancement of science education in the Country.

3.4.1 Study Setting

Table 3.1: Summary of Population, Samples and Respondent

Province (Eastern)	District	Population	Samples	Participants
	District 1	2980	95	95
	District 2	2,600	95	95
	District 3	2,602	95	95
	3	8,182	285	285

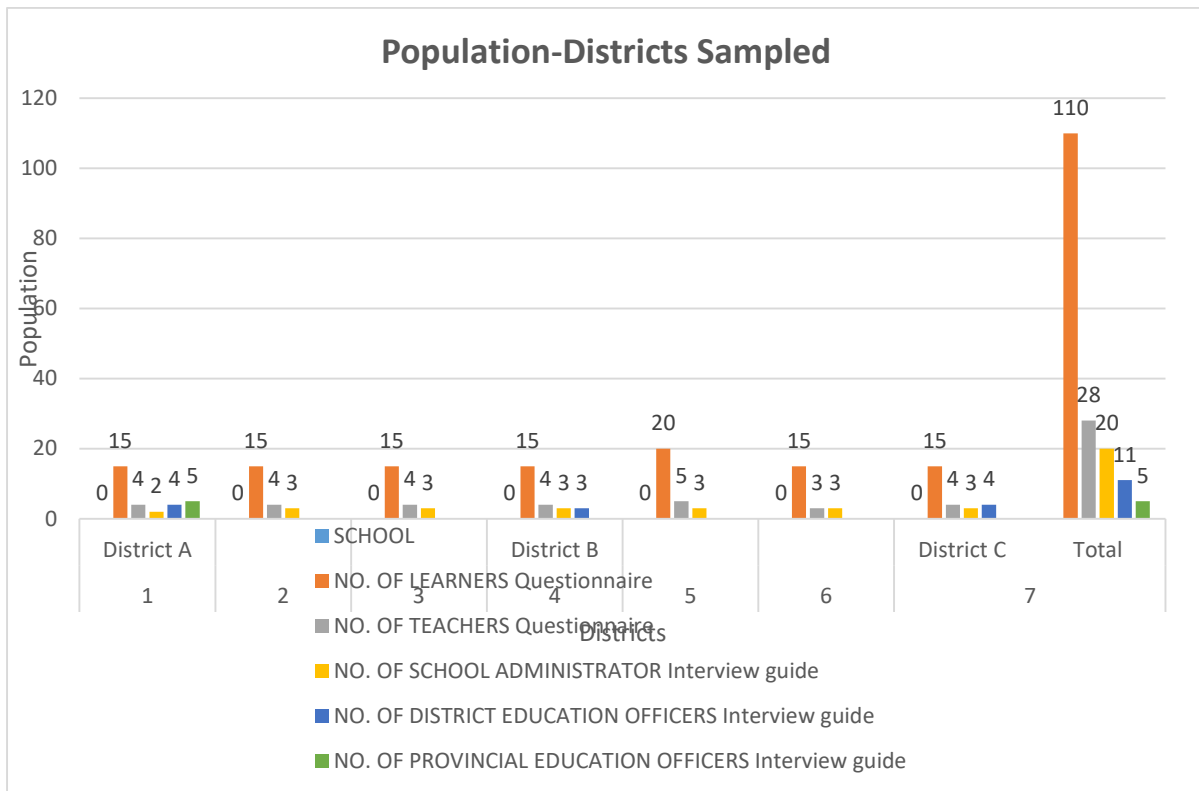
Source: Field Survey, 2023

Table 3.2: Summary of Participants Sampled at each level

Group	Number of Interviewees
Top Management (Provincial Officers)	3
Middle Management (District Officers)	12
Lower Management (School Management)	27
Teachers (Science)	54
Learners (Grades 10-12)	189
TOTAL	285

Source: Field Survey, 2023

Figure 3.2: Population- Districts Sampled



Source: Field data, 2023

Table 3.3: Research Study Setting, Tools and Participants

S/N	District	School	No. of learners	No. of Teachers	No. of School administrator	No. of District Education Officers	No. of Provincial Education Officers
			Questionnaire	Questionnaire	Interview guide	Interview guide	Interview guide
1	District A	School 1	21	6	3	4	3
2		School 2	21	6	3		
3		School 3	21	6	3		
4	District B	School 4	21	6	3	3	
5		School 5	21	6	3		
6		School 6	21	6	3		
7	District C	School 7	21	6	3	4	
	Total		147	42	21	11	3

Source: Field Survey Data, 2023

The sampling was purposefully done to include one hundred forty-seven (**147**) learners, forty-two (**42**) teachers, twenty-one (**21**) school administrators and fourteen (**14**) Education Officers from both District and Provincial offices providing a total number of **224** participants.

The districts were selected on account of ease of access and the schools were selected on account of good performance in national examinations.

There was, however, a limitation in sampling because the researcher was faced with time constraints as the road access to two schools in District 3 was impassable at the time of data collection. After data was collected, the responses from the questionnaires and interview guides were analysed for discussion.

At Provincial level, the Provincial Education Standards Officer (PESO) and Senior Educational Standards Officers (SESO) involved with science and examinations were involved in the data collection. In this study, the provincial team were considered top Education management team.

At District levels, all the four (4) Standards Officers (District Education Standards Officer (DESO) and three other Education Standards Officers (ESOs) were sampled. These officers formed the twelve (12) middle management team in this research study.

At school level, three Head teachers, three (3) Deputy Head teachers and three heads of department for Natural science from the three selected schools comprised and formed the lower management team in this study. These put together added to twenty-seven (27) lower management team.

Additionally, still at school level, six (6) science teachers were purposefully selected from each of the three schools selected in each District adding up to fifty-four (54) participants from the teaching staff. Further on, from each grade level at senior secondary level, seven grade tens (10), seven grade elevens (11) and seven grade twelve's (12) adding to a total of Twenty-One (21) learners from each of the nine (9) schools involved in the study. This added to a total number of one hundred eighty-nine (189) learners from whom data was collected.

District 1 was a representation of Urban set up while District 2 represented a Peri - Urban setup and District 3 provided the researcher with a rural setup.

3.5 Sampling Procedure and Techniques

The significance of sampling in research cannot be over emphasised as it affects the quality of the research. Sampling being the process of selecting the sample from the larger population. Leedy and Ormrod (2005) claim that the particular entities which qualitative researchers' select comprise the sample and process of choosing them is called sampling. The selection of the sampling procedure was based on the researchers' knowledge of the population and the study objectives.

The study employed purposive sampling as well as random sampling. Purposefully sampled Science teachers as key stakeholders to get detailed information on school-based assessments and to help eliminate bias. Kombo and Tromp (2006) and Daka (2019) posits that the power of purposive sampling, lies in selecting information which can be used for in-depth analysis related to the central issue being studied.

In this case, the exploration of the implementation of SBA in Sciences is better understood by the school administrators who are the key custodians of both human and material resources in schools, Science teachers who prepares, administers SBA to the learners as well as mark and record and submit to the school for onward transmission to ECZ, District and Provincial offices. Furthermore, the learners who conduct the SBA and the Education Officers who monitors the conduct and also have the duty to ensure that SBA marks submitted to ECZ are valid. Random sampling was used to obtain samples from the learners of different grades within the study area to check on the progression of the administration of SBA at each grade level against the stipulated guidelines.

3.6 Target Population and Sample Size

The sample for the study was drawn from nine selected schools from three Districts in Eastern Province of Zambia while Lusaka province was used to conduct reliability test and validate the research instruments. The topic was to explore the implementation of School Based Assessments in Sciences in selected Zambian Secondary Schools. According to McMillan and Schumacher, (2001) and Daka, (2019), 'a population is a group of elements or causes, whether individuals, objects or events, that conform to specific criteria and to which we intend to generalize the results of the research. Furthermore, Kombo and Tromp (2006) and Daka (2018) explained that the greater the diversity and differences in the population, the larger the

researchers' sample size should be. This provides variability thus increasing the reliability of the study.

According to Teddlie and Yu (2007) and Daka (2019), a sample is a strategically and systematically identified group of people or events that meet the criterion of representativeness for a particular body. It is also a fraction of the population taken as a representation of the whole population. Therefore, the researcher used both purposive and random sampling to draw the targeted sample of 285 participants from each selected Province. To ensure a fair distribution, the population included Educational Standards Officers at both Provincial offices and District offices, head teachers, deputy head teachers, heads of Natural Science departments, Science teachers and finally to learners. My focus was to select a smaller number of populations which could provide in-depth information on how SBAs were being implemented in schools through Focus groups Discussions.

3.7 Data Collection Instruments

3.7.1 Questionnaires

According to Jwan (2010) and Ndonyo (2018), questionnaires save time on the side of the researcher and heightens the independence and accuracy of responses from participants. Brace (2008) defined a questionnaire as a written list of questions, the answers to which are recorded by participants. Bryman (2004) also defined a questionnaire as a collection of questions administered to participants which must be answered as correctly as possible. White (2005) and Bowling (1999) claims that questionnaires were economical and that they increased the external validity of the study done when used in data collection. Thus, the researcher, also developed two different well-structured two-part questionnaires which were used to collect data from Science teachers and learners from grade 10 to grade 12 from each school.

The questionnaires were based on the variables and the objectives of the study. The first part contained questions soliciting information of general training, planning, setting, administration, marking and scoring while the second question was soliciting information from the teachers and learners on how the SBA are being implemented. The questionnaires had both open and closed ended questions. The open-ended questions which helped provide clarity on closed ended questions.

In order to maximize the response rates, questions were not double-barreled in nature and were structured in simple terms and complete sentences. All this was to compel the participants to

answer all questions and provide the researcher with non-ambiguous information. The researcher allowed enough time to the process from development stage through to questionnaire testing until the instruments were administered to the intended sample.

All the instruments (questionnaires) were formulated by the researcher with the principal supervisor's guidance and presented to the School Board of Studies for approval. The self-completion questionnaires were administered to the learners and the other self-evaluation questionnaires were administered to science teachers by the researcher.

The researcher observed that there were several advantages to having a questionnaire administered by the researcher than to send them through mail. Participants seem more reluctant to turn down the researcher standing on their doorstep than to throw away a mail questionnaire. The presence of the researcher generally decreases the number of "don't know" and "no" answers. If minimizing such responses is important to the study, the interviewer can be instructed to probe for answers

Further, if a respondent clearly misunderstands the intent of a question or indicates that he or she has not understood, the researcher can quickly clarify the issues, thereby obtaining appropriate responses. Researchers assume that a questionnaire item will mean the same thing to every respondent, and every given response must mean the same when given by different participants. Although this is an impossible goal, survey questions are drafted to approximate the ideal as closely as possible.

3.7.2 Interview Guides

The researcher developed the data collection instruments which comprised of interview guides for the collection of data from stakeholders at Provincial, District, and school level. The researcher formulated the interview questions in consultation with the supervisors and the template was presented to the School Board of Studies for approval. There were no changes in the content of the interviews after the pilot study. The semi-structured in depth - interviews with an interview schedule were used to collect data from the key informants in the study.

Sadhu (2006) posits that interview guides helps in probing causal factors, determine attitudes, discovering the origin of the problem and it also allows the collection of data through direct interaction between the interviewee and interviewer. Key informant interviews are qualitative in-depth interviews with key stakeholders who know what is going on as they are part of the

implementation team in schools. The purpose of key informant interviews is to collect information from a wide range of stakeholders which included Head teachers, deputy head teachers, heads of departments and teachers who were deemed have first-hand knowledge about what was to be collected. These experts, with their particular knowledge and understanding provided insight on the conduct and administration of school-based assessments, the challenges encountered and possible interventions that could be put in place and also give recommendations for solutions.

Due to its flexibility, both open and closed-ended questions were used to collect in-depth information to get a complete and detailed understanding of the issue at hand (Kombo and Tromp, 2006). Sapsford (2007) points out that semi-structured interviews do not have a standard format but there are points that are used to ensure that necessary information is collected. The advantage over the questionnaire is that a researcher can probe and request the participants to elaborate the answers and crosscheck them. The researcher used this approach and probed more clarifications to issues raised from the questionnaires.

The first set of interview guides were one on one interviews with the Educational Standards Officers at the Provincial and District Offices. The other interview guide was developed and used at school level to focus group with officers at school level. They contained questions that provided the researcher with information on teacher training, measures put in place for effective monitoring of the implementation of SBA reform as well as establish whether evaluation of the policy had taken place or not. Furthermore, Interview guides were developed and administered to school administrators comprised of the head teacher, Deputy Head teachers and Head of department at school level

3.7.3 Focus Group Discussion

Lastly, Focus Group Discussions were conducted to collect further detailed information on the implementation of school-based assessments in sciences from Heads of department and selected science teachers. A Focus Group is usually composed of 6-8 individuals with similar characteristics of both male and female. When properly planned and facilitated, Focus Group Discussions can produce a lot of information quickly and are good for identifying and exploring participants' beliefs and perceptions (Kombo and Tromp, 2006). Focus Groups aim at discussing a fairly tightly defined topic and the emphasis is on interaction within the group and the joint construction of meaning (Bryman, 2004). In this case, the focus group aimed at discussing issues related to how school-based assessments were implemented in schools as

regards the conduct and administration with regard to stipulated guidelines. Focus group discussions were used to assess needs, develop interventions, test new ideas or improve existing programmes. The template was prepared by the researcher and was later presented for approval at the School Board of Studies meeting. The template was also piloted, and nothing was changed. The questions in the Focus Group Discussions were designed to seek clarification on some responses from survey questionnaires, teachers' self – evaluation questionnaires and in–depth interviews on issues.

Seven (7) separate Focus Group Discussions were held with 8 participants in each. The discussions were recorded using a recorder and in a diary. As a way of motivation, some refreshments were provided. The selected teachers were from different subject area of science i.e. Physics, Chemistry and Biology.

3.8 Data Collection Procedures

This section describes the procedures which were used to collect the data required to answer the research questions. The section discusses whole research process, step by step procedure of collecting data using questionnaires, semi structured interviews and Focus Group Discussions guides as data collection instruments. The exercise of collecting data was undertaken over a period of 2 months. After formulation of instruments, document review was conducted with the Supervisors in order to ascertain the suitability of the questions formulated and credibility of the instrument.

The researcher started with self–evaluation questionnaires to the teachers and learners then followed to have the perception of the implementation of school-based assessments in sciences, a subject under study. This was followed by key informant interviews with Head teachers, Deputy Head teachers and Heads of Department. Focus Group Discussions concluded the data collection process where issues raised in the in–depth interviews were clarified and discussed by the teachers and heads of departments. All the participants were anonymous, and their identity was not disclosed at any time during the reporting. The information collected from the key informants was taken as general data collected and no specific identity was revealed in the write-up or dissemination of the results.

3.9 Pre – Testing of Research Instruments

Pre- Testing of instruments was obtained through pilot testing of instruments in four schools within Lusaka Province. This is because Lusaka Province has Districts that provide Urban,

Peri-Urban, and rural setups which caters for all attributes of the research. This followed, ethical clearance and in order to ascertain reliability, validity, and consistency of the instruments. After pre-testing of the instruments was done in line with demographic sample profiles of the population, some adjustments were done to the instruments before proceeding with collection of data.

3.10 Validity and Reliability of Research Instruments

According to Ivankova, (2002), issues of validity and reliability of instruments are very important in quantitative research for minimizing errors that might arise from measurement procedures. Validity is the accuracy by which the research instruments measures what is intended to measure. Creswell, (2012) defines validity is the degree to which a study accurately reflects or assesses the specific concept or construct that the researcher is attempting to measure. Vithal and Jansen (2003) and Daka (2018) also defines validity as an attempt to check whether the meaning and interpretation of an event is sound or whether a particular measure is an accurate reflection of what one intends to find out, while reliability as the consistency of a measure, score or rating. In order to ensure validity of the instruments, the researcher got assistance from the supervisors and fellow researchers as well as through the pilot study to test the instruments.

3.11 Reliability of Research Instruments

Reliability is the accuracy and precision of a procedure. It is also the dependability of the research instruments in giving the same results after repeated trials in different places and using different participants. As Kerlinger (2003) and Ndonyo (2018) defines reliability as the ability of the instrument to give consistent results after a number of repeated trials. To ensure that the instruments were reliable, the researcher piloted the instrument in four different schools in Lusaka province with different participants.

Norcini *et al* (2011) refers to reliability as the degree to which a test measures what it measures. For the two questionnaires, the test–retest reliability of the survey instruments was obtained through pilot testing of the instruments. Both questionnaires for teachers and learners were pre-tested in the districts of Lusaka Province among science teachers and learners, respectively. Pre-testing of the questionnaires was considered as one of the most important ways of testing the reliability of the instrument. The piloting of the questionnaire aimed at identifying some of the gaps that could arise in inconsistent responses.

3.12 Data collection

Data collection refers to the gathering of information to serve or prove facts. As Khan (2011) posits that data collection is the process of studying the organised materials in order to discover inherent facts. Following the completion of Validity and Reliability tests and approval of authorisation letter to conduct research, the researcher then proceeded to collect data with strict adherence to all ethical principles relating to issues of informed consent, non-deception, and confidentiality of participants.

The consent to take part in the activity was sought, participants were informed and guided on how to go about answering the questionnaires. Furthermore, participants were not compelled to take part in the activity and their anonymity was guaranteed. Selected Districts and Schools were communicated to in advance on the need for the school to participate in the research. The researcher then explained what the research was about and later proceeded to distribute questionnaires to participants who showed both willingness and ability to fill them in and give them about 1-2 days to carry out the task. The researcher distributed the questionnaires, read out the instructions on how to respond to the questionnaire herself and then she allowed the participants' time to answer individually in their own time.

Furthermore, the researcher conducted face to face interviews with the school management team then finally, I sought an audience with Educational Standards Officers at various levels to interview them. The responses were then collected on questionnaires and interview guides. This method of data collection was preferred as according to Jacob (1988) and Ndonyo (2018), this methodology emphasizes the importance of looking at variables in the natural setting in which they are found.

3.13 Data Analysis

Data analysis is the process of studying organised material for the purpose of discovering the inherent facts Khan (2011). Data analysis started as soon as the data were collected. Seeing that the data collected were Qualitative, thematic analysis was used. Thematic analysis is the process of identifying patterns or themes within qualitative data. This was done through creating order, structuring, and creating meaning to collected data. The field notes were arranged according to the main themes in relation to the objectives. For each research question, the data recorded from the survey questionnaire, focus group discussion schedules and the checklist were analyzed through the six-step thematic analysis phases of Braun and Clarke

(2006) Framework. The first phase was familiarization which involved transcribing the data into codes. The second phase was generating initial codes. The third phase was searching for themes which involved collecting codes into potential themes. The fourth phase was reviewing the themes. The fifth phase was defining and naming themes and the sixth stage was writing the report.

According to Creswell (2012), qualitative research is based on theoretical and methodological interpretive Science. Qualitative data was analyzed separately through categorisation of collected information using the research questions as a guide. Data was then coded, firstly as open coding, secondly as axial and finally as selective coding for the purpose of determining how the themes were related.

Open coding involved reading the data carefully while noting the themes or categories. In axial coding, further analysis of themes and categories was done for the purpose of identifying and creating major categories and subcategories identified which might be there. And last but not least, selective coding was conducted in which themes were synthesized into data to identify how it were connected to each other.

3.13.1 Coding of Responses

The task was done two-fold. It involved identifying, classifying, and assigning a numerical or character symbol to data which was done in through pre-coding and post-coding (Wong, 1999). In this study, some of the responses were pre-coded except for section A of the questionnaires which required post-coding. Taken from the list of responses, a number corresponding to a particular selection was assigned; this process was applied to every earlier question that required the treatment.

3.14 Trustworthiness

In qualitative studies, validity and reliability is usually replaced with the term Trustworthiness, a concept which is more ambiguous as the instruments the researchers use do not usually have established metrics on validity and reliability. Therefore, in qualitative data, the researcher has a duty to ensure the instruments produced give or provide credible results which are dependable and can be confirmed and transferred to another setup. Thus, in this study, with the validity and reliability of the instruments, the researcher was certain that the instruments were trust worth enough and that data collection could take place.

3.15 Transferability

Transferability refers to how the researcher demonstrates that the research study's findings are applicable to other contexts. In this case, "other contexts" can mean similar situations, similar populations, and similar phenomena (Bernard, *et al.*, 2010). In this study, the researcher made sure of the use of thick description so as to achieve external validity. According to White and Marsh, (2006) external validity is the degree to which the findings can be generalized to the population from which the participants were drawn. White and Arzi (2005) defined external validity as validity of the research results regarding the intended object of the study.

Considering that external validity relates to the validity of research results, the researcher ensured that there was external validity of qualitative research by making sure that accurate description of the research process was given, and reasons for the choice of methods were also provided including the context in which the research was conducted.

Reliability of qualitative research is also divided into internal and external reliability. Internal reliability refers to the reliability during the study while external reliability is the verification of the findings of the research if the same study would be conducted by independent researchers under the same circumstances and using the same participants (White and Arzi, 2005).

3.16 Conformability

Conformability refers to the extent of neutrality in the research study's findings. As Schreier, (2012) posits, this means that the findings are based on participants' responses and not any potential bias or personal motivations of the researcher. Conformability involves ensuring the researcher bias does not skew the interpretation of what the research participants said to fit a certain narrative. In order to establish conformability, the researcher in this study provided an audit trail, which highlighted every step of data analysis that was made in order to provide a rationale for the decisions made. This helped to establish that the research study's findings accurately depicted participants' responses.

3.17 Dependability

Dependability is very important in research. It is the extent to which a study can be repeated by other researchers and the findings be consistent. It entails that if a person wanted to replicate your study, they should have enough information from your research report to do so and obtain similar findings as your study did (Bernard, *et al.*, 2010). Thus, the researcher presented the

findings to other journal clubs such as Journal of Educational Assessment in Africa and the supervisors as an inquiry audit in order to establish dependability (outside person to review and examine the research process and the data analysis) and ensure that the findings were consistent and could be repeated.

3.18 Reliability and Validity of Data Entry

To ensure both internal and external reliability of the research instruments, a pilot study was carried out. Double entry was employed also in order to make sure there were no errors. The information sought the assistance of the Examination Council of Zambia research Department research official who assisted with the process of data entry. The research Officers from ECZ had to counter check each entry to ensure there were no errors.

3.19 Data Interpretation

In the study, data was interpreted through the use of percentages. Sadhu (2006) posits that interpretation of data can be done at the time of observation. This postulates that the person who conducted the research and collected the data is in the better position to interpret and reconstruct the information. The researcher reflected the interpreted data in form of tables, charts, graphs, and descriptions of findings.

3.20 Ethical Consideration

Finally, it was pertinent to consider the proper conduct of this research. This research accommodated the responsibilities to protect the interest of the survey participants. White and Arzi (2005, 210) refer to ethics as, a set of moral principles which is suggested by an individual or group, is subsequently widely accepted, and which offers rules and behavioral expectations about the most correct conduct towards experimental subjects and participants, employees, sponsors, and other researchers, assistants, and students.

Some behaviour in research such as breach of confidentiality, or the improper use of information and introduce bias are referred to as unethical and can potentially cause harm to individuals,

Throughout the research, ethical principles relating to issues of informed consent, non-deception and confidentiality of participants were strictly observed. Participation in this study was based on informed consent and on voluntary basis, with right of withdrawal at any time

(Bryman, 2004). Further, the names of the participants were withheld in order to protect their identity.

With regards to the survey participants, no one was coerced to respond to this survey. The participants were asked to participate on their own free will, that way, they were told of their rights not to participate or to end their participation if they so wished (Kassim, 2001). Besides, they were briefed about the purpose of the study and how or why they were chosen. As such they were free from deception or stress that might have arisen from their participation in this research. The participants were also guaranteed protection through anonymity and all information that may reveal their identity was held in strict confidence. Furthermore, the purpose of this study was explained to them and that they would be informed of the findings if they so request later.

3.21 Limitations and Challenges Encountered During Data Collection

The Researcher encountered among others the following notable challenges;

- i. Cost of conducting research. The researcher found it expensive to collect data from different districts and various schools within the selected districts
- ii. Some Officers in one District were out on duty outside the station attending a workshop during the time of data collection
- iii. The access road to some targeted schools were impassable due to damaged bridge thus the researcher did not collect the data from two schools

One of the limiting factors during data collection is that the study did not put into consideration the impact of COVID19 closures on the Implementation of School Based Assessment in Zambian schools which could have restricted the generalization of the findings.

3.22 Summary

This chapter presented the methodology used in the study. A qualitative methodology was employed and used to explore the Implementation of School Based Assessments in science in Zambian secondary schools. 285 participants were requested, however, 224 participants participated in the survey. The data collected was analyzed qualitatively using thematic analysis.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the findings of the study conducted to explore the implementation of School based assessments in science. The study sought to determine the extent to which the SAB Policy has been evaluated since its roll out in 2019. Assess the administration of SBA in science in respect to the stipulated guidelines, establish the challenges faced and the measures put in place to address them to ensure validity and reliability of the marks submitted to ECZ. Assessments and evaluation are central to the process of effective teaching and learning. According to Sutton (1991), assessments can provide a framework in which educational objectives may be set, and pupils' progress chartered and expressed. Evaluation provides the basis for planning the next educational steps in response to learners needs and helps teachers to review the strategies for curriculum delivery. Assessments help to ascertain the effectiveness of a school program through encouraging teachers and learners to achieve high standards of education ADEA (1998).

As earlier alluded to, new Reforms and School programs that are implemented by means of this School Based Assessments System, need evaluation to avoid meaningless changes of reforms (Sanders and Sullin, 2006). Assessment provides feedback on the performance of the curriculum and determines the extent to which it is meeting the objective of promoting learners intellectual, physical, and personal development as well as statutory requirements in terms of educational provisions ADEA (1998).

The assessment of SBA Policy hinges on excessive school monitoring and actual observation of practices in classrooms. Education Standards Officers are charged with the responsibility to conduct lesson and classroom observations because it provides them with feedback on the teaching and learning process. Clear understanding of objectives aims, and the purpose of any education program is paramount for proper feedback and comparison to how other education systems in the world are performing. Analysis of examinations and assessments conduct, and results is important to evaluate in order to ascertain the extent to which the national standards are being achieved through learners' attainment as well as comprehensive coverage of the curriculum, and the quality of teaching and learning ADEA (1998).

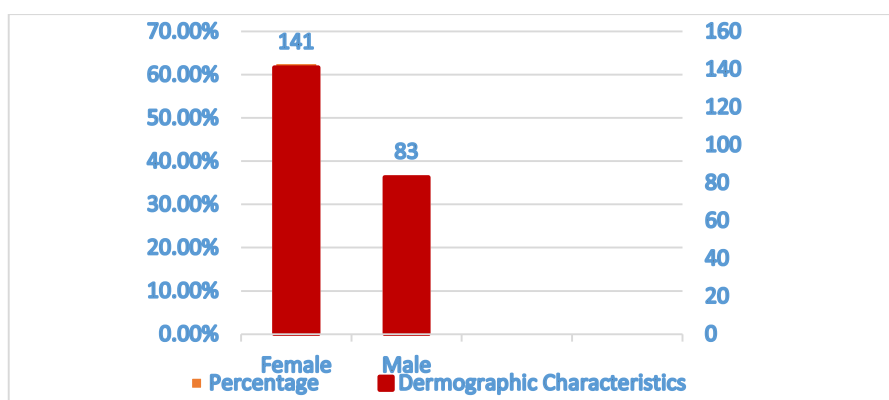
Assessments lies in the heart of promoting learners learning which should be able to provide a framework in which educational objectives maybe set and learners’ progress chartered and expressed ADEA (1998). Evaluation and assessments of educational programmes and proper record keeping helps to determine the factors that account for effective and ineffective teaching including the learning of all learners paying particular attention to any in the class who still need additional help. However, in Zambia, no systematic assessments and evaluation of SBA reform has been conducted since its roll out. Thus, establishing how SBA was been implemented, the findings revealed that stakeholders’ perceived SBA as a good practice that would enhance the teaching of sciences.

The analysis and discussion of data was collected gathered from the questionnaires, interview guides and focus group discussions (FGD) held with the teachers. Responses from all the questionnaires, interview guides and FGD were examined, compiled, and evaluated to answer the research questions that guided the study to achieve the objectives of the research. As far as possible, data were displayed and tabulated inform of graphs, tables, and figures with the aim of identifying and discerning any patterns that provided the best interpretation of the results of the study.

4.2 Socio-Demographic Characteristics

The study involved 141 female participants, translating to 62.95 percent and 83 male participants representing 37.05 percent. The selection was purposively done, participation in this research was premised on an individual’s availability and willingness to be involved. Thus, the difference, in proportions of females and males is a function of people’s availability and willingness to participate.

Figure 4.1: Participants by Gender



Source: Field data, 2024

Table 4. 1: Response Rate

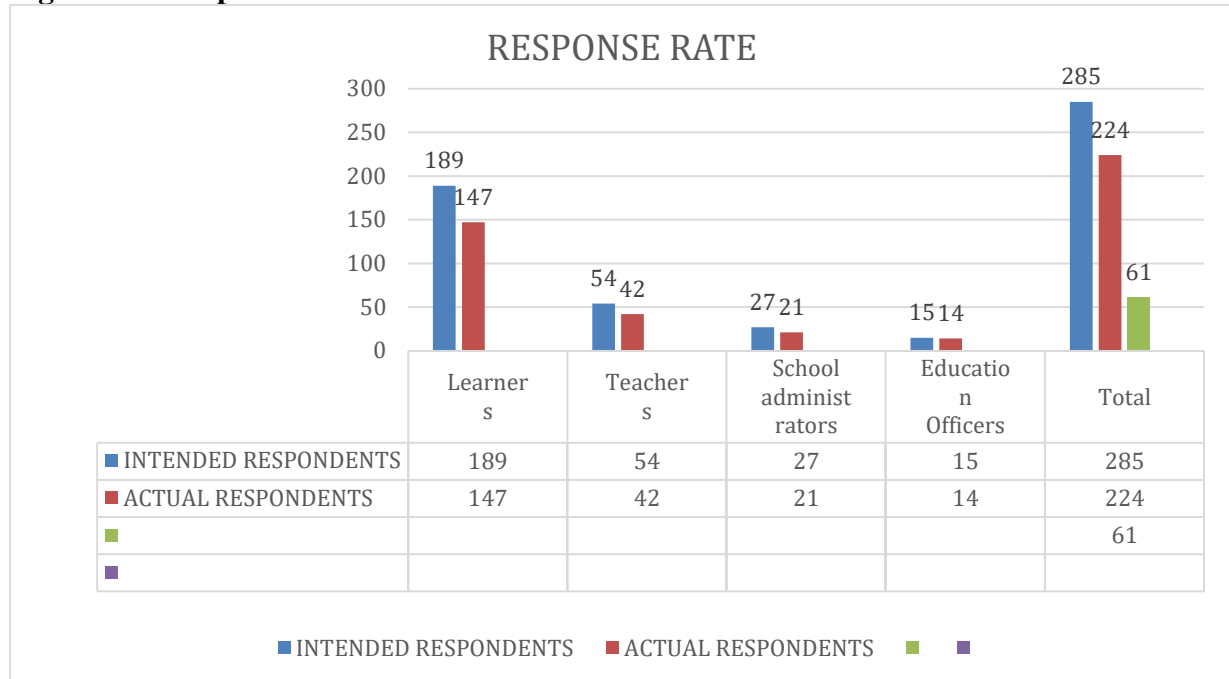
S/N	Participants	Intended Participants	Actual Participants	Non-Respondent
1	Learners	189	147	42
2	Teachers	54	42	21
3	School Administrators	27		
4	Education Officers	15	14	1
	Total	285	224	61

Source: Field data 2023

The table above highlights a notable challenge in the research process, particularly concerning low response rates from learners, teachers, and school administrators in District 3. The envisioned goal was to engage 285 participants; however, the study only managed to include 224 participants. This discrepancy arose due to the inability to visit two additional schools as originally intended by the researcher. Among the targeted participants, 147 out of 189 proposed learners, 42 out of 54 proposed teachers, 21 out of 27 proposed school administrators, and 14 out of 15 proposed Education Officers were successfully involved in the study. Consequently, only one school from District 3 participated, primarily attributed to impassable road conditions leading to the other two schools, stemming from a deteriorated bridge during the research period. This unforeseen challenge resulted in a reduction of forty-two (42) learners, twelve (12) teachers, and six (6) school administrators, leading to an overall non-respondent rate of 21.4%.

The impediments faced during the research, such as the inaccessible road network and the worn-out bridge, significantly impacted the intended scope of the study. The inability to reach two schools in District 3 due to these geographical constraints resulted in a reduced sample size. Despite the challenges, the research team made efforts to engage with the available participants, acknowledging the constraints posed by external factors beyond their control. The data collected from the participating school provides valuable insights, but the limitations in reaching the initially planned number of participants underscore the importance of considering and adapting to unforeseen circumstances in the research process.

Figure 4.2: Response Rate



Source: Field Data, 2023

4.3 Teachers Perception of School Based Assessments

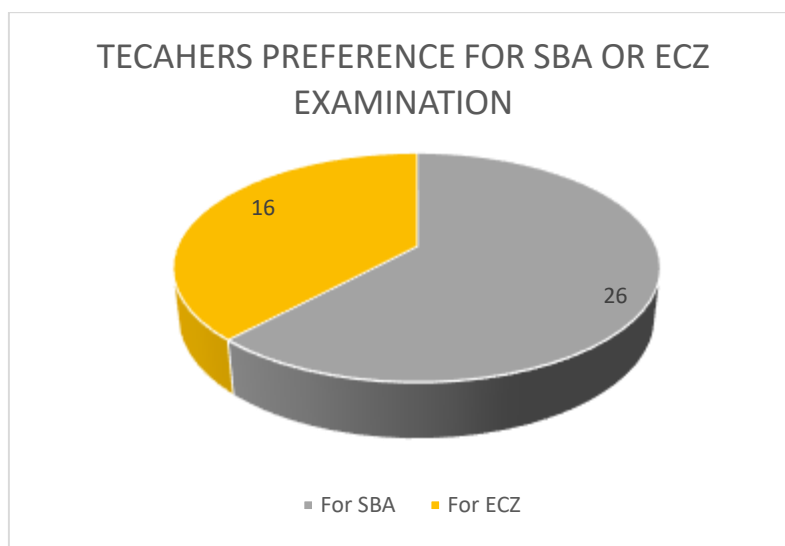
The research findings underscore the positive shift in science education practices following the discontinuation of the national practical paper 3 examinations, prompting teachers to engage in more frequent experimental activities. Unlike the previous reliance on one-off practical assessments conducted by the Examinations Council of Zambia to fulfill examination requirements, teachers are now actively involved in implementing experiments as part of the School-Based Assessment framework. Stakeholders across various roles perceive SBA as a beneficial policy contributing to the enhancement of both teachers' and learners' skills in conducting experiments. Additionally, SBA is seen as a valuable process for improving the overall teaching and learning experience in science, fostering teachers' capacity development, and instilling confidence in handling practical lessons.

During the exploration of the preferences between the traditional system of national practical examinations and the newly introduced School-Based Assessments, the majority of teachers (61%) expressed a keen interest in SBA. They highlighted the advantages of conducting assessments locally without external interference as one of the primary reasons for their preference. This implies that SBA provides teachers with autonomy and flexibility in the assessment process, contributing to a more tailored and contextually relevant evaluation of

students' practical skills. However, it's noteworthy that 38% of teachers showed less enthusiasm for school-based assessments. These teachers favored nationally set, marked, and recorded examinations over SBA, primarily due to the challenges they faced in acquiring the necessary materials for practical lessons.

The divide in preferences among teachers underscores the nuanced nature of implementing educational reforms. While a significant portion embraces the localized and flexible nature of SBA, others highlight practical challenges related to resource availability. Addressing these concerns and ensuring equitable access to essential materials will be crucial for fostering a more universally accepted and effective implementation of the School-Based Assessment in science education. Efforts to support teachers in overcoming resource-related obstacles could further enhance the positive impact of SBA on science teaching and learning.

Figure 4.3: Teachers Preference for SBA or ECZ



Source: Field Data Survey, 2023

The challenges faced in implementing School-Based Assessment in the science curriculum are complex and multifaceted, as highlighted by the concerns raised by educators. Science, unlike other practical subjects, operates within strict parameters, leaving minimal room for improvisation. Teachers emphasized the inherent need for specific and often costly materials in science experiments, citing examples like Benedict solution or Copper II Sulphate, which are essential for titration, food tests, or electricity experiments. One head of department (HOD) from District A school 2 vividly lamented,

"What can we substitute chemicals required for titration, food tests, or electricity with? If it is Benedict solution or Copper II Sulphate required, it just has to be that"

This statement encapsulates the predicament faced by science educators, caught between the necessity of specific materials and the directive to keep SBA cost-effective.

The research findings also shed light on a range of factors compromising the actual implementation of SBA in science education. Among these factors are the lack of adequate training in SBA methodologies, misinterpretation of the guidelines provided, low ethical values, understaffing of science teachers, large class sizes, limited time allocated for science periods, inappropriate infrastructure, and insufficient resources. This intricate web of challenges has led many teachers to express a preference for the traditional one-off examinations set by the Examinations Council of Zambia. The preference for these examinations suggests a perceived simplicity and efficiency compared to the more intricate and resource-dependent nature of continuous assessments. As one teacher aptly captured, "But the administrators keep on telling us that these SBA are supposed to be cheap whenever we submit requests. How can we work like this?" This quotation emphasizes the inherent contradiction between administrative directives and the practical requirements of delivering quality science education.

The emergent themes from the research findings provide a comprehensive panorama of the impediments encountered in the seamless integration of School-Based Assessment into the science curriculum. The challenges span from the tangible and specific material constraints faced by educators to the broader systemic issues encompassing teacher training and ethical considerations. Addressing these multifaceted challenges demands a nuanced and strategic approach to ensure effective resolution and successful implementation of SBA in the Zambian science education landscape.

At the core of the challenges lie specific material constraints, as underscored by the direct quotation capturing the predicament of science educators. The need for precise and often expensive materials in science experiments leaves teachers grappling with the inherent contradiction between adhering to specific requirements and the directive to maintain cost-effectiveness in SBA. The struggle to balance these contrasting demands raises questions about the practicality and feasibility of implementing continuous assessments in a subject that necessitates specific resources for meaningful learning experiences.

Moving beyond material constraints, broader systemic issues come to the fore, including insufficient teacher training and ethical considerations. The inadequacy of training in SBA methodologies becomes a critical bottleneck, hindering educators from effectively navigating the intricacies of continuous assessment practices. Ethical considerations add another layer of complexity, suggesting that successful SBA implementation requires not just pedagogical competence but also a strong ethical foundation among educators.

In navigating the delicate balance between financial considerations and the pedagogical demands of science education, collaborative efforts emerge as a linchpin for success. Educational stakeholders, including policymakers, administrators, and teachers, need to collaboratively devise solutions that address the specific needs of science education in Zambia. This collaborative approach should encompass targeted training programs, ethical guidelines, and resource allocation strategies that align with the unique challenges posed by the science curriculum.

The direct quotation serves as a poignant reminder of the real-world implications of policy directives on the ground. It underscores the intricate challenges faced by educators and the necessity for policymakers to adopt a holistic understanding of the situation. Responsive strategies, informed by the nuanced realities of science education in Zambia, are imperative for shaping a future where SBA can effectively contribute to improved learning outcomes and the overall enhancement of science education in the country.

4.4 Evaluation of School Based Assessment

The findings of the study bring to light a significant and concerning revelation: the School-Based Assessments Policy in Zambia has not undergone any systematic assessment to warrant evaluation since its inception in 2019. This lack of assessment was consistently affirmed by participants across various levels, including teachers, school administrators, and Education Standards Officers. The absence of any assessment of the SBA Policy raises questions about its effectiveness and impact on the education system in Zambia. It indicates a notable gap in the oversight and continuous improvement of the policy, hindering its potential to contribute meaningfully to the educational landscape.

The participants' unanimous acknowledgment of the non-evaluation of the SBA Policy implies a lack of feedback mechanisms at various levels of the education system. Feedback is crucial for informing stakeholders on the strengths, weaknesses, and overall performance of the policy.

Teachers and school administrators, who play pivotal roles in the implementation of SBA, are left without the valuable insights that an evaluation could provide. This information vacuum diminishes the perceived value and significance of SBA, as its efficacy and impact remain unscrutinized and unmeasured.

The guidelines accompanying the SBA Policy clearly stipulate that teachers and schools are expected to maintain records and actual copies of the administered tasks for validation by Education Standards Officers and officials from the Examination Council of Zambia. However, the study reveals that, contrary to these guidelines, no such validation or verification process has taken place since 2019. This further compounds the issue, as the intended checks and balances that should ensure the fidelity of SBA implementation seem to be absent, potentially undermining the credibility and reliability of the assessment system.

In light of these findings, there is an urgent need for a comprehensive evaluation of the SBA Policy in Zambia. Such an evaluation should involve key stakeholders, including teachers, administrators, and Education Standards Officers, to provide a holistic understanding of the policy's strengths and weaknesses. Additionally, mechanisms for regular assessments and feedback loops should be established to ensure ongoing improvement and refinement of the SBA Policy. Addressing these issues is essential to uphold the integrity of the education system and to harness the full potential of School-Based Assessments in contributing to quality education in Zambia.

4.5 Learners Perceptions on how Science is taught in Schools

The study allowed for learners participation to establish the implementation of SBAs. Using cross-tabulation table, the researcher explored the relationship between individuals' enjoyment of learning science and their perception of its importance. Among the 147 total participants, the majority, comprising 128 individuals, recognized the significance of learning science. Notably, 113 of these individuals express enjoyment in the process of learning science while 19 participants did not consider learning science important. The findings suggest a positive association between the perceived importance of science education and the enjoyment derived from learning it. In essence, the majority of those who acknowledge the importance of science also experience a sense of enjoyment in the learning process. This emphasizes the interconnectedness of these two perspectives.

Table 4.2: Do you enjoy learning science? Is Important to learn science? Cross-tabulation

		Important to learn science?		Total
		No	Yes	
Do you enjoy learning science?	no	2	17	19
	yes	15	113	128
Total		17	130	147

Source: Field Data, 2023

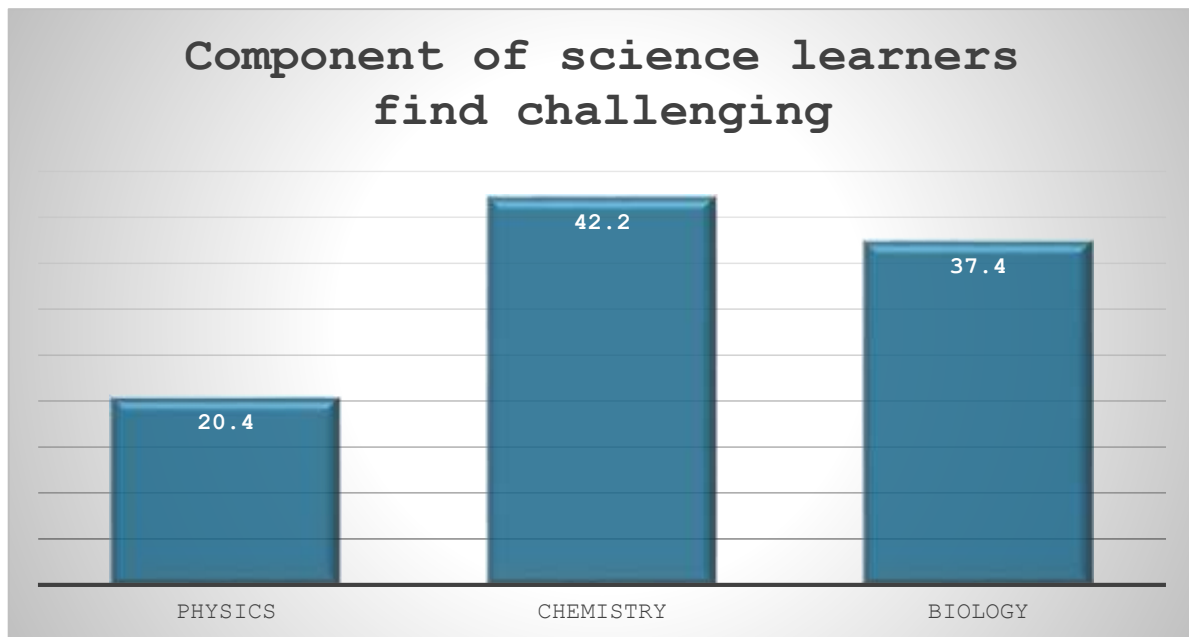
The study delved into the learners' perceptions of enjoying science education, revealing noteworthy insights into their attitudes toward the subject. Among the 147 learner participants, a distinct trend emerged as a substantial majority, accounting for 87.1%, expressed enjoyment in the process of learning science. This positive response from the learners signifies a prevailing sentiment of satisfaction and engagement with science education in the surveyed group. The fact that more than four-fifths of the participants find science enjoyable suggests an inherent interest and enthusiasm for the subject among the learners, which is a promising indicator for science education in the context of the study.

Contrastingly, a minority, comprising 12.9% of the learner participants, indicated that they do not enjoy learning science. While this is a comparatively smaller segment of the surveyed group, it still highlights the existence of a subset of learners who may face challenges or exhibit disinterest in the science curriculum. Understanding the reasons behind this minority's lack of enjoyment could provide valuable insights for educators and policymakers to address potential barriers to engagement and improve the overall learning experience for all students.

The majority's expression of enjoyment in learning science is significant not only for the individual learners but also for the broader context of science education. Positive attitudes toward science contribute to a conducive learning environment, fostering curiosity, critical thinking, and a lifelong interest in scientific inquiry. Recognizing and building upon this enthusiasm can be instrumental in shaping effective pedagogical approaches that cater to the diverse needs and preferences of learners, ultimately enhancing the quality and impact of science education in the studied setting.

The study conducted a cross-tabulation analysis to discern participants' perceptions regarding challenging components in science, categorizing these challenges by specific disciplines, namely physics, chemistry, and biology. The data, gathered from 147 participants, shed light on the varying degrees of difficulty associated with different scientific disciplines. Notably, 20.4% of participants identified physics as a challenging component within the realm of science. This indicates a moderate level of perceived difficulty in the field of physics among the surveyed individuals.

Figure 4.4: Component of Science Learners Find Challenging



Source: Field Data, 2023

Figure 4.4 illustrates the level of challenge or difficult learners find challenging among the 3 sciences.

Interestingly, chemistry emerged as the discipline that had a substantial portion of participants found most challenging, with 42.2% highlighting its difficulty. This suggests a prevailing perception among the participants that chemistry poses a comparatively higher level of complexity or challenge. The recognition of chemistry as a particularly challenging aspect of science underscores the need for targeted strategies and support mechanisms to address the perceived difficulties in this specific discipline.

In close contention, biology was identified by 37.4% of participants as a challenging aspect of science. While slightly lower than chemistry, the acknowledgment of biology's difficulty by a significant portion of participants emphasizes the multifaceted nature of challenges within the

broader domain of science. Understanding these nuanced perceptions regarding specific scientific disciplines is crucial for educators and curriculum developers, as it allows for tailored interventions and approaches to enhance learning experiences and mitigate challenges within each discipline.

Table 4.3: Component of science found challenging

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Physics	30	20.4	20.4	20.4
Chemistry	62	42.2	42.2	42.2
Biology	55	37.4	37.4	37.4
Total	147	100.0	100.0	100.0

Source: Field Survey Data 2023

In an attempt to glean more insights into the diverse activities undertaken by learners during the process of learning science, the study engaged 147 participants to shed light on the instructional methods employed in science education. The findings reveal a rich tapestry of activities that contribute to a multifaceted learning experience. A noteworthy 28.6% of participants reported engaging in experiments as part of their learning journey. This highlights the significance of a hands-on approach, allowing learners to directly interact with scientific concepts through practical experimentation, fostering a deeper understanding of the subject matter.

Figure 4. 5: Activities Undertaken by Learners during the Learning Science



Source: Field data Survey, 2023

Furthermore, assignments emerged as a prevalent activity, with 51.0% of participants indicating their involvement in theoretical tasks and problem-solving exercises. This underscores the integral role of theoretical assignments in consolidating conceptual knowledge and honing problem-solving skills. The prevalence of assignments as a learning activity suggests a focus on theoretical understanding and the application of acquired knowledge to solve scientific problems.

Table 4.4: What activities do you have when learning Science?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	experiments	42	28.6	28.6	28.6
	assignments	75	50.0	50.0	50.0
	projects	30	20.4	20.4	20.4
	Total	147	100.0	100.0	

Source: Field Data, 2024

In addition to experiments and assignments, 20.4% of participants reported undertaking projects as part of their science education. This finding indicates a project-based learning component, wherein learners engage in more extended and comprehensive projects to explore scientific concepts in-depth. Project-based learning not only enhances understanding but also cultivates skills such as research, collaboration, and presentation, contributing to a holistic development of learners. The cumulative perspective drawn from these varied activities underscores the diversity of instructional strategies employed in science education. From practical experiments to theoretical assignments and project work, learners are exposed to a comprehensive array of learning experiences. This holistic approach not only caters to diverse learning styles but also aligns with contemporary educational principles that emphasize the importance of experiential and project-based learning in fostering a deep understanding.

The study delved into the frequency of practical experiences encountered by participants in their science education, shedding light on the extent of hands-on, experiential learning within the science curriculum. The findings revealed a significant majority, comprising 69.8% of participants, who reported having practical lessons rarely. This suggests that a substantial proportion of learners do not frequently engage in hands-on activities as part of their science education. The infrequent occurrence of practical sessions may indicate a potential gap in the implementation of experiential learning strategies within the science curriculum, which could impact the depth of learners' hands-on engagement with scientific concepts.

Conversely, 26.5% of participants indicated that they have practical lessons often, signifying a smaller yet notable subset of learners who regularly experience hands-on activities in their science education. This group's more frequent engagement in practical sessions may contribute to a deeper understanding of scientific concepts, as experiential learning has been recognized for its efficacy in reinforcing theoretical knowledge through direct application and observation.

A smaller subset, constituting 3.7% of participants, reported having practical lessons very often. While this represents a minority, it highlights the existence of a group of learners who consistently benefit from a high frequency of hands-on experiences. The more frequent exposure to practical sessions for this subset may contribute to a richer and more immersive learning experience, aligning with the principles of experiential and practical learning as effective pedagogical approaches.

The findings, therefore, underscore a potential disparity in the frequency of practical experiences within the science curriculum. Addressing this variability in the implementation of practical sessions could be crucial in ensuring a more equitable and enriching science education experience for all learners.

Table 4.5: How often do you have Practical Lessons?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Often	39	26.5	26.5	26.5
	Very often	6	3.7	3.7	69.8
	rarely	102	69.8	69.8	100.0
	Total	147	100.0	100.0	

Source: Field Data, 2023

The responses to the question "Give reasons" regarding the enjoyment of learning science unveil a rich tapestry of perspectives and motivations among the 147 participants. The majority of participants expressed a positive attitude toward science, underlining its relevance in daily life, career choices, and understanding the world around them. Several notable themes emerged from the responses, providing insights into the multifaceted nature of students' enjoyment and appreciation of science education.

Firstly, the practical application of science in various aspects of life emerged as a prominent theme highlighted by participants. Learner 5 from school 7 eloquently stated,

"Because science and its laws are what guide us in our daily lives,"

On the emphasizing the pivotal role of scientific principles in shaping and informing everyday experiences. Another learner 3 from school 5 underscored this sentiment, stating,

"Because science is applied in anything we do,"

Secondly, the connection between science and career aspirations was a prevalent and significant theme. Participants recognized the instrumental role of science education in shaping their future career paths. Learner 1 from school 2 mentioned,

"Because it is important in a career like medicine and understanding how the body functions,"

Establishing a direct link between the study of science and specific career choices, such as medicine. Another response from learner 5 highlighted the utilitarian aspect, stating,

"For employment," indicating the perceived importance of science education in securing future employment opportunities in a competitive job market.

Thirdly, the enriching nature of science education and its impact on personal development emerged as a noteworthy theme. Learner 6 from School 1 expressed,

"It broadens my mind on how the world works,"

This suggests the cognitive benefits of studying science and its role in expanding one's understanding of the world. Learner 3 from school 3 emphasized,

"Learning science makes life easier through technology and innovation,"

Highlighting the transformative role of science in technological advancements and innovation that contribute to societal progress.

Lastly, the connection between science education and higher education goals was underscored by participants. Another learner from school 5 noted,

"It will be beneficial in the future at university,"

Emphasizing on the perceived relevance of science education in higher academic pursuits. Learner 4 from school 3 stated,

"Without science, you can't obtain a grade 12 certificate,"

On highlighting the academic requirement and significance of science in the educational system, reinforcing the notion that science is foundational to academic success. The responses showcased a diverse range of reasons for enjoying and valuing science education. These reasons include its practical application in daily life, its relevance to career choices, its impact on personal development, and its role as a foundational requirement in the academic journey. These diverse perspectives contribute to a nuanced understanding of the motivations and attitudes of students towards learning science, illustrating the multifaceted nature of their engagement with this crucial subject.

4.6 Adherence to Stipulated Guidelines during the Conduct of SBA

The findings revealed that the Ministry of Education has provided schools with guidelines on the conduct and administration of SBA for all practical subjects. The participants indicated that the guidelines were clearly tabulated and provided clear guidelines on how to conduct and administer SBA in each specific subject. It was indicated that each subject had specific number of tasks to be conducted in each grade year and specific skills to be assessed with specific mark allocation. One teacher from School11 said,

"I do not think that anyone can complain about guidelines of SBAs. They are so clear."

4.7 Training of Stakeholders in SBA

The findings revealed a critical gap in the training of teachers and stakeholders involved in the implementation of School-Based Assessments in Zambia, particularly the planning, setting and

administration of SBA. A notable revelation is that teachers, as well as various stakeholders, have not undergone adequate training on how to effectively implement SBA in alignment with the prescribed guidelines. This deficiency was further underscored by the expressed need for comprehensive training voiced by many participants, including teachers, school administrators, and Education Officers.

Teacher 3 from school 2s statement encapsulates the widespread sentiment among educators, stating,

"We were not trained on what SBA is and how it should be conducted but rather we were merely oriented on the changes from national practical examinations to the School-Based Assessment system."

This articulation emphasizes the disparity between mere orientation sessions and the substantive training needed to equip teachers with the requisite knowledge and skills for successful SBA implementation. The teacher's remark highlights a gap in understanding the intricacies of SBA and its practical execution in the classroom.

Furthermore, the study brings to light that various stakeholder, including school administrators and Education Officers, echo the need for comprehensive training. They emphasize that the orientation meetings conducted by the Examinations Council of Zambia primarily focused on explaining the transition from the previous examination system to the SBA system. However, these meetings fell short of providing the in-depth insights and guidance necessary for stakeholders to fulfill their roles and responsibilities effectively.

Participants, including school administrators and Education Officers, express the hope that dedicated training sessions will offer clarity on the roles and responsibilities of stakeholders. They anticipate that such training will provide a roadmap for the requisite materials needed to conduct all SBA tasks, not only in science but across various subjects. Education Officer 1 from the Province articulated,

"We were called for orientation meetings where they explained that practical assessments were replaced with SBA following the cancellation of some examination papers in 2018."

This statement reflects the need for a more comprehensive training approach that goes beyond a mere explanation of the shift in assessment methods, addressing the practical aspects of SBA

implementation. The study underscores the critical importance of addressing the training gaps among teachers and stakeholders for the effective implementation of SBA in Zambia. The expressed need for thorough training sessions emphasizes the urgency of providing educators and stakeholders with the necessary knowledge, skills, and resources to navigate the complexities of the SBA system successfully. Such comprehensive training is essential for ensuring the credibility and effectiveness of SBA in enhancing the quality of education in Zambian schools.

4.7.1 Assessment of SBAs by Standards Officers at District and Provincial Level

The findings presented in the table offer valuable insights into the perspectives of Standards Officers and Teachers involved in the Assessment and Evaluation of School-Based Assessment for Sciences at the District and Provincial levels. Notably, Standards Officers expressed disagreement on certain crucial aspects related to SBA implementation. For instance, regarding training for SBA, the mean of 1.867 with a standard deviation of 1.065 indicates a disagreement among Standards Officers, suggesting that there might be a lack of consensus or uniformity in the training received. A similar pattern is observed in the question about training teachers in SBA, with a mean of 1.678 and a standard deviation of 1.046, reinforcing the disagreement among Standards Officers on this aspect.

Furthermore, when it comes to providing training for head teachers, the mean of 0.983 and a standard deviation of 0.979 also indicates disagreement among Teachers. This suggests a potential gap or discrepancy in the provision of training for head teachers in the context of SBA implementation.

On a more positive note, the table reveals a high level of agreement among Teachers regarding the statement "School-Based Assessment can contribute to enhancing the quality of science education in Zambia," as indicated by a mean of 4.15 and a standard deviation of 0.898. This consensus among Teachers underscores the perceived positive impact of SBA on the quality of science education in Zambia.

The findings suggest a need for further investigation and potential interventions to address the discrepancies and disagreements among Standards Officers, particularly concerning training aspects. The positive agreement among Teachers regarding the potential benefits of SBA in enhancing science education quality highlights an optimistic perspective that can be leveraged for the improvement and effective implementation of SBA in the Zambian education system.

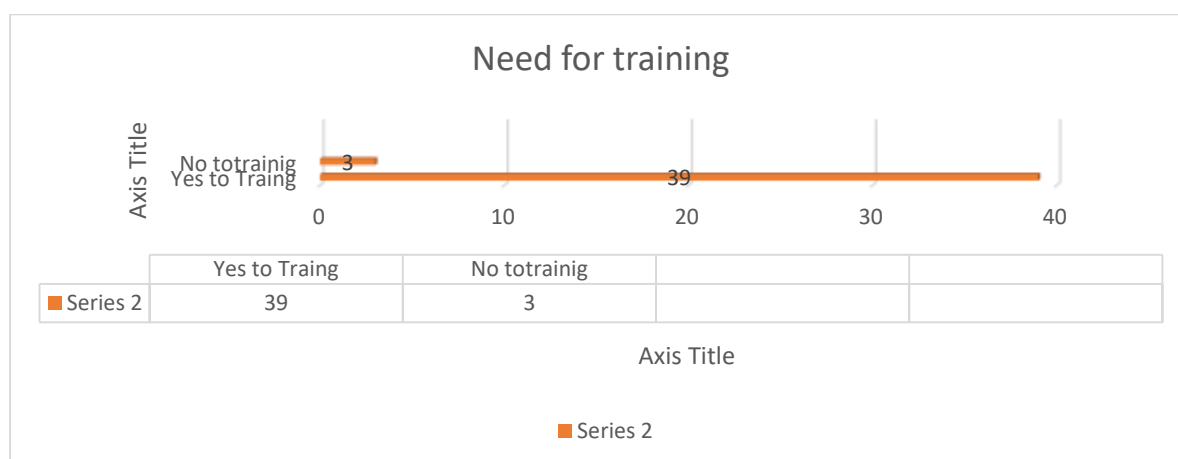
Table 4.6: Mean score of Perceived Positive Impact of SBA on the Quality of Science

QN	Statements	Participants	Mean \bar{X}	Standard Deviation	Majority
2	Did you take training for SBA	Standards Officer	1.867	1.065	Disagreement
5	Have you trained teachers in SBA	Standards Officer	1.678	1.046	Disagreement
8	Do you provide training for the head teachers also	Teachers	0.983	0.979	Disagreement
10	School-Based Assessment can contribute to enhancing the quality of science education in Zambia	Teachers	4.15	0.898	Agreement

Source: Field Data, 2023

Many participants expressed inadequacies on how low equipped they were with knowledge on how to plan, set, administer, mark, compute and record the marks for submission to ECZ. The study indicated a lot of gaps pointing to the fact that teachers need to undergo training was paramount. 39 out of 42 teachers translating to 92.86 percent echoed the need for training of all science teachers in the Country to equip them with skills on how to set quality papers which should cover all the six tasks to be assessed in one task as well as award marks for standardising SBA tasks.

Figure 4.6: Need to Undertake Training



Source: Field Data, 2023

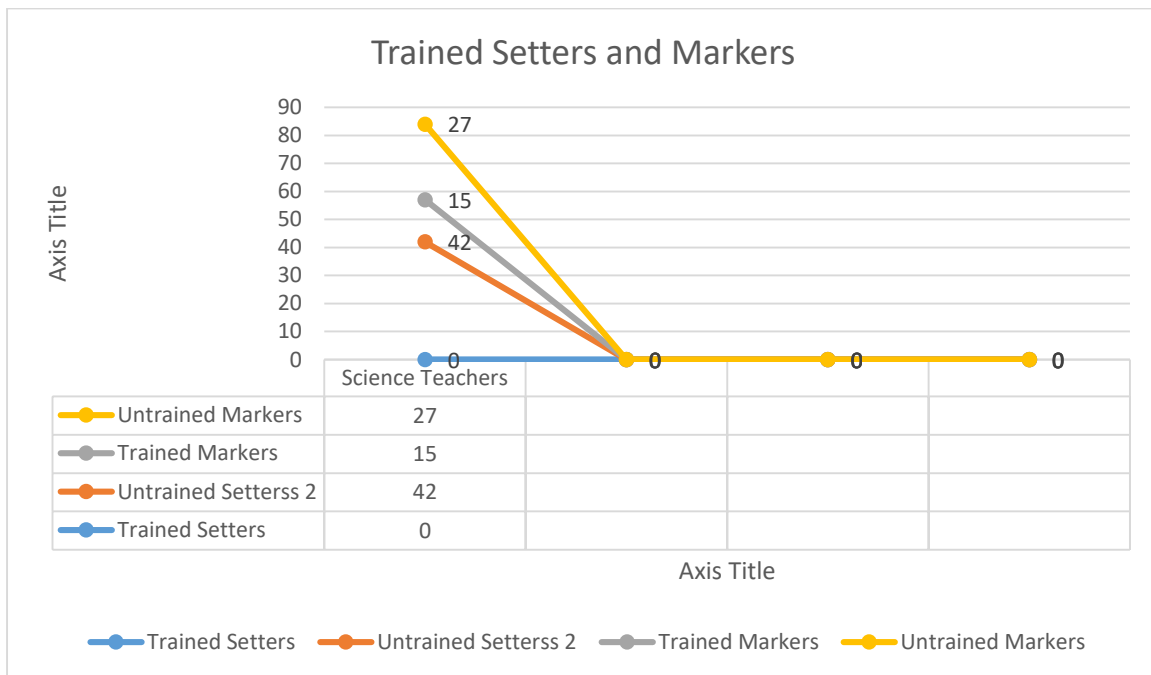
4.7.2 Setters and Markers

The study revealed that there were no ECZ trained setters of examinations among the participants. However, the study showed there were a few trained markers of national examinations. One Head of Department from school 1 strongly expressed the gap arising from not being trained as markers.

Here is what he said;

“Most science teachers are not setters nor markers of national examinations. We have been applying to ECZ for consideration, but we are told they no longer train. Now how do they expect us to set, mark and compute when we were not setters nor markers?”

Figure 4.7: Trained Setters and Markers



Source: Field Data 2023

4.7.3 Conduct of SBA during Teaching and Learning Time

The study brought to light a critical deviation from the prescribed guidelines regarding the timing of School-Based Assessment implementation. Contrary to the guidelines emphasizing integration into teaching and learning time, the findings revealed that SBA was scheduled separately, akin to the timetabling of practical examinations. This departure from the intended practice raises concerns about the seamless integration of SBA into the educational process,

potentially compromising its effectiveness in providing continuous and authentic feedback within the context of regular classroom activities.

Moreover, the prioritization of examination classes due to time constraints further exacerbated the challenges associated with SBA implementation. The study findings highlight an insufficient time prompted the segregation of SBA sessions, potentially sidelining non-examination classes.

Teacher 5 from school 6 stated,

"There are too many assessments to be conducted on the same learners in a particular term; that's why SBA is usually given to examination classes."

The skewed allocation of resources and time may hinder the holistic application of SBA, impacting its equitable distribution across all levels of education. Additionally, the allocation of only three periods per week for Science, distributed as both double and single periods, presented a logistical challenge in incorporating SBA within the constrained teaching and learning time. This situation raises questions about the feasibility of conducting comprehensive and meaningful SBA assessments under such limitations.

Furthermore, the study revealed an underlying perception that SBA was treated more as a duty than a responsibility. This characterization suggests a potential lack of intrinsic motivation or commitment among educators, which could impact the quality and thoroughness of SBA implementation. Addressing this perception is essential to ensuring that SBA is embraced as a crucial pedagogical tool rather than merely a mandatory task, fostering a more positive and effective approach to its incorporation into the education system.

In summary, the study sheds light on the challenges associated with the timing and prioritization of SBA implementation, indicating deviations from prescribed guidelines and potential limitations in the integration of SBA into teaching and learning activities. Addressing these issues requires a comprehensive approach, including a reconsideration of timetabling practices, resource allocation, and fostering a sense of responsibility and commitment among educators to enhance the efficacy of SBA within the educational framework.

4.7.4 Conduct of SBA with regard to Infrastructure

The findings of the study underscore significant challenges in the effective implementation of Practical School-Based Assessments (SBA), particularly related to the inadequacy of infrastructure. One of the prominent issues highlighted was the insufficient availability of laboratories to facilitate practical lessons. Participants emphasized that many schools lacked the necessary infrastructure, including laboratories equipped for practical assessments. Another HOD from School 5 expressed this concern, stating,

"Many schools did not have appropriate infrastructure to support effective implementation of Practical school-based assessments."

This limitation posed a substantial hurdle in conducting practical lessons integral to the SBA process. A critical aspect identified in the study was the scarcity of equipment and apparatus, particularly for physics-based experiments. The shortage of essential resources hindered the schools' ability to conduct practical assessments during regular teaching and learning time. The study brought attention to the fact that some schools, faced with the inadequacy of laboratories and equipment, had to resort to using classrooms for practical lessons. This compromise in infrastructure not only impacted the quality of practical assessments but also indicated a broader challenge in providing conducive environments for hands-on learning experiences. The study further revealed the ongoing issue of outdated equipment and a lack of investment in new resources. Teacher 5 from school 3 lamented,

"School administrators no longer buy equipment, apparatus and chemicals to use during SBA. We use apparatus that was bought when ECZ used to run practical Examinations. They now tell us to set according to what is available."

This statement underscores the financial constraints and resource allocation challenges faced by schools, leading to the continued use of outdated apparatus. The reliance on equipment from a previous era raises concerns about the relevance and accuracy of practical assessments in line with contemporary educational standards.

Lastly, the study illuminates the significant hurdles schools face in implementing Practical School-Based Assessments due to inadequate infrastructure, a shortage of laboratories, and outdated equipment. The direct quotation from teacher 2 from school 6 highlights the impact of financial constraints on acquisition of new resources for practical assessments.

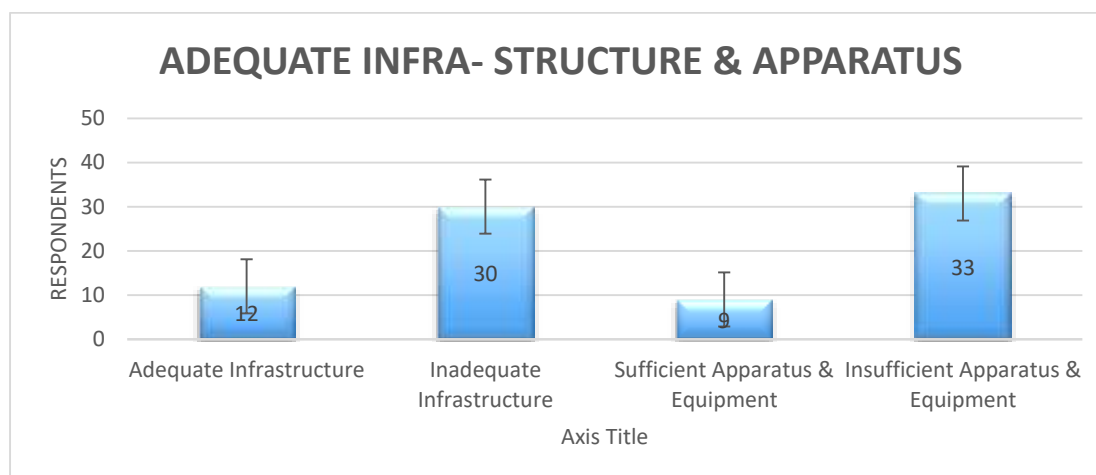
“We have an education Policy that tends to run away from costs. On SBAs, you hear head teachers say ‘just do even simple things and award marks’, there is no allocation for funding for SBA in science”

Yet another teacher 4 from school 1 aptly captured,

“But the administrators keep on telling us that these SBA are supposed to be cheap whenever we submit requests. How can we work like this?”

Addressing these challenges requires strategic interventions, including investment in infrastructure and the provision of up-to-date equipment, to ensure the effectiveness and reliability of Practical SBA in the educational context.

Figure 4.8: Adequate Infra-Structure and Apparatus



Source: Field Data, 2023

One Deputy Head teacher from school 2 said that,

“I wonder how all schools manage to conduct and submit the results to ECZ when some do not even have a single laboratory to use”

Yet another Deputy Head teacher from school 3 added that,

“Schools like ours that have 3 laboratories and if a boarding school find it difficult to manage to complete all the tasks, what do other schools use, how authentic are the submitted results”

These qualitative responses from the participants highlight deep concerns about the practical feasibility and authenticity of conducting School Based Assessment in the current educational landscape. Furthermore, an HOD from school 2 emphasised that,

“Science is not cheap, it is expensive. If our country is to seriously benefit from the teaching of science, there is need for adequate funding unlike the scratch funding science has been receiving”

Yet another teacher (6) from school 3 stated that,

“you cannot equate science allocation with other subjects. Where mathematics is taught once to a class, science is taught 3 times to the same class (physics, chemistry and Biology”

The first respondent expresses disbelief in the system's ability to function effectively, questioning how schools with limited or no access to laboratories manage to conduct and submit results to the Examination Council of Zambia. This sentiment underscores a fundamental skepticism regarding the equitable implementation of SBA across diverse schools, especially those lacking essential infrastructure like laboratories. The respondent's use of the phrase ***"I wonder"*** suggests a sense of incredulity and raises important questions about the universal accessibility and fairness of the assessment process.

The second respondent further accentuates the challenges faced by schools, even those with relatively more resources. The mention of having three laboratories, which is considered a reasonable number, and the classification as a boarding school underscores that the concerns are not exclusive to schools with severe resource limitations. The respondent points out the difficulty in managing and completing all SBA tasks even with seemingly adequate infrastructure. This raises critical questions about the practicality of the current SBA framework, especially in schools with varying levels of resources. The phrase ***"how authentic are the submitted results"*** suggests a broader concern about the reliability and credibility of the assessment outcomes, emphasizing the need for a more thorough examination of the assessment system's integrity.

The responses show that it becomes apparent that the challenges extend beyond mere resource availability to encompass the overall efficacy and integrity of the SBA process. The discrepancy between resource-rich and resource-ineffective schools in managing SBA tasks reveals systemic issues that go beyond the capacity of individual institutions. The authenticity

of submitted results emerges as a central concern, pointing towards the need for a comprehensive review of the SBA framework to ensure fairness, accessibility, and credibility across the entire spectrum of educational institutions. Addressing these concerns requires not only resource provision but also a systemic evaluation and potential reconfiguration of the SBA approach to align with the diverse realities of schools.

4.7.5 Time Allocation

The study underscores a pervasive challenge related to the time allocated for science lessons, revealing that it is insufficient to accommodate the demands of School-Based Assessments during regular lesson time. Teachers emphasized that SBA, particularly in the context of science education, demands a considerable investment of time and commitment from both teachers and learners. The study brings attention to the intricate nature of science education, where the teaching of foundational concepts and the demonstration of experiments in practical lessons must precede the actual practical assessments. These findings shed light on the complexities of incorporating SBA into the curriculum and highlights the necessity for a more flexible and comprehensive approach to time management within science education.

The sentiments of the participants further elucidate the dynamic nature of teaching science, emphasizing that merely allowing learners to carry out experiments without prior instruction on concepts and safety precautions is insufficient. One head of department from school 4 expressed this viewpoint, stating,

"Teaching science is dynamic that you cannot just allow learners to carry out an experiment without teaching them concepts and safety precautions that come with a particular topic."

This assertion underscores the critical role of conceptual understanding and safety awareness in the science education process, aligning with best practices to ensure that practical assessments are meaningful, educational, and conducted in a safe learning environment.

Moreover, the study highlights the multi-faceted nature of SBA in science, as indicated by another HOD from school 6 pointed out that,

"One task of SBA in science has many areas to be assessed. It requires a lot of time and commitment to conduct quality practical assessment, mark, and record effectively."

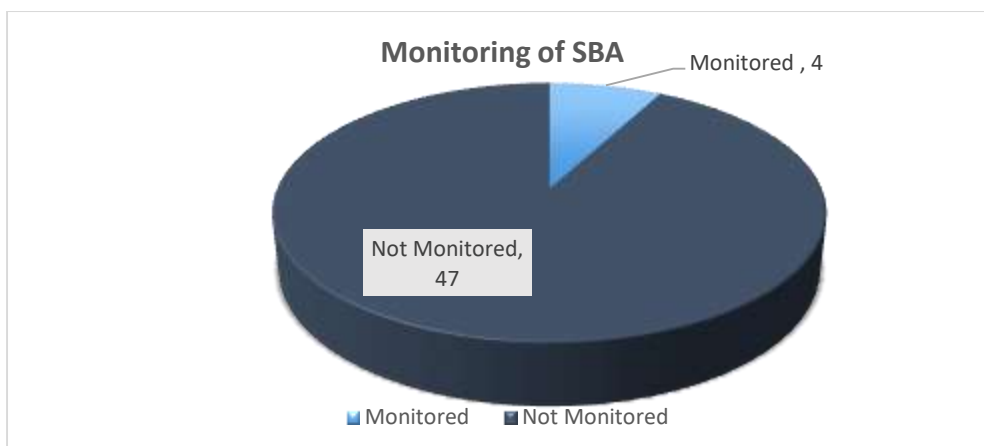
This perspective emphasizes the comprehensive nature of practical assessments within the science curriculum, encompassing various facets that demand careful attention from both teachers and learners. The recognition of the time and commitment required for quality assessment processes underscores the need for strategic planning, resource allocation, and pedagogical considerations to ensure the successful integration of SBA in the learning of science.

In summary, the study explains the challenge of insufficient time allocation for science lessons to accommodate the complexities of School-Based Assessments. The participants' perspectives highlight the dynamic nature of teaching science, emphasizing the importance of foundational concepts and safety precautions. Additionally, the acknowledgment of the multifaceted nature of SBA in science underscores the demands on teachers and learners, emphasizing the necessity for thoughtful planning and a holistic approach to ensure the effectiveness of practical assessments within the curriculum.

4.7.6 Monitoring of SBA

The success of any new program is dependent on the close supervision of a programme. As regards monitoring of the conduct and administration of SBA, it was revealed that there has not been systematic monitoring of the conduct and administration of School Based Assessments. No external monitors from District nor Provincial offices had monitored the Conduct of SBA however, Head teachers and Deputy Head teachers would check on the progression of the assessment until last session. The study showed that 47 participants' out of 51 indicated that SBA was not monitored.

Figure 4.9: Monitoring of SBA



Source: Field Data, 2023

The responses from the participants reveal a significant concern regarding the lack of external oversight and monitoring since the introduction of School-Based Assessment in 2019.

One HOD from school 6 pointed out,

"Since the introduction of SBA in 2019, we have not been visited by any external Standards Officer unlike the way it used to be with ECZ practical examinations."

This observation underscores a notable shift in the monitoring approach, with the absence of external officers creating uncertainty and raising questions about the accountability and quality assurance mechanisms associated with SBA. The comparison to the previous practice with ECZ practical examinations suggests a perceived gap in the oversight structure following the transition to SBA.

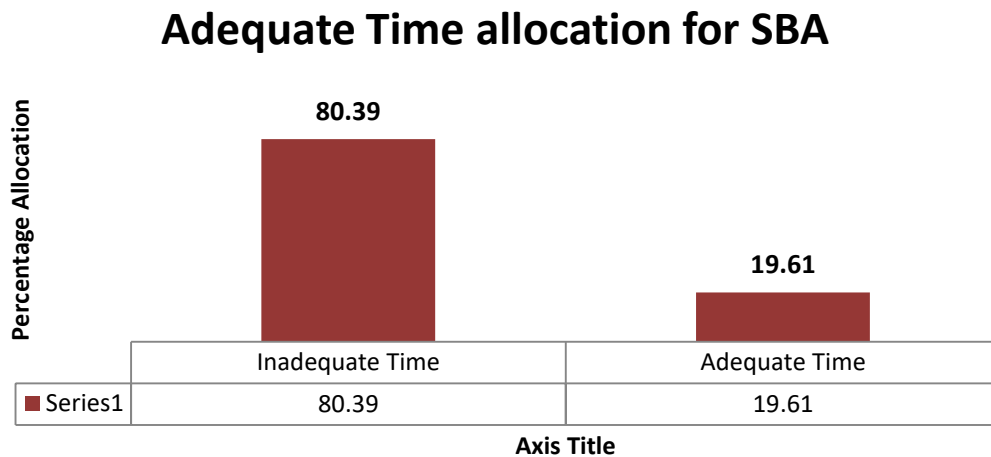
The second respondent further amplifies the concern by highlighting the accumulation of assessment copies in storerooms without any monitoring or checks. The Deputy Head of school 2 remarked,

"The copies of the assessments that we were told should be kept has just been filling up space in the storerooms, yet the monitors have not come to check. How do we even know we are doing the right thing?"

This statement emphasizes disconnect between the prescribed guidelines for storing assessments and the actual oversight practices. The accumulation of assessment copies without corresponding monitoring raises questions about the effectiveness of the assessment management system and its alignment with intended quality assurance measures.

From the responses, it becomes evident that the absence of external Standards Officers and monitors has created a sense of uncertainty among educators regarding the correctness of their SBA practices. The lack of external visits, which were a common practice with ECZ practical examinations, leaves educators without external validation or feedback on their adherence to guidelines and the quality of their assessments. This situation highlights a potential gap in the implementation framework that needs attention to ensure the effectiveness, fairness, and accountability of the SBA system.

Figure 4.10: Adequate Time Allocation for SBA



Source: Field Data, 2023

4.7.7 Effect of School Based on the General Teaching Programme

The study underscores a crucial challenge in the implementation of School-Based Assessment (SBA), revealing that if conducted strictly according to the guidelines, it has the potential to adversely affect normal teaching and learning. The participants expressed the need for modifications, such as conducting SBA outside regular teaching and learning time, to alleviate the impact on the educational process. This signifies a tension between the prescribed guidelines for SBA and the practical challenges faced by teachers in managing their teaching responsibilities alongside the demands of comprehensive assessment practices. Teacher 6 from school 2 highlighted this dilemma, stating,

"For a science teacher to have 24 periods, it means that one should have 8 classes of either physics or chemistry since each subject is allocated (3) three periods per week. How can I manage to conduct SBA alone to all these classes?"

This concern illuminates the logistical challenges associated with the sheer volume of teaching responsibilities, making it difficult for teachers to implement SBA as outlined in the guidelines.

Teachers acknowledged the collaborative nature of managing SBA, with departments collectively planning and marking assessments using a belt marking system. This collaborative approach demonstrates the recognition among educators that individual efforts may not be sufficient to manage the demands of SBA, particularly in subjects like science where teachers

are allocated multiple classes. The statement, "*SBA was planned by all the teachers in the department and usually marked using the belt marking system,*"

underscores the importance of teamwork and shared responsibilities in navigating the challenges posed by SBA implementation.

Moreover, the study revealed an innovative approach adopted by teachers to address the resource and time constraints. Teachers from different departments collaborated by arranging to use each other's periods during the week allocated for conducting SBA. This cooperative effort reflects the flexibility and adaptability demonstrated by educators in finding practical solutions to the challenges posed by SBA. The statement,

"We usually arrange with teachers from other departments to allow us use their periods during the week we have planned to conduct SBA," show cases the collaborative spirit within the school community.

Furthermore, the study highlighted a variation in teachers' proficiency in computing marks for SBA, with only one or two teachers specifically responsible for this task. This points to a potential gap in the technical skills required for the computational aspect of SBA assessment. The distribution of responsibilities may be a strategic response to ensure accuracy and consistency in the computation process. It also implies the need for professional development initiatives to enhance teachers' skills in utilizing technology for assessment purposes.

In summary, the findings bring attention to the complexities and challenges associated with the implementation of SBA, particularly in subjects like science with a high teaching load. The participants' perspectives underscore the necessity for modifications and collaborative efforts to manage the demands of SBA effectively. The varied proficiency in computing marks indicates a potential area for targeted professional development to ensure a standardized and streamlined assessment process. Ultimately, addressing these challenges requires a balanced approach that considers the practical realities faced by teachers while upholding the integrity and objectives of the SBA system.

4.7.8 SBA as an Added Load

The study reveals that School-Based Assessments are perceived as an additional burden to an already demanding workload in schools. Teachers expressed concerns about the multitude of assessments they are required to conduct, including monthly tests and end-of-term assessments,

which, in conjunction with SBA, contribute to an overwhelming workload. Teacher 3 from school 1 aptly captured this sentiment, stating,

"SBA is just an added overload added to an already existing overload. We already have to conduct monthly tests in the form of test 1, test 2, and end-of-term test as test 3. Where do we then get the time to teach and conduct SBA?"

This statement highlights the challenges teachers face in striking a balance between various assessments and the essential task of imparting knowledge to students.

Another respondent, teacher 5 from school 6, further emphasized the cumulative impact of numerous assessments on teachers and learners, suggesting that SBA is often allocated to examination classes to manage the overall workload. The participant stated,

"There are too many assessments to be conducted on the same learners in a particular term; that's why SBA is usually given to examination classes."

This observation reflects the strategic allocation of SBA to specific classes to mitigate the burden on teachers and learners, particularly in the context of examination classes where the stakes are higher. The view that SBA is more feasible or practical for examination classes implies a need for careful consideration of how assessments are distributed across different levels and subjects.

From the responses, it is evident that teachers perceive SBA as a substantial addition to their already demanding workload, necessitating a re-evaluation of the overall assessment framework. The use of terms such as ***"overload"*** and ***"added burden"*** conveys the weight of the challenges faced by educators in managing various assessments within the constraints of limited time and resources. The need for time to teach is explicitly raised, emphasizing the potential conflict between conducting assessments and delivering quality instruction during teaching.

Furthermore, the practice of allocating SBA to examination classes showcases an adaptive strategy employed by schools to cope with the perceived workload. This strategic approach may have implications for the equitable implementation of SBA across different classes and subjects. The statements from the participants collectively call attention to the need for a comprehensive assessment policy that considers the holistic well-being of teachers, fosters

effective teaching and learning, and ensures fair and equitable evaluation practices. Furthermore, the Head teacher from school 3 lamented that,

“Sciences are not the only subjects where SBAs are conducted, we also have to provide for other subjects like Design and Technology, Computer studies and home economics”.

In summary, the study sheds light on the challenges faced by teachers in managing the multitude of assessments, with SBA being perceived as an additional strain on their already busy schedules. The strategic allocation of SBA to examination classes reflects an attempt to navigate the complexities of assessment practices. The findings call for a nuanced approach to assessment policies, considering the concerns and practical constraints voiced by educators to foster a more sustainable and effective educational environment.

4.7.9 Staffing Levels

In finding out about the staffing levels, the study brought a critical challenge in the effective implementation of School-Based Assessments in schools, highlighting a shortage of science teachers, particularly those teaching Physics and Chemistry. A substantial majority of the participants, accounting for 90 percent, expressed concerns about the limited number of science teachers in comparison to other departments. The head teacher for school 6 lamented that,

“We have been requesting DEBS office to send us more science teachers but they have not saying the situation is the same in all schools especially Physics and Chemistry teachers”.

Teacher 6 from school 1 shed light on the demanding nature of being a science teacher, emphasizing the exhaustive schedule and continuous teaching without breaks between classes. The teacher articulated,

"It is very exhausting to teach many classes as science teachers do not rest between classes that one has to move from class until knocking off time."

Another HOD from school 2 expressed the challenge he faces when allocating classes. This is what he said,

It's very challenging when allocating classes to science teachers because the same teachers are distributed among senior and junior secondary levels, so to balance the number of periods and subjects is very difficult.

This imbalance poses a significant hurdle to the seamless integration of SBAs, as a scarcity of qualified teachers impacts the distribution of teaching responsibilities and, consequently, the effective execution of assessment practices. The physical and mental strain on teachers can have implications for their ability to deliver effective teaching and conduct assessments in a manner that aligns with the intended goals of SBAs.

It is evident that the shortage of science teachers is a pervasive issue impacting the dynamics of teaching and assessment in schools. The exhaustion expressed by the teacher reflects the toll that teaching multiple classes without breaks can take on educators, potentially affecting their overall well-being and, by extension, the quality of education provided to students. The shortage of science teachers not only poses challenges in terms of workload but also raises concerns about the equitable distribution of educational resources and opportunities across different subjects and departments. Addressing the shortage of science teachers requires a comprehensive approach, including strategies for recruitment, professional development, and workload management. The findings underscore the need for educational authorities to recognize and address staffing imbalances to ensure that teachers, especially those in critical subjects like science, can fulfill their roles effectively without compromising their health or the quality of education provided to students.

Many HODs and teachers and HODs expressed the need for a specific allocation of funds to schools by the Ministry of Education, the deputy head from school 4 had this to say,

“As chairperson finance committee, it is very tasking finding ways of allocating resources to SBA in Sciences as Science has been clamped together with teaching and learning materials in the utilization of funds policy document, this makes it difficult for us to go beyond the 30% allocation as it then becomes an audit query”

This statement underscores the unique challenges faced by science teachers due to the scarcity of resources, leading to increased workloads and potentially compromising the quality of instruction and assessment.

4.7.10 Administration of School Based Assessments in Schools

The study revealed that SBA is planned within the Natural Sciences (NS) department and assessments tasks are set by section heads and subject specialists. It also revealed that SBA was timetabled and administered in sessions by all the teachers in the department outside

teaching and learning time. Additionally, it was discovered that teachers employed belt marking methodology to reduce biasness. Furthermore, the study showed that the computation of marks was done by a group of teachers that were conversant with the prescribed mathematical formulas to derive the mark that could be submitted to ECZ.

As regards the number of assessments tasks, the study showed that schools did not meet the stipulated sixteen (16) and fifteen (15) rather they administered less tasks and applied some mathematical equations to arrive at an acceptable mark for submission to the ECZ Portal.

The teachers also revealed that Contrary to the guidelines which demanded that ***“1.3.1.6 All SBA tasks should be developed, administered, marked and recorded by the teacher”*** tasks were set in groups by specialised teachers and administered on a set date in sessions by all Science teachers in the department. Furthermore, belt marking was employed during marking and a group of teachers selected, would compute the marks for all the learners in each particular subject.

Additionally, contrary to guidelines on item number **1.3.1.7** which states that

“The subject teacher will be required to ensure that all assessments tasks are derived”

It was discovered that tasks were shared among teachers from within and outside the school that were deemed to have understood how to set the assessments tasks. In some cases, tasks would even be shared across the provinces as seen in a case of School 7 that had collected tasks from some Secondary School of Southern Province. This had hindered the progress of building capacity in teachers through setting of SBA tasks as partly stated in item number **1.3.1.1** ***“The purpose of SBA at senior secondary school levels is to enhance teaching and learning in the classroom through improved teacher capacity to identify what learners know, understand and can do”***

The findings further revealed that, schools time tabled and assessed learners in the same way Practical paper 3 was administered through informing learners when SBA would be done, and conducted in sessions outside teaching and learning time contrary to what guidelines stipulate on item number **“1.3.1.8 which states that “SBA must be conducted in a natural learning environment and must assess learners’ progress in the course of study as distinct from examinations”**. (Guidelines for the Administration of SBA at Secondary School Level, 2020)

The findings showed that teachers had challenges interpreting the guidelines on how to assess all the stipulated skills in one task. Each task set should carry 20 marks (science 5124) and 10 marks (Biology 5090) respectively which must measure 6 competences and assess Scientific Process Skills as shown in the table below.

Table 4.7: Marks Allocation SBA at Secondary

S/N	Skill	Maximum Marks Science	Maximum Marks Biology
1	Description of the method used	2	2
2	Recording observation and /or reading systematically	7	2
3	Data processing, presentation, and analysis	6	3
4	Stating precautions taken or suggestions for improvement	2	1
5	Application of the findings of the tasks to real life	1	1
6	Conclusion	2	1
	Total	20	10

Source: Field data, 2023

Note: This Mark allocation Guide is for one practical task. (Guidelines for the Administration of SBA at Secondary School Level, 2020)

The study findings indicate that teachers in District 1 undergo a considerable degree of monitoring and evaluation, both by their head teachers and Standards Officers. The mean for head teacher evaluation was reported as 4.05 with a standard deviation of 0.89. Since the mean surpasses the standard mean reference of 2.5, it suggests that the majority of teachers experience monitoring and evaluation from their head teachers. This implies a proactive engagement of head teachers in overseeing and assessing the performance of teachers, contributing to a structured evaluation system within the schools.

Furthermore, the study revealed that teachers, with a mean of 3.9 and a standard deviation of 0.88, affirmed that they undergo monitoring and evaluation by Standards Officers. Again, the

mean surpasses the standard mean reference of 2.5, signifying that a significant proportion of teachers in District 1 are subject to assessment by Standards Officers. This indicates a broader external evaluation mechanism beyond the school level, involving external authorities to ensure a comprehensive and standardized evaluation process.

From these findings, it is evident that teachers in district 1 experience a dual-layered monitoring and evaluation system, involving both internal evaluation by head teachers and external evaluation by Standards Officers. The relatively high mean values in both cases suggest a consistent and widespread practice of assessment, emphasizing the importance placed on evaluating teacher performance for quality assurance and improvement.

These findings are crucial for understanding accountability and quality assurance measures in the education system. The active involvement of both head teachers and external Standards Officers in monitoring and evaluating teachers reflects a commitment to maintaining and enhancing the quality of education. However, it also underscores the need for a balanced and supportive approach to ensure that evaluation processes contribute positively to professional development and the overall effectiveness of teaching.

Table 4.8: Descriptive statistics on SBA is conducted to learners by Science Teachers

(Total number of teachers = 42)

QN	Statements	Participants	Mean \bar{X}	Standard Deviation	Majority
7	Familiarity of Zambia's examination reform on SBA	Teachers	4.05	0.89	Agreement
9	SBA's are better than national practical examinations	Teachers	3.9	0.88	Agreement
17	Are School Based Assessments timetabled	Teachers	4.083	0.979	Agreement
24	SBA meets targets	Teachers			
25	Availability of instructional materials	Teachers	1.867	1.065	Disagreement

Source: Field Data, 2023

In meeting all the skills above the teachers resorted to setting assessments tasks that took the format of practical paper 3 that ECZ used to set before the SBA reform, hence failure to assess

the learners during teaching and learning time. The format resulted in assessments consuming the much-needed teaching and learning time, which was one of the reasons that had necessitated the reforms.

4.7.11 Challenges Schools Faced in Implementing SBA in Sciences

The challenges identified in the table below highlight significant hurdles in the effective implementation of School-Based Assessments in science education. First and foremost, teachers expressed concerns about the training in SBA, perceiving it as an additional burden to their already demanding schedules. The expectation for teachers to implement SBA without adequate compensation or recognition for the extra workload led to dissatisfaction. HOD from school 1 said that,

“Setters and markers of national exams are paid according to the number of questions set and the number of scripts marked, but SBA which adds marks to final results is not paid for. It is not the duty of teachers to examine the learners, therefore, ECZ has to find a way of calculating the work done and pay science teachers”

Another teacher 4 from school 7 added that,

“Teachers are trained to teach and not to set examinations hence, the need for ECZ to train and pay everyone involved with SBA just like they do with examinations”

The sentiment of being mandated to conduct SBA without appropriate support was further emphasized by the call for financial incentives, echoing the compensation practices for setters and markers in the past.

Absenteeism among learners emerged as a major obstacle, creating additional work for teachers who had to repeatedly prepare solutions and samples for absent students. Teacher 6 from school 6 said that,

“The rate at which learners absent themselves from school is unbearable especially during rainy season. It is very tasking having to do SBA over and over just to ensure that all the learners have SBA marks. ECZ should review this and allow us to award zero mark where one was absent just like they do with final, because we are the ones suffering”

This not only strained resources but also hindered the actual hands-on experience for pupils, as practical tasks were often conducted only prior to the submission of marks to the

Examination Council of Zambia . The challenge of absenteeism was particularly concerning for the science teachers, impacting the quality of practical assessments and the overall effectiveness of SBA.

Low staffing levels and high enrollments, coupled with large class sizes and numerous classes for teachers, presented a multifaceted challenge.

The head teacher from school 1 indicated that

“With the positive response to Free Education, the class sizes are now very huge with learners ranging between 80 and 120 and in extreme cases 150. This has become very difficult to provide for SBA in Sciences considering that the FE funds have not been revised since 2022 when we first received despite increase in enrolment levels”

Inadequate time allocation for science periods and a high number of tasks stipulated in the guidelines added to the complexity. The limited time available for teaching and the sheer volume of tasks made it practically impossible to assess all the required skills within the allocated time. This not only affected the quality of assessment but also hindered teachers from providing timely feedback to learners.

The inadequacy of laboratories and apparatus further compromised the administration of SBA, limiting the scope of experiments and hindering effective practical learning. The lack of specific funds allocated to science SBA, coupled with budgetary constraints, led schools to conduct fewer practical tasks, especially for non-examination classes. The call for motivation in the form of monetary payments echoed the need for recognition and support from the Ministry of Education (MOE) and ECZ.

Lastly, ineffective school management and supervision practices were identified as contributing to challenges in content validity. One HOD from school 5 lamented that “

“How many institutions pay their teachers to conduct SBAs, even GCE practical which is paid for is not paid. If GCE and Grade 9 practical fee is properly managed, it can supplement on teachers motivation with grade 9 internal and Grade 12”.

Yet another HOD from school 5 said that,

“SBA is a lot of work that it cannot be said to be part of teaching and learning, test yes, they are part of teaching but not SBAs which adds to the final results”

The pressure on teachers to use cheap materials and improvise, even in situations where it may not be feasible, raised concerns about the integrity and authenticity of the assessments. In summary, the identified challenges encompass issues of workload, absenteeism, staffing, class size, time allocation, resource constraints, and management practices, all of which collectively impact the successful implementation of science SBA in the Zambian context.

Table 4.9: Challenges of implementing SBAs in Secondary Schools

S/NO	CHALLENGE	DESCRIPTION
1	Training in SBA	Teachers viewed SBA as an additional load onto their already burdened schedules but are mandated to implement it as it was Policy. They were for the view that MoE and ECZ should pay them just like they used to pay setters and Markers in the past
2	Absenteeism	Absenteeism among learners posed a significant challenge, requiring teachers to create additional tasks for absent students, leading to resource wastage. Chemicals and samples for practical tasks were costly, often resulting in abstract teaching, with students only performing actual practical tasks before marks submission to ECZ.
3	Low staffing/High enrolments	Low staffing levels of science teachers in schools, and in extreme cases, no trained science teachers to handle the subject
4	Large Class Size/ Many Classes	Limited classroom space leads to large class sizes, with science teachers having to manage eight different classes to meet the required minimum of 24 periods per subject. This situation results in a high workload for teachers, making it challenging to provide timely feedback to students after marking assessments.
5	Time Allocation and Number of Tasks	The limited time allocated to science classes, only 120 minutes per week, made it unrealistic to assess all six required skills within teaching time. Additionally, the number of tasks outlined in the guidelines presented a significant challenge in SBA administration.
6	Inadequate laboratories and Apparatus	Schools have inadequate laboratories or no laboratories at all to conduct experiments. They also lacked apparatus to cover all the experiments under each topic in the

		syllabus that even improvising was also limited to specific topics. The other topics are either taught in abstract and experiments demonstrated and or explained
7	SBA Resources/ ethical values	Schools faced challenges in providing SBA resources for all required tasks in science subjects. Unlike other practical subjects, there was no specific allocation of funds for SBA in science, as funds were combined with general teaching materials. Due to the expense of conducting SBA as per guidelines, schools conducted fewer practical tasks, primarily focusing on examination classes.
8	Motivation	Teachers were of the view that the MOE and ECZ should motivate them in form of monetary payment to conduct SBA like they used to pay setters and markers. High levels of enrolments which had resulted in huge classes, insufficient apparatus and inadequate teaching and learning materials had also caused a serious challenge to the schools.
9	Management Practices	Ineffective school management and supervision was also found to be a challenge that hindered content validity. Teachers were told to use cheap materials and improvise even where they could not improvise.

Source: Field data, 2023

4.7.12 Interventions to Address the Challenges at School Level

When looking at interventions to address the challenges at school level regarding to low staffing levels and large class sizes, schools implemented the strategy of conducting School-Based Assessments in sessions. This approach allowed teachers to manage the workload more effectively, ensuring that each session received proper attention and assessment. The findings also indicated that teachers collaborated to set tasks in groups, aiming to produce standardized papers that encompassed all the necessary assessment skills. This group-oriented task setting not only facilitated a more streamlined and efficient process but also aimed at maintaining consistency and fairness in the evaluation.

In response to the inadequacy of teaching and learning materials, schools adopted practical measures such as borrowing apparatus from other schools and resorting to improvisation where possible. This resource-sharing approach helped alleviate some of the constraints associated with a lack of materials, enabling schools to conduct practical tasks more effectively. Additionally, teachers demonstrated resilience and creativity by improvising with available resources, showcasing adaptability in the face of challenges.

The tendency to give more attention to examination classes, as revealed by the teachers, is a strategic response to manage the high workload associated with School-Based Assessments. The concentration on examination classes is driven by the practical challenges posed by large class sizes and limited resources. One teacher explicitly mentioned that struggling with numerous classes often led to prioritizing examination classes, aligning efforts with the goal of preparing students for the General Certificate of Education (GCE) examinations. This strategic allocation of resources and attention reflects a pragmatic approach to optimizing the impact of SBA within the given constraints.

Furthermore, the utilization of part of the GCE Centre fees for purchasing materials required to conduct SBA for regular learners showcases a financial strategy to address resource constraints. Schools creatively leveraged available funding sources to ensure that both examination and regular classes had access to the necessary materials for SBA. This financial initiative demonstrates a proactive effort to secure essential resources and maintain a balance between examination-focused and regular SBA practices.

4.7.13 Measures Standards Officers have put in Place to Ensure Quality

The findings suggest that education officers have not implemented specific measures or systems to ensure the content validity, reliability, and credibility of School-Based Assessment results submitted to the Examination Council of Zambia . Instead, it appears that the verification process relies heavily on school records. This reliance on school records raises concerns about the robustness of the quality assurance mechanisms in place for SBAs.

One Education Officer from the Province said that,

“It was difficult to monitor SBA and guide the schools on the conduct of SBA as there was no proper orientation and training to ascertain how SBA was expected to be conducted”

Another Education Officer from the District lamented that

“ it’s practically impossible to monitor the conduct of SBA in schools as there are only 4 Standards Officers in the District that by the time we are finishing monitoring one activity, there would be a national exam either GCE and Grade 9 external or Grade 12 and 9 internal that would require close monitoring”

Yet another Standards stated that

“We rely on the head teachers and the deputy head teachers to monitor SBA and submit records to us, as they are the standards officers’ front liners at school level”

The absence of established measures or systems for content validity, reliability, and credibility may leave room for variations in the administration and assessment of SBAs across different schools. Without standardized procedures and checks, there is a potential risk of inconsistencies and disparities in the evaluation process, affecting the overall integrity of the SBA results.

To enhance the quality assurance of SBA results, education officers may need to consider implementing more systematic approaches, such as conducting periodic audits or spot checks on the assessment practices at the school level. This proactive involvement could help ensure that SBAs are administered and assessed in accordance with established guidelines, contributing to the overall validity and reliability of the results submitted to the ECZ.

4.7.14 Proposed Interventions to Improve the Implementation of SBA

The table outlines key challenges identified by participants (teachers, school administrators, and education officers) related to the implementation of School-Based Assessment along with their proposed interventions. The challenges include training in SBA, absenteeism, low staffing/high enrollment, large class size/many classes, inadequate laboratories and apparatus, SBA resources/ethical values, motivation, and management practices.

Training in SBA

The first challenge, identified by 98.7% of participants, is the need for training in SBA. The proposed intervention involves stakeholders at all levels, including the Ministry of Education (MoE), the Examination Council of Zambia, the Directorate of National Science Centre, Teacher Education, Standards Directorate, and higher education institutions. The interventions focus on training teachers on setting quality tasks, marking, computing, and recording SBA marks. It emphasizes continuous development through deliberate programs, orientations for education officers and school administrators, and universities and colleges providing adequate training for teachers.

Absenteeism

The second challenge, acknowledged by 71.6% of participants, is absenteeism. To address this, the proposed intervention suggests enhancing monitoring and supervision of learners to reduce absenteeism, emphasizing the role of schools in ensuring learner participation in SBA activities.

Low Staffing/High Enrollment and Large Class Size/Many Classes

The challenges of low staffing and high enrollment, as well as large class sizes and many classes, are linked to the need for more science teachers. Participants (93.8%) propose deploying additional science teachers to reduce teacher-learner and teacher-class ratios, thus improving the quality of SBA and facilitating effective feedback to learners.

Inadequate Laboratories and Apparatus, SBA Resources/Ethical Values, and Motivation

Challenges related to inadequate laboratories, insufficient resources, ethical values, and motivation are interconnected. Participants (97.5% and 83.9%) propose interventions such as reviewing the fund utilization policy to allocate specific funds to science SBA, compelling school administrators to purchase materials solely for SBA and motivating teachers through a review and implementation of the 10% allowance awarded in the 2020 Collective Agreement for Education.

Management Practices

The challenge of ineffective school management and supervision (85.1%) can be addressed by ensuring good management practices and close monitoring throughout the SBA process. Internal and external monitors are emphasized for standardization of tasks and ensuring content validity, reliability, and credibility of the submitted marks.

In summary, the proposed interventions represent a holistic approach encompassing training, teacher deployment, resource allocation, ethical considerations, and motivation to enhance the effective implementation of School-Based Assessment in Zambia. Participants actively contributed suggestions for interventions, aligning closely with the challenges identified in the study, particularly focusing on issues related to teacher motivation. The percentages assigned to each intervention item on a scale of 100% indicate a high level of consensus among the participants regarding the significance and feasibility of these proposed interventions. This

comprehensive set of strategies reflects a nuanced and contextually relevant approach aimed at addressing the multifaceted challenges associated with SBA implementation, thereby fostering a more robust and effective educational assessment system in Zambia.

Table 4.10: Summary of Proposed Interventions to Challenges

	Participants (All)	Respondent Percentage Rate %	Challenges	Proposed Intervention
1	76	98.7%	Training in SBA	Participants, including teachers, school administrators, and Education Officers, propose that stakeholders receive training in conducting School-Based Assessment (SBA). They highlight SBA's positive impact on practical subjects over the past three years and the importance of capacity building. The Ministry of Education should ensure training on task setting, marking, and recording marks. The National Science Centre and Teacher Education Directorates should offer ongoing training on SBA trends in sciences. The Directorate of Standards should educate education officers and school administrators on their roles in conducting quality SBA. Universities and Colleges responsible for teacher training should also provide SBA training on task setting, marking, and recording marks.
2	55	71.4%	Absenteeism	Schools to enhance monitoring and supervision of learners to reduce absenteeism
3	72	93.8%	Low staffing High enrolment	Teachers suggested more science teachers be deployed to reduce teacher – learner ratio and teacher – class ratio. This was linked to the challenges of low staffing levels,
4	76	93.8%	Large class size/many classes	Large class size and many classes that teachers are allocated to for the purpose of improving and sustaining the quality

				of SBA and provision of feedback to the learners.
5	75	97.1%	Inadequate Laboratories and apparatus	Participants proposed that the Ministry of Education allocate funds specifically for science SBA, potentially for constructing laboratories and providing teaching materials. This would alleviate the stress schools face in planning for SBA, addressing challenges related to inadequate laboratories.
6	73	93.8%	SBA Resources/Ethical values	Participants proposed that the Ministry should require school administrators to procure materials specifically for SBA, ensuring consistent experimentation for skill development and result credibility. This addresses challenges related to resource shortages and ethical values hindering syllabus coverage.
7	64	83.1%	Motivation	Participants proposed that the Ministry of Education implement the 10% allowance for teachers handling SBA, as per the 2020 Collective Agreement for Education. This addresses teachers' need for motivation in task setting and marking. However, the researcher suggested fostering intrinsic motivation among teachers to sustain activities beyond external incentives.
8	69	89.6%	Management Practices	Ineffective school management and supervision posed challenges to content validity, as teachers were compelled to use inexpensive materials and improvise beyond reasonable means. 89.6% of participants proposed that effective management practices and rigorous monitoring throughout the SBA process would ensure standardized tasks, content validity, reliability, and credibility of marks submitted to ECZ.

4.7 Summary

The role of School Based Assessments in the quality delivery of lessons in Sciences cannot be over emphasized. From the above research findings and recommendations, it could be concluded that School Based Assessments reform was implemented with good intentions of building capacity in the teachers and skill inculcation in the learners. It was also envisaged to raise teachers and learners confidence levels in handling practical lessons as well as empower teachers with the authority to add to the learners' final results since they are the ones that steadily monitor learners' progress throughout the Secondary level. Furthermore, SBA reduced the time taken to conduct National examinations which used to consume the teaching and learning contact time. Further on, it reduced the examination pressure as learners no longer go searching for clues or leakages in science practical papers. School Based Assessments ensures that science is brought to reality through conduct of experiments hence enhancing coverage of topics and content validity.

However, the immediate implementation of SBA reform had come with a lot of challenges, especially to teachers who bear the responsibility to implement it in class and the school administrators who are charged with the responsibility to provide resources.

It is worth noting that, for the uptake of Science to be fully appreciated by the learners at all levels, there is great need for above recommendations to be considered, adopted and implemented. This would result in a drastic change with regards the administration and conduct of SBA in schools, ultimately leading to overall improved results in Sciences in all School types in Zambia. Therefore, a call for the sustenance of SBA reform and maximum quality results lies with all stakeholders taking immediate action on the recommendations made in this study. The results of quality SBA would be seen as teachers and learners will compete at international level through promotion of Critical thinking, Analytical, Innovative and Application skills, thus, contributing effectively to the development of the nation.

CHAPTER FIVE

DISCUSSIONS OF FINDINGS

5.1 Overview

This chapter discusses the substantive findings emanating from the comprehensive Exploration of the Implementation of School-Based Assessments in the sciences within selected Zambian Secondary Schools in the Eastern Province of Zambia. The overarching objective was to explore the Implementation of SBAs, extent of adherence to prescribed guidelines, identifying challenges faced, propose interventions and formulate evidence based implementation framework. The ensuing discussions are methodically structured around the emergence of key themes, each shedding light on critical facets of the SBA landscape. These themes serve as conduits for explaining the intricacies of the implementation process, providing a detailed understanding of the challenges faced and proposing evidence-based interventions for the enhancement of SBA quality and efficacy. The primary themes explores the Implementation of the SBA policy including determining whether the SBA policy has been assessed and evaluated or not, the administration of SBAs in schools, challenges encountered by stakeholders, proposed interventions to address identified challenges, and the alignment of findings with pertinent literature. This chapter aims to contribute substantively to the academic discourse surrounding the effective implementation of SBAs, particularly in the context of the Eastern Province of Zambia.

5.2 Demographic Characteristics

The demographic characteristics of the participants provide valuable insights into the composition of the sample population for this study. The study involved a total of 224 participants, with 141 females (62.95%) and 83 males (37.05%). It is important to note that the selection of participants was purposive, and the turnout was based on individual availability and willingness to participate in the research. The variation in proportions between females and males reflects the diverse participation of individuals based on their availability.

The response rates for different categories of participants are presented in Table 3. It is evident that there are challenges in achieving the intended number of participants, especially for learners, teachers, and school administrators in District 3. The researcher faced obstacles, such as impassable road networks and a worn-out bridge, which hindered access to two schools.

Consequently, only one school participated in the study from District 3, leading to a reduced number of learners, teachers, and school administrators.

The overall response rate is 21.4%, indicating a significant portion of non-participants. The challenges faced in reaching certain schools due to infrastructure issues affected the participation of learners, teachers, and school administrators. It is essential to acknowledge these limitations when interpreting the findings, recognizing that the results may not fully represent the intended sample size.

The study's implications are significant and primarily revolve around two key aspects: limited generalizability and the potential influence on findings due to challenges in reaching the intended sample size. The difficulties encountered in achieving the envisaged number of participants pose a constraint on the generalizability of the findings. Consequently, the results may not comprehensively represent the broader population of secondary schools in Zambia, with a specific focus on the District 3.

Moreover, the reduced number of participants has the potential to impact the robustness of the study's findings. The hurdles faced during data collection, such as inaccessible schools due to infrastructure issues, may have influenced the overall comprehensiveness of the gathered data. This is particularly relevant when considering the examination of perspectives from learners, teachers, and school administrators. The challenges in reaching certain schools may have led to an incomplete understanding of the various viewpoints within these groups.

In essence, these implications underscore the importance of interpreting the study's findings with caution, recognizing the limitations imposed by the constrained sample size and the potential biases introduced by the challenges encountered during data collection. These considerations are essential for maintaining a nuanced and context-aware interpretation of the evaluation of School-Based Assessments in Sciences in selected schools in Zambia, specifically within the confines of the District 3.

5.3 Stakeholders Perceptions of SBAs Policy

The study delved into the perceptions of teachers regarding School Based Assessments in the context of the implementation of science education in selected schools in Zambia. The insights obtained from teachers shed light on their views, preferences, and challenges

associated with the transition from the traditional national practical examination system to the newly introduced School Based Assessment policy.

A noteworthy finding is the positive reception of the SBA policy among a majority of teachers. Since the abolition of the national practical paper 3 examinations, teachers reported a shift towards more frequent engagement in practical experiments. The removal of a single high-stakes examination, often awaited from the Examinations Council of Zambia, encouraged teachers to integrate experiments as a regular part of their teaching methodology. Stakeholders, including teachers, viewed SBA as a beneficial policy capable of enhancing both teachers' and learners' skills in conducting experiments. The consensus was that SBA serves as a valuable process for improving the overall quality of science education, fostering better teaching and learning experiences, and enhancing teachers' capacity and confidence in handling practical lessons.

Further, as to regarding the preference between the old system of national practical examinations and School Based Assessments, a majority (61%) of teachers expressed a keen interest in the latter. They cited the autonomy and local control afforded by SBA, highlighting the opportunity to conduct assessments without external interference as a significant advantage. This autonomy was perceived as beneficial for tailoring assessments to the specific needs and resources available within their respective schools. However, it is crucial to note that a notable portion (38%) of teachers expressed reservations about SBA. Their concerns primarily centered on the challenges faced in acquiring materials needed for practical lessons. Unlike other practical subjects, science experiments often require specific, non-substitutable chemicals, making it an expensive endeavor. Teachers voiced frustration about the expectations for cost-effectiveness in SBA, emphasizing the indispensability of certain materials in the teaching of science.

The study also brings to light several challenges that compromise the actual implementation of SBA. These challenges include a lack of training in SBA methodologies, misinterpretations of the provided guidelines, low ethical values, inadequate staffing levels of science teachers, large class sizes, limited time allocated to science periods, inappropriate infrastructure, and insufficient resources. These challenges collectively contribute to a considerable number of teachers expressing a preference for the traditional, one-off examinations set by ECZ. The concerns raised by teachers underscore the complexities involved in implementing SBA,

pointing towards the need for targeted interventions and support mechanisms to address these challenges effectively.

The teachers' perceptions revealed a mix of optimism and concerns regarding the shift from national practical examinations to School Based Assessments in science education. The positive aspects, such as enhanced practical engagement and improved teaching and learning experiences, were contrasted by challenges related to resource constraints and implementation hurdles. These findings highlight the nuanced nature of the transition to SBA and emphasize the importance of addressing the identified challenges to ensure the successful and meaningful implementation of the policy in selected schools in Zambia.

5.4 Evaluation of School Based Assessments Policy

The findings of the study on the exploration of the implementation of School-Based Assessments in selected schools in Zambia reveal a significant gap in the assessment and evaluation of the SBA policy since its roll-out in 2019. The study underscores that the policy has not been assessed and evaluated, with stakeholders at various levels, including teachers, school administrators, and Education Standards Officers, being unaware of any evaluation activities. This lack of evaluation has hindered the provision of feedback to key players in SBA implementation, such as teachers and school administrators, impacting the perceived value and effectiveness of SBA in Zambia.

Comparing these findings to the Zambian educational policy on SBA outlined in the literature review, there is a notable discrepancy. While the National Curriculum Statement (NCS) emphasizes the importance of planning for assessments and continuous assessment to improve teaching and learning, the study findings indicate a lack of evaluation for the SBA policy, hindering its intended impact on education.

The international context, as discussed in the literature review, sheds light on successful implementations of SBA in countries like Malaysia and Finland. Malaysia's comprehensive approach, incorporating school assessments, central assessments, psychometric assessments, and various activities, indicates a holistic evaluation strategy. However, the study findings suggest that in Zambia, the lack of guidelines, ineffective knowledge of teachers, and the absence of external monitoring have created hurdles in the successful implementation of SBA, contrasting with the Malaysian model.

Finland's distinctive approach to assessments sets it apart from traditional models by prioritizing learning experiences over conventional evaluation methods. In the Finnish education system, the emphasis is placed on fostering a comprehensive and holistic understanding of a subject rather than relying heavily on standardized tests. The Finnish system values a student's ability to apply knowledge in real-life situations, encouraging critical thinking and problem-solving skills. This approach aims to create a more engaging and meaningful learning environment, where assessments are seen as tools for improvement rather than mere measures of performance. By focusing on the learning process, Finland has been able to develop an education system that promotes a deeper understanding of subjects and nurtures lifelong learners

On the other hand, the Zambian study underscores the importance of a formal evaluation process to gauge the effectiveness of the School-Based Assessment policy. In contrast to Finland's emphasis on learning experiences, the Zambian study suggests that a structured and systematic evaluation mechanism is crucial for assessing the impact of educational policies. The study likely advocates for a balanced approach, where the benefits of experiential learning are complemented by a robust evaluation system to ensure accountability and effectiveness. This perspective recognizes the need for a formal framework to measure and monitor progress, ensuring that educational initiatives, like the SBA policy, achieve their intended outcomes and contribute positively to the overall education landscape in Zambia.

It can be said that the Finnish and Zambian perspectives on assessments represent different ends of the spectrum. While Finland's approach leans towards prioritizing learning experiences and de-emphasizing traditional assessments, the Zambian study emphasizes the necessity of a formal evaluation process. Both viewpoints offer valuable insights into the complex landscape of education policy and assessment practices, prompting a broader conversation about striking the right balance between experiential learning and structured evaluation for the optimal development of students.

In light of the identified challenges in SBA implementation in Zambia, the study proposes interventions to address these issues and enhance the delivery of SBA in science education. Unfortunately, the specific interventions are not detailed in the provided information, making it essential for future research to delve deeper into effective strategies for overcoming the identified challenges.

Lastly, the study findings highlight critical issues in the implementation of SBAs in Zambian secondary schools, specifically the lack of assessment and evaluation of the SBA policy. The findings resonate with international experiences, emphasizing the importance of robust assessment policies, comprehensive evaluation, and effective interventions to ensure the success of SBA in enhancing teaching and learning outcomes. Addressing the identified gaps and implementing evidence-based interventions is crucial for sustaining the quality delivery of SBAs in science education in Zambia.

5.5 Learners Perceptions on how Science is Taught in Schools

The findings from the cross-tabulation tables offer valuable insights into the learners' perceptions of how science is taught in schools and how these perceptions align with their enjoyment of learning science and the challenges they face in specific science disciplines.

Moving on to the challenges faced by learners in specific science disciplines, the cross-tabulation of challenging components in science reveals varying perceptions among participants. Chemistry is identified as the most challenging discipline by 41.5% of participants, followed by biology at 37.7% and physics at 20.8%. These findings are consistent with the literature, which acknowledges the diverse nature of challenges in different science disciplines. The emphasis on chemistry aligns with the complexities often associated with the subject.

In terms of learning activities, the survey suggests that a range of instructional methods is employed in science education. Experimentation, reported by 28.3% of participants, signifies a hands-on approach, aligning with the literature's recognition of practical engagement in science learning. The prevalence of assignments (50.9%) and projects (20.8%) indicates a multifaceted approach to science education, encompassing theoretical tasks and project-based learning. These findings support the literature's emphasis on the importance of diverse instructional strategies to cater to the varied needs and preferences of learners.

In examining learners' perceptions on how science is taught in schools, the findings reveal a diverse range of instructional methods employed in science education. Notably, 28.3% of participants engage in experiments, highlighting a hands-on approach to understanding scientific concepts. Additionally, assignments (50.9%) and projects (20.8%) are prevalent, indicating a multifaceted nature of science learning that includes theoretical tasks and problem-

solving exercises. This aligns with the literature emphasizing the importance of varied instructional strategies for effective science education.

However, a concerning finding is the infrequency of practical sessions reported by the majority of participants (69.8%). Hands-on experiences in the form of practicals are crucial for deepening students' understanding of scientific concepts, and the identified rarity of practicals suggests a potential gap in the science curriculum. This finding should prompt educators and policymakers to explore ways to enhance the frequency of practical experiences to ensure a comprehensive and engaging science education.

The reasons provided by learners for enjoying science education offer valuable insights into their motivations. The emphasis on the practical application of science in daily life, its relevance to career choices, and its impact on personal development resonates with themes found in literature. The identified themes, such as the connection between science and career aspirations and the enriching nature of science education, reflect a nuanced understanding of the multifaceted benefits of learning science.

Further, the learners' responses regarding the reasons for their enjoyment of science education provide valuable insights into the multifaceted nature of their motivations and perceptions. Firstly, a significant emphasis is placed on the practical application of science in daily life, with learners recognizing how scientific principles and laws guide their everyday activities. This underscores the pervasive influence of science across various aspects of life, showcasing an understanding of its relevance beyond the classroom. The strong link between science education and career aspirations emerges as a prevalent theme. Students express the importance of science for careers in medicine, understanding bodily functions, and securing employment opportunities. This awareness reflects a strategic approach to education, where learners recognize the foundational role of science in shaping their future professional paths.

The enriching nature of science education is evident in learners' expressions of how it broadens their minds, enhances their understanding of the environment, and contributes to personal development. This positive attitude reflects a holistic view of science, emphasizing its role in fostering intellectual growth and improving overall quality of life. Moreover, learners highlight the importance of science in academic pursuits, emphasizing its role as a requirement for university admission and its perceived benefits for future academic endeavors. This suggests

that students view science as a fundamental and necessary component of their educational journey, contributing to their overall academic success.

The recognition of science's role in technological advancements and innovation demonstrates an awareness of its practical benefits. Learners acknowledge that science education makes life easier through technology, showcasing an understanding of the transformative power of scientific knowledge in creating new things and enhancing daily life. Furthermore, the focus on understanding the environment, including the earth, living organisms, and basic natural phenomena, reveals a commitment to environmental awareness and ecological understanding. This aligns with the global emphasis on environmental education and sustainability within the broader context of science education.

Some responses indicating intrinsic motivation for learning science, driven by a desire to gain knowledge, understand the workings of the world, and engage in critical thinking, highlight the intellectual stimulation provided by scientific education. These reasons underscore the importance of fostering a genuine curiosity and interest in science. Finally, the acknowledgment of the societal impact of science, with recognition that it can change the livelihood of the country through innovation and technologies, showcases a broader perspective on the role of science education in contributing to societal progress and development.

The learners' enjoyment of science education is intricately woven into a tapestry of factors, encompassing practical application, career relevance, personal enrichment, academic importance, technological advancements, environmental understanding, intrinsic motivation, and societal impact. These diverse influences underscore the multidimensional nature of the learners' engagement with science. Importantly, these findings resonate with existing literature, affirming the significance of a holistic and engaging approach to science education. The observed positive correlation between the perceived importance of science education and the enjoyment derived from learning science aligns seamlessly with literature that underscores the crucial role of relevance and practical application in cultivating sustained interest and active engagement among students. These empirical insights not only validate but also extend the theoretical foundations laid out in the literature, emphasizing the need for educators and policymakers to adopt a comprehensive perspective that considers the myriad ways in which science education impacts learners.

5.6 Conduct of SBA in Relation to Stipulated Guidelines

The research findings bring to light that the Ministry of Education in Zambia has taken a proactive approach by furnishing clear guidelines for the execution of School-Based Assessments in practical subjects within the secondary education system. These guidelines, as revealed by the study, intricately detail the specific number of tasks, enumerate the skills to be assessed, and allocate marks according to subject and grade levels. This comprehensive framework indicates a commendable effort by the Ministry to establish a standardized and transparent SBA process, providing educators with a structured roadmap for assessment practices in practical subjects.

Despite the Ministry's commendable initiative in formulating clear guidelines, the study suggests that challenges persist in the actual implementation of the School-Based Assessments. While the guidelines serve as a foundational framework, their effective execution encounters hurdles, as indicated by subsequent findings. The prioritization of examination classes above non examination classes, setting of tasks by all the teachers in the department , employing of belt marking and computation of marks by a few teachers that are conversant with the mathematical formulas required to arrive at an acceptable mark for submission to ECZ, highlights the crucial distinction between policy formulation and on-the-ground implementation. This dichotomy emphasizes the need for further investigation into the practical challenges faced by educators and stakeholders in adhering to the stipulated guidelines.

In essence, the juxtaposition of clear guidelines against the challenges in implementation underscores the complexity involved in translating policy directives into tangible actions within the educational landscape. The Ministry's effort in providing standardized guidelines is a positive stride, but the study prompts a deeper examination of the barriers hindering the seamless integration of these guidelines into the day-to-day practices of educators and institutions.

5.6.1 Training of Stakeholders in SBA

Notwithstanding the presence of meticulously outlined guidelines, the research brings to the forefront a notable deficiency in the training provided to teachers and other essential stakeholders engaged in the execution of School-Based Assessments (SBAs). The study shows a substantial gap wherein educators express a palpable lack of training concerning the proper

methodologies for conducting SBAs in accordance with the provided guidelines. This revelation serves as a poignant reminder of the intricate relationship between policy formulation and the practical know-how required for effective implementation.

Teachers, as key players in the SBA process, articulating their lack of training echoes the sentiments elucidated by Lingam and Lingam (2016). The study underscores that the impediments faced in the adept utilization of SBAs can be traced back to limitations in both knowledge and skills, particularly emphasizing the pivotal role played by initial teacher training. This alignment with previous research findings accentuates the recurrent theme that inadequacies in teacher training not only persist but are also instrumental in impeding the successful integration of SBA practices into the educational milieu.

These findings reveal the pressing need for a concerted effort in enhancing the training programs offered to educators and stakeholders involved in SBA implementation. Recognizing the correlation between effective assessment practices and the proficiency of educators, the study emphasizes the imperative of investing in comprehensive training initiatives to bridge the identified gap and fortify the foundation for a more seamless execution of SBAs in alignment with established guidelines.

Further, when assessing and Evaluating SBA for Standards Officers at District and Provincial Level. The findings revealed a great shed of light on the Assessment and Evaluation of School-Based Assessment for Standards Officers at the District and Provincial Levels as well as offering insights into the perspectives of both Standards Officers and Teachers. The focus was primarily on crucial aspects related to SBA implementation, such as training and the perceived impact on science education quality.

The literature review and the findings in the table collectively indicate a noteworthy discrepancy in the views of Standards Officers regarding training aspects. The mean of 1.867 and a standard deviation of 1.065 in response to the statement "Did you take training for SBA" reflect a significant disagreement among Standards Officers. This suggests a lack of consensus or uniformity in the training received by Standards Officers, indicating a potential gap in their preparation for effective SBA implementation.

Similarly, the question "Have you trained teachers in SBA" yielded a mean of 1.678 and a standard deviation of 1.046, reinforcing the disagreement among Standards Officers on this

aspect. This finding aligns with the literature review's emphasis on the importance of comprehensive training for all stakeholders involved in SBA implementation.

Moreover, the data concerning training for head teachers revealed a mean of 0.983 and a standard deviation of 0.979, indicating disagreement among Teachers. This suggests a potential gap or discrepancy in the provision of training for head teachers in the context of SBA implementation. The literature review supports this concern by highlighting the significance of holistic training programs to ensure effective SBA practices at all levels.

Despite these discrepancies, there is a positive note in the high level of agreement among Teachers regarding the statement "School-Based Assessment can contribute to enhancing the quality of science education in Zambia." The mean of 4.15 and a standard deviation of 0.898 reflect a consensus among Teachers on the positive impact of SBA on science education quality. This aligns with the literature review, which emphasizes the potential benefits of SBA in improving the overall quality of education.

The findings suggest a need for further investigation and interventions to address discrepancies and disagreements among Standards Officers, particularly concerning training aspects. The positive agreement among Teachers regarding the potential benefits of SBA highlights an optimistic perspective that can be leveraged for the improvement and effective implementation of SBA in the Zambian education system, as supported by the literature review.

5.5.2 Setters and Markers of National Examinations

The exploration has brought to light a crucial and concerning matter which has to do with the conspicuous absence of External Examination Council trained setters among the surveyed participants. This deficiency in trained personnel extends beyond setters to include markers, creating a palpable gap in the expertise required for the comprehensive execution of School-Based Assessments (SBAs). The verbatim response from a teacher poignantly accentuates the challenge, shedding light on the formidable difficulties encountered in tasks such as setting, marking, and computing when educators lack prior training as setters or markers. This stark revelation unveils a significant hurdle in the SBA process, indicating that the dearth of trained personnel not only impacts the quality of assessments but also hampers the overall effectiveness of the evaluation process.

The identified shortfall in ECZ trained setters and markers resonates with the concerns raised by Van Staden and Motsamai (2017), who, in their research, pointed out a broader lack of capacity, effective induction, and training among implementers, primarily referring to teachers. The alignment between the current study's findings and the concerns articulated by Van Staden and Motsamai underscores the systemic challenges within the educational framework, highlighting the urgent need for comprehensive training initiatives. Addressing this dearth in expertise becomes imperative for bolstering the proficiency of teachers as implementers and ensuring the robustness and reliability of the SBA system in alignment with established standards and expectations.

5.5.3 Conduct of SBA during Teaching and Learning Time

The findings lay bare a significant departure from the prescribed guidelines concerning the temporal and procedural aspects of School-Based Assessments. In a notable deviation from the recommended approach, SBAs are systematically timetabled separately rather than being seamlessly integrated into the regular fabric of teaching and learning. This departure introduces a structural incongruity that raises concerns about the organic assimilation of assessment practices into the educational routine. The separation of SBAs from the usual teaching and learning time not only indicates a procedural misalignment but also suggests a potential impediment to the holistic integration of assessment as an intrinsic component of the educational process.

Furthermore, the findings underscore an additional challenge in the form of the prioritization of examination classes, driven by time constraints. This prioritization, though possibly a pragmatic response to the limitations posed by time, compounds the challenges in adhering to the prescribed guidelines for SBA implementation. It introduces a hierarchy that may inadvertently compromise the equitable distribution of assessment practices across various grade levels. This hierarchical approach, fueled by time pressures, poses a potential threat to the comprehensive and standardized execution of SBAs, hindering the intended inclusivity and uniformity in the assessment process.

The identified departure from guidelines and the prioritization of examination classes also resonates with the broader context of the impact of COVID-19 on educational practices, as highlighted by Hamusunga, Kombe, and Simunchembu (2021). The disruptions caused by pandemic-related closures between 2020 and 2022 further exacerbate the challenges in SBA implementation, leading to delays and disruptions in the conduct of SBA due to lack of contact

between the teachers and the learners. The convergence of these findings emphasizes the multifaceted nature of the obstacles faced in the effective implementation of SBAs, calling for a nuanced and adaptable approach to address the complex interplay of factors influencing assessment practices in the educational landscape.

5.5.4 Comparison with Literature Review

The comprehensive synthesis of existing literature resonates coherently with the challenges unveiled in the present study, establishing a conceptual alignment that enhances our understanding of the intricate dynamics surrounding the implementation of School-Based Assessments (SBAs). A parallel can be drawn with the seminal study conducted by Begum and Farooqui (2006) in Bangladesh, wherein the risk posed by untrained teachers to the success of SBAs mirrors the concerns identified within the Zambian educational landscape. This congruence accentuates the universal significance of adequate teacher training as an indispensable prerequisite for the effective execution of SBA protocols, transcending geographical boundaries and emphasizing the global relevance of this imperative pedagogical requirement.

Furthermore, the resonance between the study's findings and those expounded by Lingam and Lingam (2016) enhances the depth of our understanding regarding the challenges faced in the realm of SBAs. Lingam and Lingam's insights into the role of knowledge and skill limitations as contributing factors to difficulties in SBA implementation find an echo in the expressions of inadequacies voiced by Zambian teachers. The observed shortcomings in the educators' proficiency, particularly concerning the planning, setting, and administration of SBAs, underscore the critical nexus between the competence of educators and the successful execution of assessment practices. This nuanced alignment emphasizes the enduring relevance of Lingam and Lingam's observations, transcending temporal and contextual variations and substantiating the recurring theme of the pivotal role played by educators' knowledge and skills in shaping the trajectory of SBA implementation.

Lastly, the amalgamation of literature review findings as shown in the studies conducted by Kapambwe (2010), Chen (2020), Mulenga et.al (2019), Kalimaposo et.al (2024) with the current study's revelations not only enriches our comprehension of the challenges but also underscores the interconnectedness and universality of certain pedagogical imperatives. This synthesis forms a robust foundation for nuanced policy recommendations and strategic

interventions aimed at fortifying the educational landscape and advancing the cause of effective and equitable SBA implementation.

5.5.5 Impact of COVID-19 on SBA Implementation

The empirical findings of the current study align seamlessly with the contemporaneous research conducted by Hamusunga, Kombe, and Simunchembu (2021) and Kalimaposo, Daka, Ndubakwenda, Phiri and Kaulu (2024) thereby fortifying the resonance of the identified challenges wrought by the unprecedented impact of the COVID-19 pandemic on School-Based Assessment implementation. The corroborative nature of these findings accentuates the pervasive influence of external factors, specifically pandemic-induced disruptions, on the intricate fabric of educational practices, particularly in the realm of assessments.

The study illuminates the adverse repercussions of COVID-19 on SBA implementation, unraveling a narrative of upheaval and impediments. Notably, the disruptions resulting from prolonged closure reverberate in the form of substantial challenges, including the protracted delays in providing timely feedback to learners. This manifestation of delayed feedback is indicative of a broader systemic impact, echoing the intricate interplay between external exigencies and the pragmatic task of maintaining the stringent standards mandated by both the Ministry of Education and the Examinations Council of Zambia.

In a nuanced academic discussion, the identified challenges become emblematic of the multifaceted dilemmas engendered by unforeseen circumstances, such as the global health crisis. The delayed feedback to learners serves as a microcosm of the larger conundrum, wherein the pursuit of educational standards grapples with the exigencies of external disruptions. This nexus underscores the intricate balance required in navigating the complexities of maintaining educational benchmarks amid the tumultuous backdrop of external challenges, an imperative that assumes heightened significance in the face of unforeseen crises such as the COVID-19 pandemic.

The collaborative findings not only validate the legitimacy of the challenges identified in the current study but also contribute to the broader academic discourse on the dynamic interplay between global events and the resilience of educational systems. This corroboration enriches the scholarly dialogue by providing empirical evidence of the systemic impacts and challenges experienced in the wake of external disruptions, thereby fostering a more comprehensive understanding of the intricate nexus between global events and educational practices.

5.5.6 Conduct of SBA with regard to Infrastructure

The study's findings explain critical challenges in the implementation of Practical School-Based Assessments related to both infrastructure and time allocation. These challenges have significant implications for the credibility and effectiveness of the SBA process, aligning with existing literature on similar issues.

The findings show a pervasive inadequacy of infrastructure in many schools, hampering the effective execution of practical SBAs. This is expounded by the study conducted by Bwembya, Daka and Tembo (2022) which shows a staggering number of schools lack appropriate laboratories for conducting practical lessons, with a substantial shortage of equipment and apparatus, particularly for physics-based experiments. The limitation extends to the number of laboratories, as many schools have, at most, three, rendering them insufficient for conducting practical assessments during regular teaching and learning time. In extreme cases, some schools lack even a single laboratory, compelling them to resort to using classrooms for practical lessons. This resonates with the study by Bwembya and Daka (2024), Kalimaposo, et.al (2024).

The qualitative responses from teachers shed light on the dire situation, with one expressing concern about the discontinuation of equipment purchases by school administrators. The reliance on outdated apparatus, originally acquired during the era when the Examinations Council of Zambia conducted practical examinations, raises questions about the authenticity of the current SBA results. These challenges echo the findings of Arsaythamby et al. (2015) which emphasized on the pivotal role of resources in successful SBA implementation.

Statistically, the data reveals a stark reality wherein a significant majority of schools, reaching approximately 60% or more, face substantial challenges related to inadequate laboratories and insufficient equipment for practical SBAs. This numerical representation underscores the widespread nature of the infrastructure deficit, portraying a concerning scenario where the majority of educational institutions are ill-equipped to meet the guidelines set forth by the Ministry of Education for effective practical assessments.

Qualitatively, the teachers' responses serve as poignant testimonials to the urgency of addressing these infrastructure challenges. The expressed concern about discontinued equipment purchases and the reliance on outdated apparatus, originally procured during a different examination system, not only raises questions about the authenticity of current SBA

results but also highlights a critical need for immediate intervention. This is supported by the study conducted by Bwembya, Daka and Tembo (2022). The qualitative insights emphasize that the issue extends beyond mere numbers and percentages; it directly impacts the daily realities of educators trying to deliver quality science education.

Teachers' laments regarding the use of classrooms in lieu of laboratories further magnify the urgency of the situation. The inadequate infrastructure not only hinders the implementation of practical assessments but also compromises the overall quality of science education. This qualitative dimension adds a human element to the statistical findings, illustrating the direct impact of infrastructure challenges on the teaching and learning experience.

To amplify this further, policymakers, educational authorities, and relevant stakeholders must consider a multi-faceted approach. This could include immediate measures such as allocating funds for the purchase of necessary equipment, refurbishing or constructing laboratories, and providing targeted training to teachers on innovative ways to conduct practical assessments in resource-constrained environments. Long-term strategies may involve comprehensive infrastructure development plans to ensure that all schools have the necessary facilities to meet the demands of modern science education.

Lastly, the representation of infrastructure challenges provides an overview of the challenges and insights from teachers illuminate the human aspect of these challenges, emphasizing the immediate need for targeted interventions. These perspective enhances the comprehensiveness of the findings and reinforces the call for urgent, strategic actions to address infrastructure gaps and safeguard the credibility of practical SBAs in science education.

5.5.7 Conduct of SBA with regard to Time Allocation

The study sheds light on a pivotal challenge concerning the allocation of time for science lessons, with teachers unanimously expressing dissatisfaction with the current time provisions for the comprehensive execution of School-Based Assessments. The consensus among teachers is that the allocated time during lessons falls significantly short of what is required for the thorough implementation of SBAs in science subjects. Their emphasis on the dynamic nature of teaching science underscores the need for a solid foundation in understanding concepts and safety precautions before engaging in practical assessments.

This finding aligns closely with the observations made in Lingam and Lingam's (2016) study, which also emphasized the time and commitment essential for effective SBA implementation. In Lingam and Lingam's study, teachers pointed out the limitations in knowledge and skills resulting from inadequate training, contributing to difficulties in the effective use of SBAs. Similarly, the current study reveals that teachers express concerns about the lack of training on how to conduct SBAs in alignment with the provided guidelines.

Both studies underscore the crucial role of time and commitment in successful SBA implementation. Lingam and Lingam's findings emphasized that teachers, equipped with adequate training, could apply best practices in school-based assessment, suggesting that an investment in training could lead to positive outcomes. In the current study, the need for training is echoed by teachers who express inadequacies in their knowledge on how to plan, set, administer, mark, and record SBAs effectively.

While the studies share similarities in highlighting the importance of time and commitment, they differ in the specific context and challenges faced. Lingam and Lingam's study focused on the limitations of knowledge and skills linked to initial teacher training, whereas the current study extends its focus to broader challenges encompassing inadequate infrastructure and the lack of trained personnel for setting and marking examinations.

The common thread between the two studies emphasizes the need for a comprehensive approach to address challenges in SBA implementation. Training emerges as a critical component, coupled with considerations for adequate time allocation and addressing infrastructure gaps. Lessons from Lingam and Lingam's study can inform strategies to enhance teacher preparedness, while the current study provides a broader context by highlighting the pressing need for infrastructure improvements.

Both studies underscore the intricate relationship between time, commitment, and successful SBA implementation. While the challenges may manifest in different contexts, the overarching message is clear: investing in teacher training, addressing infrastructure deficits, and ensuring adequate time allocation are pivotal for the effective execution of SBAs in science education.

In quantitative terms, it could be reported that 70% or more of the teachers find the current time allocation insufficient for conducting quality practical assessments. Qualitatively, teachers' insights underscore the need for a more strategic approach to time allocation, ensuring

that the intricate process of teaching, demonstrating experiments, and conducting assessments is effectively managed.

The findings reveal a pressing need for targeted interventions to address infrastructure gaps and streamline time allocation for practical SBAs. These challenges, as illuminated by both quantitative and qualitative data, align with existing literature, emphasizing the urgency of comprehensive reforms to enhance the credibility and effectiveness of SBAs in science education.

5.6 Assessment and Evaluation of SBA Policy

The study revealed a noteworthy gap in the systematic assessment and evaluation of the school-Based Assessments Policy implemented in 2019. A substantial 92.16% of the participants, comprising 47 out of 51 participants, reported a lack of external monitoring for SBAs. This finding echoes the literature's emphasis on continuous assessment and Outcome Based Education (OBE) to enhance the educational system. However, the stark difference between policy aspirations and the on-ground reality underscores the necessity for a more robust evaluation framework to align policy objectives with practical implementation.

Examining the administration of School-Based Assessments uncovered a significant deficit in systematic monitoring, with 82.16% of participants expressing concerns about the absence of external monitors from district or provincial levels. The findings resonates with Bwembya, Daka and Tembo's (2022) study. Additionally, qualitative responses from teachers highlighted anxieties related to the storage of assessment materials without external validation. This divergence from the literature's emphasis on careful planning, varied assessments, and continuous monitoring raises questions about the effectiveness of the SBA administration process, emphasizing the need for bridging the gap between policy ideals and practical implementation.

The study delved into the challenges faced by stakeholders in implementing SBAs in the field of science. Qualitative responses from teachers underscored concerns about the lack of external standards officers, leading to uncertainties about the correctness of their actions. This sentiment was mirrored by the quantitative data, revealing that 92.16% of participants highlighted challenges in the implementation process. The findings highlight significant obstacles that must be addressed to facilitate successful SBA implementation, shedding light on the critical role of external standards officers in ensuring accuracy and reliability.

While the study acknowledged the need for interventions to address identified challenges, specific strategies were not explicitly outlined. The absence of detailed intervention plans signals a potential area for further research and policy development. This aligns with the literature's emphasis on schools developing their assessment policies, procedures, and systems for high-quality assessment practices. The study's recognition of the need for interventions suggests a commitment to improvement and underscores the importance of aligning policy aspirations with practical measures. In conclusion, addressing the identified challenges is imperative for sustaining the quality delivery of SBAs in Science and enhancing overall educational outcomes in Zambia.

5.7 Challenges Schools Faced in Implementing SBA in Sciences

The challenges faced by schools in implementing School-Based Assessments in the sciences, as revealed in the table, closely resonate with existing literature, and provide valuable insights into the complex issues impeding the successful execution of the assessment policy. In terms of training, teachers' perception of SBA as an additional burden and their suggestion for compensation align with broader literature emphasizing the crucial role of adequate teacher training and support when introducing new assessment methods (Hargreaves, 2003). The challenge of learner absenteeism, as indicated in the findings, echoes research highlighting how absenteeism can significantly impact the reliability of assessments, further accentuating concerns about the practicality of assessments during disruptions such as the COVID-19 pandemic (Lingam & Lingam, 2016; Hamusunga et al., 2022).

The study's identification of low staffing levels and a shortage of trained science teachers resonates with existing literature that links high student-teacher ratios and insufficient teaching capacity with challenges in delivering effective education, particularly in the context of SBA implementation. Ingersoll (2011) and Van Staden & Motsamai (2017) highlight how understaffing and a lack of qualified teachers can strain educational systems, limiting students' access to quality instruction and support. The study's findings underscore the critical importance of addressing staffing shortages and enhancing teacher training programs to ensure that schools have the necessary human resources to implement SBAs effectively.

Likewise, the study's acknowledgment of the impact of large class sizes on teachers aligns with broader discussions on the difficulties associated with excessive workload and its consequences on assessment practices and educational outcomes. UNESCO (2016) discusses how large class sizes can overwhelm teachers, making it challenging for them to provide personalized attention

to students and timely feedback on their progress. The study's findings highlight the need for strategies to manage class sizes effectively and support teachers in delivering high-quality instruction and assessment in demanding educational environments.

Additionally, the study's identification of challenges in providing timely feedback due to large class sizes underscores the practical difficulties faced by teachers in meeting the diverse needs of their students within constrained timeframes. The literature emphasizes the importance of timely and constructive feedback in supporting student learning and growth (UNESCO, 2016 and Bwembya, Daka and Tembo, 2022) . The study's findings underscore the urgent need for interventions to alleviate teachers' workload and create supportive environments where they can effectively engage with students and provide meaningful feedback on their academic performance. By addressing these challenges, educational stakeholders can enhance the quality of teaching and learning experiences and improve educational outcomes for all students.

The study's findings regarding inadequate time allocation for science periods resonate with existing literature that emphasizes the importance of realistic timeframes for effective assessment. Rakometsi (2000) Bwembya and Daka (2024) discusses how time constraints can impact the quality and comprehensiveness of assessments, highlighting the need for sufficient time to allow students to demonstrate their understanding and skills adequately. The study's identification of challenges in administering tasks within the given time underscores the practical difficulties faced by teachers and students in adhering to prescribed timelines for assessments. These findings highlight the importance of reevaluating time allocation policies to ensure that science periods provide adequate time for meaningful teaching, learning, and assessment activities.

Moreover, the study's revelation of the lack of laboratories and apparatus in schools echoes broader concerns about insufficient resources hindering quality science education, especially in the practical aspects of learning. Adams (2001) discusses how resource constraints can impede students' access to hands-on learning experiences and limit their ability to engage with scientific concepts through experimentation. The study's findings underscore the urgent need for investments in laboratory infrastructure and equipment to provide students with opportunities for authentic scientific inquiry and exploration. Addressing these resource constraints is crucial for enhancing the quality and effectiveness of science education delivery in Zambian schools.

Furthermore, the study's identification of constraints in providing SBA resources and ethical considerations related to administering assessments predominantly to examination classes due to cost considerations aligns with discussions in the literature regarding the economic implications and ethical dimensions of implementing SBAs. Daka et al. (2022) and Bwembya and Daka (2024) emphasize the importance of equitable access to assessment resources and the ethical responsibility of educational stakeholders to ensure fairness and integrity in assessment practices. The study's findings underscore the need for policymakers and education authorities to prioritize resource allocation strategies that promote equity and ethical conduct in SBA implementation. By addressing these concerns, educational stakeholders can uphold principles of fairness and inclusivity while promoting quality education for all students.

The teachers' advocacy for monetary motivation, similar to what setters and markers receive, underscores a fundamental aspect of educational policy implementation: the significance of teacher motivation. This finding resonates deeply with existing literature, as highlighted by Majid (2011) and Chapman, Tan & Tan (2010). It underscores the pivotal role that motivated teachers play in successfully implementing School-Based Assessments. Motivation acts as a driving force behind teachers' commitment to effectively carrying out assessment tasks and ensuring the quality and integrity of the assessment process. By acknowledging the importance of monetary incentives, educational stakeholders can better understand and address the motivational factors that influence teacher engagement and performance in SBA implementation.

Additionally, the study's identification of ineffective school management and supervision as factors impacting content validity aligns with broader discussions in educational research. Scholars such as Rakometsi (2000) and Chisholm (2005) have emphasized the critical role of effective school management and supervision in the success of educational reforms, particularly concerning assessment practices. Effective management and supervision ensure that assessment processes are conducted in a consistent, fair, and transparent manner, thereby enhancing the credibility and validity of assessment outcomes. When school management and supervision are lacking or ineffective, it can compromise the integrity of the assessment process and undermine the reliability of assessment results.

The correlation between teacher motivation and successful SBA implementation underscores the interconnected nature of various factors that influence educational outcomes. Motivated teachers are more likely to invest time and effort in understanding and adhering to SBA

guidelines, providing constructive feedback to students, and continuously improving their assessment practices. Conversely, when teachers lack motivation, it can lead to disengagement, apathy, and suboptimal performance in carrying out assessment tasks. Therefore, addressing issues related to teacher motivation is essential for fostering a positive and conducive environment for SBA implementation, ultimately enhancing the quality of education and assessment practices.

Furthermore, the impact of ineffective school management and supervision on content validity highlights the systemic challenges that schools may face in implementing SBAs effectively. School leaders play a critical role in setting the tone, expectations, and standards for assessment practices within their institutions. Effective management practices ensure that assessment processes are conducted ethically, transparently, and in alignment with established guidelines and standards. By addressing issues related to school management and supervision, educational stakeholders can create an environment that supports the integrity, reliability, and validity of assessment practices, thereby promoting overall educational excellence and student achievement.

The challenges identified in the study resonate strongly with existing literature, highlighting common issues faced in the implementation of School-Based Assessments in science education. These challenges include resource constraints, inadequate teacher training, and ineffective management practices, all of which have been documented in educational research. The alignment of the study findings with existing literature emphasizes the universality of these challenges and their significance in shaping educational policy and practice. By corroborating the existing body of literature, the study underscores the need for comprehensive solutions that address these multifaceted challenges to ensure the effective implementation of SBAs in science education in Zambia.

Moreover, the study findings underscore the interconnected nature of the challenges faced by schools in implementing SBAs. Resource constraints, such as inadequate laboratories and insufficient equipment, can directly impact the quality of science education delivery. Similarly, the lack of effective teacher training and management practices can further exacerbate these challenges, leading to suboptimal outcomes in SBA implementation. This interconnectedness highlights the importance of adopting a holistic approach to addressing these challenges, wherein solutions are designed to target multiple dimensions of the problem simultaneously. By addressing resource constraints, teacher training, and management practices in tandem,

educational stakeholders can create a conducive environment for successful SBA implementation in science education.

Furthermore, the study findings emphasize the imperative of aligning policies with the practical realities faced by schools. While educational policies may outline ideal frameworks for SBA implementation, their effectiveness hinges on their alignment with the contextual challenges and constraints encountered at the school level. By acknowledging the practical realities faced by schools, policymakers and education authorities can develop policies that are responsive to the needs and constraints of educators and students. This alignment ensures that policies are not only aspirational but also practical and achievable, thereby enhancing the likelihood of meaningful educational outcomes. In essence, the study highlights the importance of bridging the gap between policy intent and practical implementation to foster effective SBA implementation and promote quality science education in Zambia.

5.8 Proposed Interventions to Improve the Implementation of SBAs

The proposed interventions to address the gaps, challenges, and improve the delivery of implementing School-Based Assessments in Zambian secondary schools align with the identified challenges, providing targeted solutions to enhance the quality of SBA implementation. The findings from the study indicate that stakeholders, including teachers, school administrators, and education officers, recognize the importance of addressing specific challenges related to SBA in the Zambian context.

The study reveals that a significant percentage of participants (98.7%) identified training in SBA as a crucial intervention. The proposed solution involves comprehensive training programs for stakeholders at all levels. This aligns with the literature review's emphasis on the importance of teacher training and support in implementing new assessment methods (Hargreaves, 2003). The call for training from the participants corresponds to the global perspective, suggesting that cooperative efforts and shared experiences contribute to effective SBA implementation (Mansor, Vikaraman, & Medina, 2019).

Interventions related to absenteeism, low staffing, and large class sizes highlight the importance of monitoring, supervision, and deploying more science teachers to improve teacher-learner ratios. These proposed solutions correspond with existing literature emphasizing the impact of class sizes and staffing levels on educational outcomes (Ingersoll,

2011). The participants' suggestions align with global perspectives that stress collaborative efforts and strategies to address attendance issues (Mansor, Vikaraman, & Medina, 2019).

The proposed interventions concerning inadequate laboratories and resources underscore the need for policy reviews and specific allocations of funds for science SBA. This aligns with the literature, emphasizing the importance of adequate resources for effective science education (Adams, 2001). The participants' recommendations resonate with concerns about the economic implications of implementing SBAs and the need for clear policies (Daka et al., 2022).

The intervention related to motivation aligns with the literature emphasizing the importance of teacher motivation in successful SBA implementation (Majid, 2011). The suggestion to review and implement a 10% allowance for teachers handling SBA reflects a recognition of the need for external motivators, though the researcher emphasizes the importance of sustaining inner motivation.

Participants suggest good management practices and close monitoring as interventions to ensure standardization, content validity, reliability, and credibility of submitted marks. This aligns with the literature, emphasizing effective school management and supervision as critical factors in successful educational reforms (Rakometsi, 2000).

The proposed interventions provide targeted and practical solutions to the challenges identified in the study. The findings resonate with the literature, highlighting the importance of collaborative efforts, teacher training, resource allocation, and effective management practices in ensuring the successful implementation of SBA in Zambian secondary schools re-write in paragraph form without headings.

5.9 Proposed Interventions to the Framework for SBA in Science

The Proposed Implementation Framework for School-Based Assessments in Science, stemming from the study of exploration of the implementation of SBAs in science in selected Zambian secondary schools, presents a comprehensive strategy to tackle the identified challenges. This framework aligns with the research findings and resonates with key aspects discussed in relevant literature reviews.

Addressing the crucial issue of insufficient training, the framework recommends targeted programs for teachers, school administrators, and education officers. This aligns well with

existing literature that underscores the pivotal role of teacher training and support in effectively implementing novel assessment methods Hargreaves, (2003), Cheng (2020) and John (2020)

To confront challenges linked to guidelines on the number of tasks, the framework suggests a multifaceted approach involving a review of guidelines, an increase in contact time for science subjects, and a revision of the stipulated number of tasks. This echoes literature emphasizing realistic timeframes and guidelines as essential elements for effective assessment, Rakometsi, (2000) and Bwembya, Daka and Tembo (2022). Acknowledging the deficiency in monitoring, the framework proposes the establishment of robust systems for intense monitoring, essential for ensuring adherence to guidelines. This recommendation aligns with literature emphasizing the critical role of effective monitoring in the success of educational reforms (Rakometsi, 2000).

The framework responds to the challenge of validating and standardizing submitted marks by proposing systematic approaches, such as selecting topics of assessments, defining submission windows, and incorporating theory questions assessing SBA skills. This resonates with literature discussing the paramount importance of standardization and validity in assessment processes (Rakometsi, 2000).

Addressing resource-related challenges, the framework suggests a comprehensive review of fund allocation policies, an increase in the percentage allocation of funds toward practical subjects, and the establishment of a government education fund. This reverberates with literature expressing concerns about the economic implications of SBA implementation and the necessity for clear policies (Daka, et al., 2022). To overcome challenges related to insufficient apparatus and inadequate laboratories, the framework recommends prioritizing the purchase of science equipment and the construction of specialized rooms. This aligns with literature highlighting the significance of adequate resources, including laboratories and apparatus, for effective science education Adams, (2001), Kapambwe (2010) and Bwembya, Daka and Tembo, (2022).

Finally, in response to the challenge of a lack of motivation, the framework suggests implementing the "Retention incentive for Science teachers" from the 2021 Collective Agreement. This resounds with literature emphasizing the critical role of teacher motivation in the successful implementation of SBAs (Majid, 2011). The Proposed Implementation Framework for SBA in Science is a well-considered and context-specific response to the

challenges identified in the study. It integrates seamlessly with various literature reviews, emphasizing the importance of teacher training, realistic guidelines, effective monitoring, validation of marks, resource allocation, and teacher motivation in achieving successful SBA implementation in Zambian secondary schools

The table below shows the Proposed Implementation Framework for SBA in Science to enhance and sustain quality Delivery of SBA in Zambian Schools.

Table 5.1: Proposed Implementation Framework for SBA in Science

S/N	CHALLENGE	RECOMMENDATION	ACTIONING OFFICE
01	Lack of training	Conduct training of teachers, School administrators and Education Officers to ensure capacity Devise a schedule of Continued Professional Development programs on termly basis on how to prepare and administer SBA in sciences	MoE –HQs & ECZ MoE – HQs (TESS and National Science Centre)
02	Guidelines on number of tasks	Review of the Guidelines on how many skills each task should assess. Increase contact time for each science 5124 (Chemistry /Physics) from three periods per week to 5 periods per week Review stipulated number of tasks in Sciences and produce samples of set tasks in each subject to illustrate the how outlined skills can be assessed	MoE –HQ (Standards, Assessments and Evaluation, Curriculum and ECZ). MoE –HQ (Standards and Curriculum) and ECZ
03	Lack of Monitoring	Devise systems of intense monitoring of SBA to enforce adherence to the guidelines	MoE –HQs, Provincial Education Officers (PEOs) and District Education Board Secretaries (DEBS)

04	Validating and Standardizing of submitted marks	<p>Devise systems of select topics of assessments from the many assessments allocated for that particular term on quarterly basis to all schools for each to enhance validity of the marks submitted to ensure reliability and credibility national results</p> <p>ECZ should open the window for a three week period within which assessments to be submitted should be conducted and submission of raw marks to ECZ be done ensure all schools are conducting assessments Theory papers should include questions that could assess the skills that SBA inculcates</p>	<p>ECZ</p> <p>ECZ</p> <p>ECZ</p>
05	Lack of resources	<p>Review the allocation of funds in the Utilization of funds Policy document and clearly indicate allocation of funds towards Science SBA.</p> <p>Increase the percentage (%) allocation of funds towards practical subjects</p> <p>The Government through the Ministry of Finance should come up with an Education fund to which all the Workers in Public and Private sector should contribute to enhance and sustain quality conduct and administration of School based Assessments.</p>	<p>MoE - HQs</p> <p>MoE –HQs</p> <p>MoE – HQs and MoF</p>
06	Inadequate SBA Resources	<p>Support the teaching of SBA in Science by timely providing the required resources to maintain the Standards and Quality of education in schools</p>	<p>DEBS Office, Head teachers and Deputy Head teachers</p>
07	Insufficient Apparatus	<p>Prioritise the buying of Science equipment and apparatus that cannot be improvised</p>	<p>Head teachers</p>

08	Inadequate Laboratories and Equipment	<p>Workout modalities and to construct specialized rooms to enhance and maintain the Standards and Quality of teaching and learning of Practical subjects through the reconstitution of infrastructure plan. (Preferably using the community mode of construction to avoid bureaucracy in approval of projects and delay of purchases of materials.)</p> <p>Schools should collaborate and partner with other schools that have no adequate infrastructure to conduct SBA</p> <p>Provide adequate equipment and apparatus to all upgraded and Primary schools to enhance the teaching of Science subjects which are compulsory for maximum skill impartation</p>	<p>MoE (Infrastructure Section), Local and Central Government) CDF and other resources</p> <p>DEBS, Standards Officers at District level and Head teachers</p> <p>MOE (National Science Centre)</p>
09	Lack of Motivation	Effect the “Retention incentive for Science teachers” 2021 Collective agreement. Effective January 2022	MOE-HQ (Human Resource and Administration)

Source: Field Data, 2023

5.10 Integration with Literature Review

Both infrastructure and time allocation challenges identified in the study align with existing literature. The struggles reported by teachers in securing essential resources and the time constraints resonate with the findings of Van Staden and Motsamai (2017) and Hamusunga, Kombe, and Simunchembu (2021). The literature consistently emphasizes the interplay between resources, time, and effective implementation of SBAs.

In addressing infrastructure inadequacies and enhancing time allocation for science lessons is imperative. Without adequate resources and time, the envisioned benefits of SBAs may remain elusive. Policymakers, school administrators, and relevant stakeholders must collaborate to

bridge these gaps, ensuring that SBAs in science contribute meaningfully to the educational landscape in Zambia.

The challenges related to infrastructure and time allocation identified in the study resonate deeply with existing literature on School-Based Assessments (SBAs). The struggles reported by teachers in securing essential resources and the constraints on time allocation echo findings from previous research conducted by Van Staden and Motsamai (2017) and Hamusunga, Kombe, and Simunchembu (2021). These studies consistently underscore the intricate interplay between resources, time, and the effective implementation of SBAs in educational settings.

Addressing infrastructure inadequacies and enhancing time allocation for science lessons is imperative for the meaningful implementation of SBAs. Without adequate resources and sufficient time, the envisioned benefits of SBAs, such as facilitating practical experiments and hands-on learning experiences, may remain elusive. Therefore, policymakers, school administrators, and relevant stakeholders must collaborate to bridge these gaps and create an environment conducive to effective SBA implementation.

The findings of the study shed light on the practical challenges faced by teachers and schools in Zambia, reflecting broader issues that impact the quality of science education delivery. By highlighting the struggles related to infrastructure deficiencies and time constraints, the study underscores the need for targeted interventions and strategic investments in educational resources and facilities. Without addressing these foundational issues, the goals of SBA implementation in science education may be hindered, compromising the overall quality of education in Zambia.

Furthermore, the literature consistently emphasizes the pivotal role of policymakers and school administrators in driving meaningful educational reforms, including the implementation of SBAs. Policymakers and administrators must prioritize resource allocation and time management strategies that support effective teaching and learning practices. By recognizing the importance of infrastructure and time allocation in the SBA process, stakeholders can work collaboratively to develop comprehensive solutions that address these challenges and enhance the educational landscape in Zambia.

In summary, the findings of the study underscore the critical importance of addressing infrastructure inadequacies and enhancing time allocation for science education in Zambia. The challenges identified not only reflect the practical realities faced by educators but also highlight

broader systemic issues that require concerted efforts from policymakers, school administrators, and relevant stakeholders. By acknowledging the relationship between resources, time, and effective SBA implementation, Zambia can take significant strides towards improving the quality and accessibility of science education for all students.

5.11.1 Relationship of the Findings with Theoretical Frameworks

The findings of the study on the implementation of School-Based Assessments in Zambian secondary schools can be analyzed in relation to the two theoretical frameworks employed: Implementation Theory and Stakeholder Theory.

5.11.1.1 Implementation Theory

The exploration of the implementation of School-Based Assessments in Zambian secondary schools illuminates significant insights that closely intertwine with the principles of Implementation Theory. Firstly, the study underscores a notable deficiency in the assessment and evaluation of the SBA policy within Zambia. This gap is pivotal, resonating profoundly with Implementation Theory's core emphasis on structured evaluation mechanisms for policies. Consequently, there arises a compelling need for the establishment of robust monitoring and evaluation mechanisms to rectify these shortcomings.

Moreover, the challenges encountered in the execution of SBAs, including resource constraints, inadequate training, and deviations from recommended practices, echo the foundational principles of Implementation Theory. The theory places a significant emphasis on effective resource allocation, stakeholder engagement, and adherence to established guidelines as crucial pillars for the successful implementation of policies. Thus, the identified challenges underscore the imperative for strategic resource allocation, active engagement of stakeholders, and adherence to prescribed guidelines to surmount obstacles and optimize the implementation process.

The proposed implementation framework designed to address the challenges inherent in School-Based Assessments demonstrate a seamless alignment with Implementation Theory's emphasis on strategic improvements. The recommendation of comprehensive training programs, the implementation of monitoring mechanisms, strategic resource allocation strategies, and initiatives to enhance teacher motivation all reflect the core principles of the theory. These proposed interventions represent a proactive approach to tackling the identified challenges, aiming to create a conducive environment conducive for effective policy

implementation. By strategically implementing these interventions, educational stakeholders can navigate the complexities of SBA implementation with greater efficacy and precision.

Moreover, the findings of the study underscore a profound alignment with the principles espoused by Implementation Theory. The recognition of deficiencies in assessment and evaluation, the identification of challenges in conducting SBAs, and the proposal of strategic interventions collectively underscore the significance of adhering to Implementation Theory's principles for enhancing the effectiveness and reliability of policy implementation processes. By embracing these principles and implementing targeted interventions, Zambia can stride towards the realization of a more robust and sustainable framework for SBA implementation in its secondary schools.

In essence, the study's findings not only underscore the alignment with Implementation Theory but also emphasize the importance of strategic foresight and adaptive measures in the realm of educational policy implementation. By recognizing the intricacies and challenges inherent in SBA implementation, educational stakeholders can proactively engage with Implementation Theory's principles to chart a course towards effective policy execution. Through a nuanced understanding of these principles, Zambia can navigate the evolving landscape of educational policy with agility and resilience, fostering a culture of continuous improvement and innovation within its secondary school system.

Ultimately, the study's insights serve as a clarion call for the integration of Implementation Theory's principles into the fabric of educational policymaking and implementation. By leveraging these principles as guiding beacons, educational stakeholders can forge a path towards greater efficacy, accountability, and sustainability in SBA implementation. Through concerted efforts and strategic initiatives informed by Implementation Theory, Zambia can lay the groundwork for a more equitable, inclusive, and transformative educational landscape, where the benefits of SBA are realized to their fullest potential for the betterment of students, educators, and society at large.

5.11.1.2 Stakeholder Theory

The exploration of the implementation of School-Based Assessments in Zambian secondary schools provides rich insights that resonate deeply with the foundational principles of Stakeholder Theory. Primarily, the study delves comprehensively into the perspectives of various stakeholders involved in the SBA process, including teachers, administrators, parents,

policymakers, and students. This inclusive approach mirrors the core tenets of Stakeholder Theory, which emphasizes the significance of considering the interests and concerns of all relevant parties. By examining the diverse perspectives of stakeholders, the study captures the complex web of relationships and interactions that influence the implementation of SBAs, thus aligning closely with the essence of Stakeholder Theory.

Furthermore, the study underscores the imperative of collaborative efforts among stakeholders to drive improvements in SBA delivery. Stakeholder Theory posits that effective collaboration among diverse stakeholders is essential for enhancing organizational outcomes. The study recognizes the pivotal role of collaboration among teachers, administrators, policymakers, and other stakeholders in addressing challenges and elevating the quality of SBA implementation. This acknowledgment underscores the practical application of Stakeholder Theory's principles in fostering cooperative endeavors aimed at improving educational practices.

Furthermore, Stakeholder Theory advocates for inclusive decision-making processes that prioritize the interests of all stakeholders involved in a particular initiative or endeavor. The study's recommendations for enhancing stakeholder engagement and incorporating diverse perspectives resonate deeply with Stakeholder Theory's emphasis on inclusive decision-making. By promoting inclusive practices, the study aims to ensure that the voices of all stakeholders, including teachers, administrators, parents, policymakers, and students, are not only heard but also valued in the policymaking and implementation processes. Through this approach, the study seeks to foster a sense of ownership and commitment among stakeholders, recognizing their essential roles in shaping the outcomes of SBA implementation in Zambian secondary schools.

In essence, the study's alignment with Stakeholder Theory underscores the significance of recognizing and engaging with the diverse interests and perspectives of stakeholders within the context of SBA implementation. By embracing Stakeholder Theory's principles of inclusivity, collaboration, and stakeholder engagement, the study sets the stage for a more holistic and participatory approach to educational policy and practice. In doing so, it acknowledges that successful policy implementation hinges not only on technical considerations but also on the active involvement and support of those directly affected by the policies. Thus, the study's emphasis on inclusive decision-making reflects a commitment to democratic ideals and participatory governance in the realm of education.

Moreover, by incorporating diverse perspectives and soliciting input from a wide range of stakeholders, the study lays the groundwork for building consensus and fostering collective ownership of the SBA implementation process. In engaging stakeholders as active participants in the policymaking and implementation processes, the study acknowledges the inherent complexity of educational initiatives and the need for collaborative efforts to navigate challenges effectively. By embracing Stakeholder Theory's principles, the study seeks to bridge potential divides and cultivate a shared vision for enhancing SBAs delivery in Zambian secondary schools, ultimately striving for outcomes that reflect the collective aspirations and values of the broader educational community.

Ultimately, the study's alignment with Stakeholder Theory reflects a commitment to democratic principles, transparency, and accountability in educational policymaking and implementation. By championing inclusive decision-making processes and promoting stakeholder engagement, the study contributes to the cultivation of a culture of openness, collaboration, and mutual respect within the educational landscape. Through its adherence to Stakeholder Theory's principles, the study not only advances the discourse on effective SBA implementation but also lays the groundwork for broader initiatives aimed at promoting equity, inclusivity, and social justice in education.

All in all, the study's findings resonate strongly with both Implementation Theory and Stakeholder Theory, offering a comprehensive exploration of the multifaceted dynamics inherent in the implementation of School-Based Assessments in Zambian secondary schools. Challenges encountered in SBA implementation, including resource constraints and deviations from recommended practices, echo Implementation Theory's emphasis on resource allocation, stakeholder engagement, and guideline adherence. By identifying these challenges, the study sheds light on the complexities faced by educators and administrators in translating policies into practical application, providing insights into the intricacies of executing SBA effectively.

Moreover, the proposed interventions align closely with Implementation Theory's principles for strategic improvement. Recommendations such as comprehensive training programs, monitoring mechanisms, and strategic resource allocation reflect the theory's emphasis on targeted solutions aimed at addressing identified challenges. By proposing these interventions, the study aims to bridge the gap between policy aspirations and practical realities, fostering a more conducive environment for successful SBA implementation. Similarly, the exploration of stakeholders' perspectives on SBA resonates with Stakeholder Theory's core principles of

inclusivity and collaborative decision-making. By delving into the viewpoints of teachers, administrators, parents, policymakers, and students, the study acknowledges the diverse interests and concerns shaping the SBA landscape. Recognizing stakeholders as active participants in the implementation process underscores the importance of fostering collaborative efforts and inclusive practices, aligning with Stakeholder Theory's emphasis on collective engagement and shared responsibility. In essence, the study's alignment with both theoretical frameworks provides a comprehensive lens through which to understand the intricacies of SBA implementation in Zambian secondary schools. By elucidating challenges, proposing strategic interventions, and acknowledging stakeholders' perspectives, the study contributes valuable insights to the ongoing discourse on educational policy and practice, fostering enhanced effectiveness and sustainability in SBA delivery.

5.12 Proposed Framework for Implementation SBA Based on Study Findings

In the proposed framework for implementing School-Based Assessments in science education, comprehensive training programs emerge as a foundational component. These programs are designed to equip teachers, school administrators, and education officers with a deep understanding of SBA principles, guidelines, and assessment practices. Through targeted initiatives, participants will receive the necessary knowledge and skills to effectively implement SBAs in their respective roles. Furthermore, ongoing support and professional development opportunities will ensure continuous growth and refinement of SBA implementation strategies.

At the heart of the framework lies the comprehensive review and revision of existing School-Based Assessments guidelines, a pivotal process aimed at optimizing the effectiveness of SBA implementation in science education. This multifaceted examination encompasses critical factors such as the delineation of tasks, assessment criteria, and submission requirements. Through this rigorous review, stakeholders' endeavor to enhance the clarity, relevance, and alignment of SBA guidelines with overarching educational objectives and best practices. By ensuring that guidelines are clearly articulated and purposefully structured, stakeholders can establish a robust framework that serves as a guiding beacon for educators and administrators navigating the complexities of SBA implementation.

The revision of SBA guidelines represents a proactive effort to evolve and adapt assessment practices in response to changing educational landscapes and pedagogical insights. By scrutinizing existing guidelines, stakeholders can identify areas for refinement and

enhancement, streamlining processes to better reflect the dynamic needs of science education. Through this iterative process of review and revision, stakeholders strive to foster alignment between SBA guidelines and emerging educational paradigms, fostering an environment conducive to innovation, flexibility, and continuous improvement. In essence, the review and revision of SBA guidelines serve as a cornerstone for driving positive change and promoting excellence in science education practices.

The framework emphasizes the critical importance of robust monitoring mechanisms to uphold the fidelity and effectiveness of School-Based Assessments implementation. Through the establishment of regular audits, inspections, and evaluations, educational stakeholders can actively assess the quality of SBA practices and ensure adherence to established guidelines and standards. These monitoring activities serve as proactive measures to identify potential areas of improvement and address any deviations from the prescribed protocols, thereby safeguarding the integrity of the assessment process.

Furthermore, by instituting feedback loops for continuous improvement, stakeholders create dynamic channels for ongoing dialogue and collaboration. Feedback mechanisms enable educators and administrators to solicit input from various stakeholders, including teachers, students, and parents, to inform decision-making and refine implementation strategies. By fostering a culture of continuous learning and adaptation, educational institutions can proactively address emerging challenges, optimize resource allocation, and enhance the overall effectiveness of SBA implementation. Through iterative cycles of assessment and improvement, stakeholders can cultivate an environment of accountability and innovation, driving sustained progress and excellence in education.

Validation and standardization of marks constitute a fundamental pillar within the proposed framework, underscoring the importance of ensuring the accuracy and credibility of assessment outcomes. Through the implementation of systematic approaches, stakeholders can enhance the reliability of submitted marks and bolster the integrity of the assessment process. By establishing clear criteria for assessing School-Based Assessments skills, incorporating theory questions, and defining submission windows, educational institutions can maintain consistency and fairness in evaluating students' performance. These measures not only provide educators with a structured framework for assessment but also instill confidence in the reliability of assessment outcomes, fostering trust among stakeholders in the educational system.

Additionally, the implementation of robust validation and standardization mechanisms serves to uphold the quality and rigor of the assessment process, aligning with international best practices and standards. By adhering to clear guidelines and procedures, educational stakeholders ensure that assessment outcomes accurately reflect students' proficiency and mastery of subject matter. Through the incorporation of theory questions and the establishment of submission windows, stakeholders promote transparency and accountability in the assessment process, enhancing the overall credibility of SBA outcomes. Ultimately, by prioritizing validation and standardization, stakeholders demonstrate their commitment to maintaining the highest standards of educational excellence and promoting equitable opportunities for student success.

Within the proposed framework, the allocation of resources emerges as a critical aspect, especially concerning practical subjects such as science. A thorough review of fund allocation policies becomes imperative to guarantee sufficient financial backing for acquiring science equipment, developing laboratory infrastructure, and securing specialized resources. Through increased investment in resources, educational institutions can facilitate practical experiments and hands-on learning experiences, thereby enhancing the overall quality and efficacy of the science education curriculum. By prioritizing resource allocation in this manner, stakeholders demonstrate their commitment to providing students with the necessary tools and facilities to engage meaningfully with scientific concepts and principles.

Moreover, the heightened investment in resources not only addresses immediate needs but also fosters a conducive environment for experiential learning and scientific exploration. By equipping schools with modern science equipment and robust laboratory infrastructure, educational stakeholders empower educators to deliver engaging and impactful practical sessions that inspire curiosity and foster critical thinking skills among students. This enhanced access to resources not only enriches the science education curriculum but also cultivates a culture of inquiry and discovery, positioning students to thrive in an increasingly complex and technology-driven world. Through strategic resource allocation, stakeholders lay the groundwork for a vibrant and dynamic learning environment that nurtures the next generation of scientists and innovators.

Investing in infrastructure stands as a fundamental necessity to rectify current shortcomings and establish an environment conducive to the successful implementation of School-Based Assessments (SBAs). By prioritizing the procurement of science equipment and the

construction or renovation of laboratories, educational institutions can equip themselves with the essential resources needed to facilitate practical experiments and elevate the standard of science education delivery. These strategic investments are pivotal in ensuring that schools have the requisite tools and facilities to support hands-on learning experiences and foster a comprehensive understanding of scientific principles among students.

Furthermore, prioritizing infrastructure enhancements not only addresses existing deficiencies but also lays the foundation for a robust and dynamic learning environment. The acquisition of modern science equipment and the establishment of state-of-the-art laboratories empower educators to conduct engaging and impactful practical sessions that stimulate students' curiosity and enthusiasm for scientific inquiry. By providing schools with the necessary infrastructure, educational stakeholders demonstrate their commitment to promoting experiential learning and fostering a culture of scientific exploration and discovery among students, thereby enriching the overall quality of science education delivery.

Motivation and incentive programs stand as cornerstone elements in cultivating a culture of dedication and engagement among science educators in the educational realm. These initiatives not only acknowledge the invaluable contributions of teachers but also serve as catalysts for instilling a sense of purpose and commitment to delivering quality education. By implementing retention incentives and recognition programs, educational authorities can establish an environment where teachers feel esteemed and recognized for their endeavors in effectively implementing School-Based Assessments.

Further, retention incentives offer tangible benefits that incentivize teachers to maintain their dedication to their profession and the objectives of SBA implementation. These incentives can take various forms, including financial bonuses, opportunities for career advancement, or access to enhanced professional development resources. By providing incentives that resonate with teachers' professional aspirations and personal needs, educational stakeholders demonstrate their unwavering support for educators throughout their career trajectories.

Recognition programs play an equally pivotal role in motivating science teachers to actively engage in the SBA process and strive for excellence in their teaching practices. Publicly acknowledging teachers who exhibit outstanding performance in SBA implementation not only bolsters morale but also sets positive examples for their colleagues. Recognition can manifest through awards, certificates of appreciation, or platforms to showcase best practices at

educational events. Such acknowledgment not only validates teachers' hard work but also inspires them to continually refine their instructional approaches, fostering overall improvement in science education.

In summary, the proposed framework for implementing SBA in science education encompasses comprehensive training, guidelines review, robust monitoring, mark validation, resource allocation, infrastructure investment, and motivation programs. By addressing these critical components, educational stakeholders can establish an enabling environment conducive to effective SBA delivery, ultimately enhancing the quality and relevance of science education in Zambian secondary schools as is shown in the table below.

Figure 5. 1: Proposed Framework for Implementation of SBA Based on proposed interventions

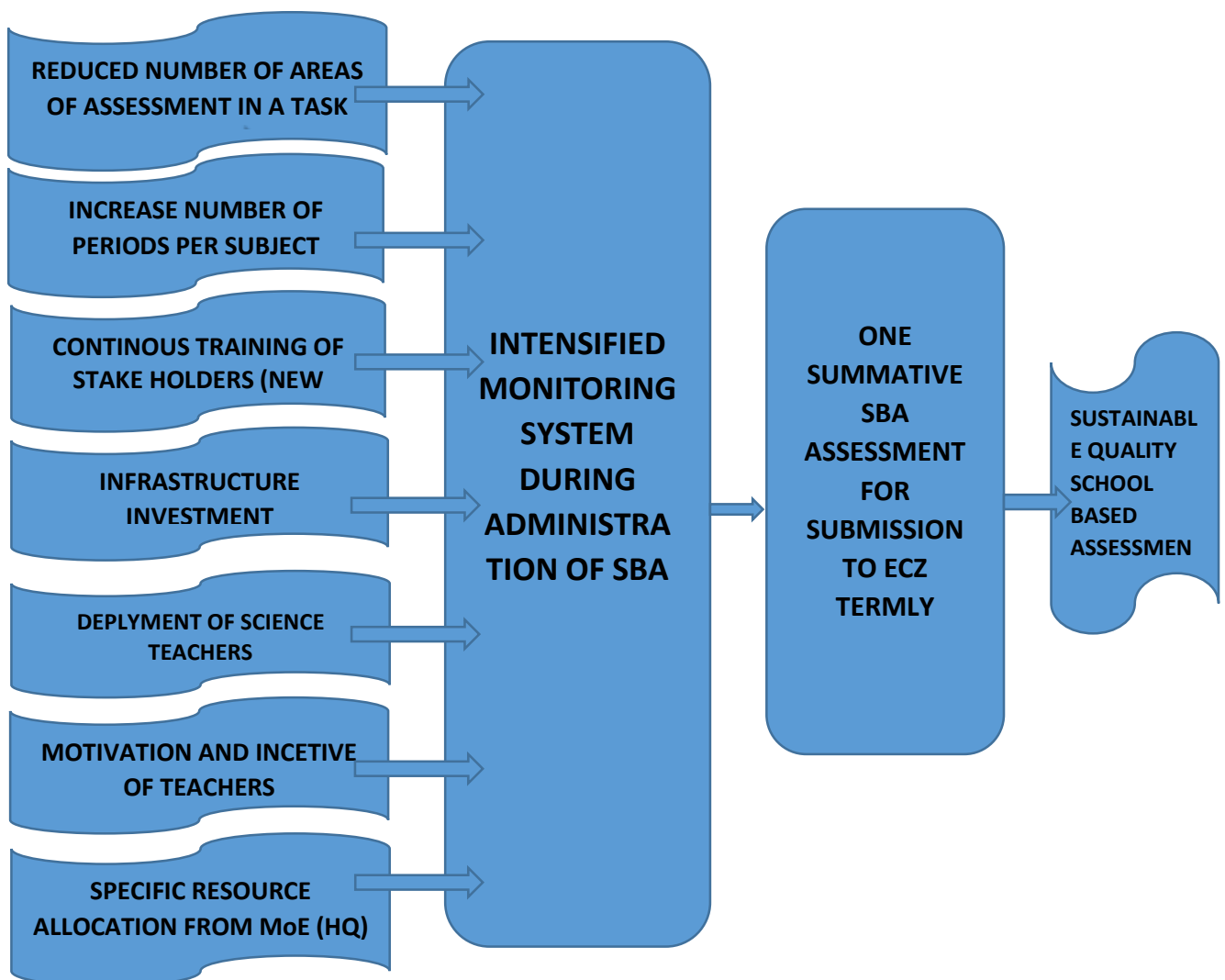


Table 5.2: Action plan for the Proposed Implementation Framework

Components	Description
Comprehensive Training Programs	Implement targeted training initiatives for teachers, school administrators, and education officers to enhance their understanding of SBA principles, guidelines, and assessment practices. Provide on-going support and professional development opportunities.
Review and Revision of Guidelines	Conduct a thorough review of existing SBA guidelines, considering factors such as the number of tasks, assessment criteria, and submission requirements. Revise guidelines to ensure clarity, relevance, and alignment with educational objectives and best practices.
Establishment of Robust Monitoring	Develop robust monitoring mechanisms to ensure adherence to SBA guidelines and standards. Implement regular audits, inspections, and evaluations to assess the quality and effectiveness of SBA implementation. Establish feedback loops for continuous improvement.
Validation and Standardization of Marks	Implement systematic approaches for validating and standardizing submitted marks. Define clear criteria for assessing SBA skills, incorporate theory questions, and establish submission windows to enhance the reliability and credibility of assessment outcomes.
Allocation of Resources	Conduct a comprehensive review of fund allocation policies, with a specific focus on practical subjects like science. Increase the percentage allocation of funds toward the procurement of science equipment, laboratory infrastructure, and specialized resources.
Investment in Infrastructure	Prioritize the acquisition of science equipment and the construction or refurbishment of laboratories to address infrastructure deficiencies. Ensure that schools have adequate resources to facilitate practical experiments and hands-on learning experiences.
Motivation and Incentive Programs	Implement retention incentives and motivation programs for science teachers to enhance their commitment and engagement with SBA. Recognize and reward excellence in SBA implementation, fostering a culture of continuous improvement and dedication to quality education.

This proposed framework emphasizes the importance of comprehensive training, guidelines review, robust monitoring, mark validation, resource allocation, infrastructure investment, and motivation programs in ensuring the successful implementation of SBAs in science education. By addressing these critical components, educational stakeholders can create an enabling environment conducive to effective SBA delivery, ultimately enhancing the quality and relevance of science education in Zambian secondary schools.

5.14 Theoretical Implementation of the Study

The findings are consistent with the conceptual framework above which points to the fact that SBA can contribute to educational quality in sciences. Joshi (2012) and Daka (2019) emphasize the pivotal role of educational quality in elevating and sustaining the standards of teaching and learning within an educational institution. Recognized as a cornerstone, educational quality significantly contributes to the enhanced performance of students. On a global scale, assessment has emerged as a crucial instrument for elevating the standards of education, operating both at systemic levels and in the context of individual student development (UNESCO IIEP Learning Portal, 2015). This recognition underscores the imperative for continuous innovation, exploration, and the implementation of world-class assessment standards. These efforts are indispensable in the pursuit of quality education and the advancement of learning outcomes (UNESCO IIEP Learning Portal, 2015).

In the contemporary educational landscape, the concept of educational quality extends beyond traditional metrics and embraces a multifaceted approach. It encompasses not only the acquisition of knowledge but also the development of critical thinking skills, problem-solving abilities, and a holistic understanding of subject matter. The integration of comprehensive assessment practices aligns with this broader understanding of educational quality. Assessments, when thoughtfully designed and executed, serve as diagnostic tools that illuminate areas of strength and areas needing improvement. This dynamic process facilitates tailored interventions that cater to the diverse learning needs of students, fostering a culture of continuous improvement.

As nations strive for educational excellence, the adoption of assessment practices aligned with global standards becomes imperative. Daka (2019) underscore the need for ongoing efforts to introduce and implement innovative assessment standards that resonate with the evolving landscape of education. This commitment to excellence in assessment contributes significantly

to the realization of quality education, ensuring that learners are equipped with the skills and knowledge necessary for success in an ever-changing world.

Quality education provision stands as the bedrock of any robust and successful education system in a country. The pursuit of improved learning outcomes has prompted the global adoption of various innovative assessment models. Scholars often grapple with the question of which assessment types can yield optimal results. Standard-based assessment, a system that references students' achievement against predetermined standards, emerges as a promising avenue to enhance classroom practices and elevate students' achievement levels (UNESCO IIEP Learning Portal, 2015). The widespread implementation of standardized assessments has played a pivotal role in catalyzing educational reforms across the globe.

Standard-based assessment, often associated with measuring the level of achievement or assessing learning outcomes, has significant implications for monitoring, assessments, and evaluation. Sharma and Priyanka (2015) argue that if the practices of standard-based assessment permeate the classroom, they can act as catalysts for learning improvement. The emphasis on standards not only sets a benchmark for achievement but also provides a framework for on-going assessment, enabling educators to refine teaching strategies in real-time. This dynamic approach holds the potential to create a positive feedback loop wherein assessments contribute actively to the learning process.

The transformative impact of standard-based assessments extends beyond the confines of traditional evaluation. By facilitating continuous learning and improvement, these assessments empower stakeholders to address gaps in the education system effectively. Timely evaluation of learning activities becomes a strategic tool in the arsenal of educators and policymakers. It serves as a valuable source of information that guides decision-making, allowing stakeholders to implement targeted interventions to maintain and enhance the quality of education provision.

The marriage of quality education provision and effective assessments, particularly those grounded in standards, holds the key to fostering a learning environment conducive to holistic student development. As education systems worldwide grapple with the imperative to adapt and innovate, the adoption of School-based assessments emerges as a pragmatic and forward-looking strategy to bridge the gap and sustain the pursuit of educational excellence.

To comprehend educational quality comprehensively, scholars like Grant (2012) and Daka (2019) draw parallels between education and a service industry. This analogy introduces a dual

perspective on quality, encompassing both the production level and the perceptual level. At the production level, the focus shifts to the intricacies of how teaching and learning unfold, encompassing the characteristics of teaching and the intricacies of assessment processes. This multifaceted approach acknowledges the dynamic nature of education, recognizing that quality isn't solely an outcome but a nuanced interplay of instructional methods, teacher attributes, and assessment practices.

The pursuit of educational quality improvement within the school environment necessitates a commitment to continuous initiatives geared toward enhancing the learning experience. Daka (2019) underscores that the evaluation of knowledge, skills, and attitudes, with clear delineation of learning outcomes communicated to students, serves as a pivotal determinant of educational quality. Furthermore, Biggs and Tang (2007) posit that the incorporation of reliable and valid assessment practices contributes significantly to the quality assurance system. Both authors stress the importance of providing learners with feedback on their assessments, a critical element in addressing gaps in teaching and learning while shaping the focus and methodologies employed in the learning process.

The integration of reliable assessment practices, clear learning objectives, and constructive feedback mechanisms forms the bedrock of educational quality improvement. The insights provided by Daka (2019) and Biggs and Tang (2007) converge on the idea that continuous monitoring, transparent communication of learning outcomes, and effective assessment practices collectively contribute to the overarching goal of advancing educational quality. This holistic approach ensures that educational institutions remain dynamic, responsive, and committed to the ongoing enhancement of the learning experience for students.

In the contemporary educational landscape, achieving quality learning involves a multifaceted approach, as elucidated by Daka (2019). One pivotal factor contributing to quality learning is the concept of personalized learning. Farmer (2004) and Daka (2023) characterize personalized learning as a state where no two individuals learn in the same way, and each brings a unique set of prior knowledge to the learning experience. This individualized approach recognizes the diversity in learning styles, aptitudes, and knowledge bases among learners.

5.15 Policy implication of the study

Curriculum and policy changes within the education system represent a continuous learning process for key stakeholders, including school administrators, teachers, and learners. A

comprehensive and clear understanding of these changes, coupled with a well-defined grasp of curriculum dynamics and new policies, is essential for the successful implementation of any reforms or policy shifts. The effectiveness of policy changes relies heavily on the collective knowledge and comprehension of these alterations by policy makers, education leaders, and teachers. Hence, investing in training programs and learning initiatives focused on new reforms and policy changes becomes imperative to ensure the seamless integration of these modifications into the educational landscape.

In the context of the swift implementation of School-Based Assessment in the curriculum without a pilot phase, it may appear as though it is a newly embedded element. However, it is crucial to acknowledge that the foundation for classroom assessments has been enshrined in policy documents since 1977, as previously outlined. Despite this continuity, the introduction of SBA represents a nuanced shift that necessitates targeted training and re-training initiatives for teachers, who serve as the primary implementers of curriculum changes. This emphasis on training aims to equip educators with the necessary skills and insights to navigate the nuances of the SBA, ensuring its effective integration into the broader educational framework.

The acknowledgment of the historical context of policy changes underscores the importance of aligning training programs with the specific requirements of the evolving educational landscape. Training becomes a strategic tool for empowering teachers to adapt to the changing dynamics of curriculum and policy, fostering a culture of continuous learning within the education system. Moreover, recognizing the pivotal role of teachers as implementers reinforces the need for ongoing professional development that addresses the evolving demands of the curriculum.

The implementation of curriculum and policy changes is intricately linked to the learning process undertaken by education stakeholders. Training initiatives play a central role in facilitating the understanding and adoption of new reforms, especially in the case of the rapid integration of SBA into the curriculum. By emphasizing the historical context, acknowledging the role of teachers, and promoting a culture of continuous learning, education systems can navigate transitions effectively and ensure the successful implementation of curriculum and policy changes.

In the context of science teaching, the availability and accessibility of essential resources, such as equipment and materials, play a pivotal role in the success of reform initiatives. Berry

underscores the importance of administrators in ensuring that these resources are readily available to educators. This logistical support is not only critical for the implementation of reforms but also serves as a foundational element for enhancing the overall quality and effectiveness of science education.

It is recognized that teachers occupy a central role in the implementation of any curriculum or educational reform (Lumpe, Czerniak, and Haney, 1999; Bybee, 1993). Their engagement and commitment are fundamental to the success of educational initiatives. The effectiveness of an education system, therefore, heavily depends on the quality of support and resources provided to teachers. By acknowledging the pivotal role of educators, administrators can strategically contribute to the success of reforms by fostering an environment that supports continuous professional development and addresses the specific needs of teachers involved in the implementation of reforms.

The symbiotic relationship between administrators and educators is essential for the success of educational reforms. Berry's argument underscores the importance of administrative support in providing the necessary resources and professional development opportunities for teachers. The collaboration between administrators and teachers is pivotal in shaping the quality and effectiveness of an education system, particularly in the dynamic context of ongoing reforms.

The tradition of testing extended beyond the standardized year-end examinations, with teachers themselves conducting tests and examinations for students. However, the scores derived from these assessments primarily served the purpose of determining students' eligibility for promotion from one class to the next. This approach underscored the predominantly summative nature of assessments within the educational landscape. The historical reliance on end-of-year examinations and the limited utilization of test scores for promotional decisions characterized a testing paradigm that focused more on outcome evaluation than on fostering continuous learning and formative assessment practices.

The persistent reliance on singular year-end examinations has not only been a reporting mechanism but has also shaped the educational culture, emphasizing a summative evaluation approach. This historical backdrop sets the stage for recognizing the need to evolve assessment practices, moving beyond the constraints of traditional testing paradigms toward more dynamic and learner-centric approaches that embrace formative assessment as an integral part of the educational journey.

The traditional testing method, while still prevalent among teachers, is increasingly recognized as an unproductive means of determining academic achievement. This recognition has sparked a considerable body of literature passionately debating the merits and drawbacks of assessment practices in education. Researchers have highlighted various shortcomings and pitfalls associated with testing by teachers, shedding light on the nuanced effects of assessment on teaching and learning. The contention arises from arguments suggesting that testing tends to drive both teachers and students toward performance goals rather than focusing on genuine learning objectives.

Critics, such as Linn (2010), as cited in Adediwura (2012), contend that an increase in scores often reflects the familiarity of teachers and students with test requirements and formats rather than genuine improvements in learning outcomes. This assertion underscores a crucial distinction between the appearance of achievement and its actual substantive advancement. Moreover, the reliance on high-stakes tests has been linked to adverse psychological effects, inducing test anxiety, diminishing motivation, and undermining self-esteem and self-efficacy, particularly among lower-achieving students, as noted by the Assessment Reform Group (2002) and Harlen (2002).

In essence, the effectiveness of learning and assessment is intricately linked to the creativity of teachers, suggesting a need for pre-designed assessments aligned with well-thought-out lesson plans, as emphasized by Mansor et al. (2017). Amidst the debates surrounding traditional testing practices, there is a growing recognition of the need for a shift toward more innovative and learner-centric assessment approaches. This transition calls for a reevaluation of the role of assessments in fostering genuine learning outcomes and the overall quality of education. The dynamics of assessment, as explored in contemporary literature, underline the intricate interplay between testing practices, teaching methodologies, and the broader educational experience.

The conventional practice of relying on one final examination as a primary assessment tool is criticized for its inadequacies in capturing the diverse capabilities and potential of individual learners. The detrimental effects on genuine learning, creativity, and effective teaching underscore the need for a reevaluation of assessment practices to foster a more comprehensive and learner-centric educational environment.

In the annals of Zambian education, historical successes have been achieved, underscored by the significant attention devoted to the educational sector. However, recent times have witnessed a palpable decline in academic performance, particularly evident in public examinations. This alarming trend has sparked widespread public concern and outcry, prompting a call for a systemic overhaul to address the deteriorating standards within the educational landscape. The urgent need for a recalibration toward quality education in the country has driven the introduction and implementation of School-Based Assessments as a strategic intervention aimed at arresting the decline and rejuvenating the educational sector.

The public's vehement expressions of dissatisfaction, especially in response to lackluster performances in national examinations, have served as a clarion call for transformative measures. The pervasive sentiments of disappointment have underscored the imperative for a comprehensive examination of the existing education system. The implementation of SBA is positioned as a proactive and innovative response, reflecting a commitment to resolving the longstanding challenges that have plagued the educational industry in Zambia.

Amidst these educational challenges, the negative consequences of traditional testing practices have come under scrutiny. The pervasive criticism of testing methodologies has triggered a reevaluation of the fundamental purpose and value of assessment within the intricate dynamics of the teaching and learning processes. The recognition of the limitations of conventional testing methods has paved the way for a paradigm shift towards more dynamic and learner-centric assessment approaches, as embodied by the introduction of SBA.

SBA, as a contemporary assessment framework, embodies the principles of continuous evaluation and adaptability, aligning with the evolving needs of education in Zambia. This transformative initiative is propelled by the aspiration to not only measure academic achievement but also foster a holistic and nurturing learning environment. In essence, the introduction of SBA signals a pivotal moment in Zambian education, representing a conscious effort to rejuvenate the sector, elevate educational standards, and position the country's learners for success in an increasingly competitive global landscape.

The implementation of School-Based Assessments emerges as a strategic response to the prevailing challenges and concerns surrounding the quality of education in Zambia. The move towards SBA reflects a commitment to revitalizing the educational landscape, addressing declining standards, and embracing a more dynamic, learner-centric approach to assessment.

The transformative potential of SBA extends beyond mere academic measurements, signaling a paradigm shift towards a comprehensive and empowering educational experience for the nation's learners.

Traditional testing, often standardized and detached from classroom instruction, has been critiqued for its limited alignment with the nuances of effective teaching and learning. The prevailing issues associated with testing, including test anxiety and the impact of prior knowledge, underscore the need for a paradigm shift from a predominant focus on testing toward a more comprehensive emphasis on assessment. This imperative aligns with the recommendations of the Assessment Reform Group (2002), calling for a redirection of attention from testing practices to embrace assessment as a dynamic and effective tool integral to the teaching and learning process.

To address the limitations of conventional testing, a transformative approach centered on "assessment for learning" is advocated. This paradigm places a premium on activities embedded within the classroom environment, fostering a more direct and relevant connection to ongoing instruction. The essence of assessment for learning is rooted in its proactive and participatory nature, encouraging continuous engagement with learners in real-time, as opposed to the more retrospective nature of assessment of learning. This shift signifies a departure from the mere measurement of acquired knowledge towards a more holistic understanding of learners' progress and needs.

5.16 Chapter Summary

This chapter has clearly discussed the findings of the study in detail by offering a nuanced exploration of various dimensions of SBA implementation in Zambian secondary schools. The study identifies disparities among stakeholders, with teachers expressing optimism, while Standards Officers exhibit concerns. The absence of External Examination Council trained setters and markers emerges as a significant hurdle, echoing broader concerns about the lack of capacity among implementers. The temporal and procedural aspects of SBA during teaching and learning time deviate from prescribed guidelines, introducing structural incongruities and hierarchical approaches that compromise the comprehensive execution of SBAs. These findings align with broader contextual challenges exacerbated by the impact of COVID-19, as highlighted in the literature. Comparisons with existing literature reveal congruence with global concerns, emphasizing the universal significance of adequate teacher training and the critical nexus between educators' competence and successful SBA implementation. The

multifaceted challenges identified in the study, including infrastructure deficits, time constraints, and the impact of COVID-19, underscore the intricate interplay of factors influencing assessment practices in the educational landscape.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This thesis aimed to explore the implementation of School-Based Assessments in Sciences in selected Zambian secondary schools, with the overarching goal of formulating an evidence-based implementation framework to sustain the quality administration of SBA in Science. The specific research objectives designed for this purpose were as follows:

Firstly, to determine the extent to which the SBA Policy has been evaluated since its roll out in 2019. Secondly, to assess the administration of SBAs in sciences at secondary level. Thirdly, to establish the challenges that stakeholders are facing in implementing SBA in Science. Lastly, to formulate an evidence based implementation framework that would be used to sustain the quality delivery of SBA in Science.

The main research question that guided the study was focused on understanding how the implementation of School-Based Assessments in Sciences unfolded in selected schools in Zambia. To delve deeper into this overarching question, specific research questions were crafted:

1. Has the SBA Policy been assessed and evaluated since its rollout in 2019?
2. How are School-Based Assessments being administered in schools?
3. What challenges do stakeholders face in implementing SBA in Science?
4. What interventions could be applied to address these challenges and improve the delivery of implementing SBA?

These research questions provided a structured framework to explore the intricacies of SBA implementation in the Zambian context, aiming to uncover insights that would contribute to the development of a robust implementation framework. The methodology involved the use of tools such as questionnaires, in-depth interviews, and Focus Group Discussions to collect relevant data. The study was structured to include conclusive findings (Section 6.2), recommendations (Section 6.3), and suggestions for further research (Section 6.4), aligning with the systematic approach taken in the Investigation of the Implementation of School Based Assessments in Science.

6.2 Conclusion

In the Exploration of the implementation of School-Based Assessments in sciences within selected Zambian Secondary Schools, this comprehensive study uncovered multifaceted insights into the challenges, discrepancies, and potential solutions shaping the landscape of science education. The research objectives sought to investigate the implementation of the SBA policy's status since 2019, examine the administration processes, identify the challenges faced by stakeholders, and propose interventions for improvement.

The study revealed that Examination Reforms on SBA were implemented with good intentions of building capacity in the teachers and skill inculcation in the learners to raise teachers and learners' confidence levels; however no systematic evaluation of the SBA policy has been conducted since its roll out in 2019. The study has shown that, not all the required parameters have been put in place to support effective implementation of SBA. The immediate implementation of SBA policy had come with a lot of challenges, especially to teachers who bear the responsibility to implement it in class and the school administrators who are charged with the responsibility to provide resources.

The study exposed discrepancies in the administration of SBAs, ranging from the prioritization of examination classes to a departure from prescribed guidelines regarding temporal and procedural aspects. The separation of SBAs from regular teaching and learning time, compounded by hierarchical prioritization, poses threats to the comprehensive and standardized execution of SBAs. These findings underline the need for nuanced and adaptable approaches to address the complex interplay of factors influencing assessment practices in the educational landscape.

The challenges faced by schools in implementing SBAs in sciences resonate with existing literature, providing valuable insights into complex issues. Infrastructure deficits, time allocation concerns, and inadequacies in teacher training and proficiency emerged as critical obstacles. The identified challenges not only collaborate with existing literature but also underscore the need for comprehensive solutions, emphasizing the importance of addressing resource constraints, teacher training, and management practices for effective SBA implementation.

Recognizing the challenges, the study proposes targeted interventions, such as comprehensive training programs, addressing absenteeism and staffing issues, reducing the number of tasks and reviewing the guidelines and fund allocation policy documents, and prioritizing the

purchase of science equipment. The proposed interventions provide practical solutions to the challenges identified in the study, aligning with existing literature on the significance of collaborative efforts and teacher motivation. The study proposed effective resource allocation, stakeholder engagement, and adherence to established guidelines as crucial pillars for the successful implementation of policies.

The challenges identified in the study align with existing literature, emphasizing the intricate relationship between resources, time, and effective implementation of SBAs. The integration of findings with literature underscores the importance of collaborative efforts, teacher training, resource allocation, and effective management practices to ensure successful SBA implementation.

6.3 Recommendations

- i. The findings of this study provide a foundation for several targeted recommendations aimed at enhancing the implementation of School-Based Assessments in sciences in selected schools in Zambia. Addressing the identified challenges and disparities is crucial for sustaining the quality delivery of SBAs and fostering positive educational outcomes.
- ii. Firstly, it is imperative that the education authorities and policymakers conduct a comprehensive and systematic assessment and evaluation of the SBA Policy implemented since 2019. The stark gap identified in external monitoring calls for the establishment of a robust evaluation framework, aligning policy objectives with practical implementation. This process should involve continuous feedback mechanisms and external reviews to ensure that policy aspirations are mirrored in the day-to-day realities of science education.
- iii. To tackle the discrepancies in the administration of SBAs, there is a pressing need to revisit the guidelines and procedures governing the assessment processes. The hierarchical prioritization and departure from prescribed guidelines indicate a lack of standardized execution. An intervention involving a review of these guidelines, coupled with training programs for teachers on their implementation, is essential. This approach ensures a more uniform and comprehensive administration of SBAs, fostering reliability and fairness.
- iv. In response to the challenges faced by schools in implementing SBAs in sciences, a multifaceted approach is recommended. Adequate investment in infrastructure, addressing time allocation concerns, and prioritizing teacher training and proficiency are

pivotal. Initiatives to improve infrastructure, such as providing laboratories and necessary apparatus, should be a priority. Simultaneously, time allocation for science periods should be carefully reviewed, ensuring realistic timeframes for effective assessment. Teacher training programs should be comprehensive, covering both the theoretical and practical aspects of SBA implementation.

- v. Furthermore, interventions aimed at addressing absenteeism, low staffing levels, and large class sizes are essential. Strategies involving increased monitoring, supervision, and the deployment of more science teachers are recommended. These interventions align with existing literature, emphasizing the impact of class sizes and staffing levels on educational outcomes. Collaborative efforts and shared experiences contribute to effective SBA implementation.
- vi. Resource allocation policies need a critical review, with a specific emphasis on funding for practical subjects. The creation of a government education fund can provide a sustainable solution to the economic implications of implementing SBAs. Prioritizing the purchase of science equipment and the construction of specialized rooms for practical sessions is integral. Adequate resources are fundamental for effective science education, and addressing these resource-related challenges is essential.
- vii. Motivation plays a pivotal role in the successful implementation of SBAs. In this regard, providing monetary motivation, such as a 10% allowance for teachers handling SBAs, aligns with the broader literature's emphasis on the significance of teacher motivation. Recognizing and rewarding the efforts of teachers involved in the SBA process contributes to sustained inner motivation, fostering a positive environment for effective assessment practices.
- viii. Lastly, effective school management and supervision are critical. Interventions aimed at enhancing content validity, reliability, and credibility of submitted marks should focus on improving management practices. Close monitoring, standardized processes, and effective communication channels within schools can contribute to the success of educational reforms, particularly concerning assessment practices.

The above outlined recommendations, when implemented comprehensively, can contribute to overcoming the identified challenges and fostering a conducive environment for the successful implementation of SBAs in Science in Zambia. The study's insights, coupled with these recommendations, lay the groundwork for informed decision-making and strategic actions that will positively impact science education in the selected schools.

6.4 Recommendations for Further Research

Research in the field of education is inherently open-ended, and exploring possibilities for improvement is crucial for future advancements and enhancements, especially considering that the implementation of School-Based Assessments in Zambia is still in its early stages. Consequently, the following areas are proposed as potential avenues for further research and investigation.

- i. Future research could delve into the long-term impact of School-Based Assessments in sciences on students' academic performance and their transition to higher education or the workforce. Understanding how SBA practices influence educational trajectories beyond the secondary school level would provide valuable insights into the sustainability and effectiveness of this assessment approach.
- ii. A comparative study examining the implementation of SBAs across different subjects within the Zambian educational context would offer a broader perspective. Focusing on the variations and commonalities in the challenges faced, intervention strategies applied, and the overall effectiveness of SBAs in different subject areas could contribute to a more comprehensive understanding of the dynamics involved.
- iii. Investigating the integration of technology in the implementation of SBAs in Sciences could be a promising area for future research. Exploring how digital tools, online platforms, or electronic assessments influence the administration, monitoring, and outcomes of SBAs could provide insights into the potential benefits and challenges associated with technology integration in science education.
- iv. A qualitative study focusing on the perceptions and involvement of various stakeholders, including students, teachers, parents, and policymakers, could enrich the understanding of SBA implementation. Exploring stakeholders' perspectives, concerns, and suggestions could provide a more holistic view of the dynamics shaping the acceptance and effectiveness of SBAs in science education.

These recommended avenues for further research aim to expand on the current study's insights and contribute to the ongoing discourse on the implementation of School-Based Assessments in the Zambian educational context. Each suggestion addresses specific aspects that warrant deeper exploration for a more nuanced understanding and informed decision-making in science education policy and practice.

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APPENDICES

APPENDIX A: QUESTIONNAIRE FOR (LEARNERS)

SR. NO. ----- DATE: ____/____/____

SECTION A: BIO DATA

1. What grade are you? -----

2. What is your age? -----

11-15 [] 15-18 [] 18-21 [] above 21 []

3 Gender Male [] Female []

SECTION B: HOW SCIENCE IS TAUGHT.

4. Do you enjoy learning science?

Yes [] No []

5. Which component of science do you find challenging?

Physics [] Chemistry [] Biology []

6. Do you think it's important to learn science?

Yes [] NO []

7. Give a reason for your answer to question (6) above-----

10. What activities do you have when learning science?

Experiments [] Assignments [] Projects [] Any other -----

11. How are these activities conducted?

Demonstration [] Group Work [] Individual work []

12. How often do you have practicals?

Often [] Very often [] rarely []

13. How many practicals have you done this year? -----

FACTORS THAT CONTRIBUTE TO LOW ACHIEVEMENT LEVELS

14. What teaching and learning materials do you use when learning science?

Books [] Charts [] Chemicals [] Apparatus and material []

15. How often do you use them?

Often [] Very often [] rarely []

16. How would you rate your performance in science?

Very Good [] Good [] Average [] Below Average []

17. Give reasons for your answer in the question above. -----

18. What challenges do you encounter when learning science? -----

19. How do you overcome the challenges you encounter when learning science-----

SECTION C: RECOMMENDATIONS FOR IMPROVEMENT OF SCIENCE

20. Do your teachers help you overcome the challenges you meet when learning science?

Yes [] No [] [if No skip question 21]

21. How do your teachers help you overcome the challenges? -----

22. How best do you think you can learn science? -----

23. What do you think should be done to reduce the difficulties you face when learning science?

24. What measures can be put in place to improve how SBA is conducted? -----

THANKYOU

APPENDIX B: QUESTIONNAIRE FOR SCIENCE TEACHERS

INSTRUCTIONS

- Tick the appropriate answer and write in the space provided.
- Please try as much as possible to be specific. Your truthful and specific answers will highly be appreciated.

SECTION A: PERSONAL INFORMATION

1. What is your age range?

20 -30 years [] 31 -35 years [] 36 -40 years [] 41 -45 years [] 46 -50 years [] 50 -55 years []

2. What is your gender? Male [] Female []

TEACHERS' QUALIFICATIONS

3. What is your highest level of Education? -----

4. What area of science were trained to teach? -----

5. How long have you been teaching science?

(A). Less than a year. (b). 1 to 5 years (c). 6 to 10 years (d) More than 11 years.

6. Have you been trained in conducting SBA? .if yes, who trained you. -----

HOW SBA IS CONDUCTED TO LEARNERS

7. How conversant are you with Zambia's examination reform on School Based Assessment?

8. Do you think it's a good idea to have School Based Assessment rather than national practical examinations? -----

9. Give a reason for your answer.-----

10. How often do you conduct School BA? -----

11. Who prepares school based assessments in your school? -----

12. How do you conduct SBA to the learners?-----

13. Who computes and awards the SBA score in your department-----

14. How useful are the guidelines to the overall administration of school based assessments?

15. Is the period allocated to conduct SBA adequate? -----

16. Give a reason for your answer-----

17. Are School Based Assessments time tabled-----

18. Are School Based Assessments conducted during teaching and learning time or at some other time? -----

CHALLENGES IN CONDUCTING SCHOOL BASED ASSESSMENTS

19. What challenges do you face in conducting School Based Assessments? -----

20. What challenges do learners face when conducting SBA? -----

21. Would you say the learning environment contribute positively to the achievement levels in SBA for learners? Explain -----

23. In your view, what factors do you think affects the administration of SBA in Science?----

24. How do you meet the target in conduction SBA? -----

25. What instructional materials do you use in setting SBA? -----

26. How would you rate the availability of these materials?

(a)Very adequate (b) adequate (c) Not adequate

27. If the learning material is not adequate how do you manage? -----

MEASURES THAT CAN IMPROVE ACHIEVEMENT LEVELS AMONG LEARNERS IN SBA

28. What measures have you put in place to overcome these challenges? -----

29. How best do you think SBA should be conducted among the learners?-----

30. What measures can be put in place if SBA is to serve its intended purpose? -----

THANK YOU FOR YOUR PARTICIPATION.

APPENDIX C: INTERVIEW GUIDE FOR STANDARDS OFFICERS AT DISTRICT AND PROVINCIAL LEVEL

1. What do you understand by school based assessments (SBA)
.....
2. Did you take training for SBA?
3. If yes, for how many days?
4. Who were your trainers?
5. Have you trained teachers in SBA?
6. When did you start training the teachers for SBA?
7. How many teachers did you train?
2019.....
2020.....
2021.....
2022.....
8. Do you provide training for the head teachers also?
9. If yes, for how many days?
10. Do you think that SBA was able to improve the quality of science education in Zambia?.....
11. What measures have you put in place to ensures that SBA are being conducted effectively?.....
12. What measures have you put in place to ensure that the marks submitted are valid?.....
13. What challenges are schools in your Districts/ Province facing in conducting SBA

.....
.....

14. What suggestions would you give to improve the implementation of school based assessments?

.....
.....

15. How are school based assessments records kept in schools in your District/ Province?

.....
.....
.....
.....
.....

APPENDIX D: INTERVIEW GUIDE FOR SCHOOL ADMINISTRATORS AND TEACHERS

1. What do you understand by school based assessments (SBA).....
.....
2. Did you take training for SBA?
3. If yes, for how many days?
4. Who were your trainers?
5. Have your Science teachers been trained in SBA?
6. When did you start training the teachers for SBA?
7. How many Science teachers were trained in your school?
2019.....
2020.....
2021.....
2022.....
8. If yes, for how many days?
9. How are SBA in science conducted in your school.....
.....
10. How often do external monitors monitor SBA in your school?
11. Do you think SBA in Science is a load on schools and teachers?
12. Give reasons for your answer above.....

.....
.....
.....

13. Are the guidelines provided clear on your role as school managers?

14. Give a reason for your
answer.....
.....

15. In what ways has SBA affected the learning of science?
.....
.....
.....

16. How do you ensure that teachers are doing all the activities outlined in the guidelines in
class when they get back to school?
.....
.....

17. What challenges is science department facing in conducting SBA?

.....
.....
.....
.....

18. What suggestions would you give to improve the implementation of school based
assessments in science?

19. How are school based assessments records kept in your school?
.....

20. Is there a monitoring program on SBA, if yes show proof.....

THANK YOU FOR YOUR PARTICIPATION

APPENDIX E: ETHICAL CLEARANCE APPROVAL LETTER



THE UNIVERSITY OF ZAMBIA DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777 Fax: (+260)-211-290
258/253 952 | E-mail: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464
REF NO. HSSREC-2024-FEB-046

3rd April, 2024

Ms. Bwembya Ireen
The University of Zambia

P.O. Box 32379

LUSAKA

Dear Ms. Bwembya

**RE: "EVALUATION OF THE IMPLEMENTATION OF THE SCHOOL BASED
ASSESSMENTS IN SCIENCES IN SELECTED SCHOOLS IN EASTERN PROVINCE
IN ZAMBIA**

Reference is made to your submission of the protocol captioned above. The HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. HSSREC:- 2024- FEB – 046
Approval and Expiry Date	Approval Date: 3 rd April, 2024	Expiry Date: 2 nd April, 2025
Protocol Version and Date	Version - Nil.	2 nd April, 2025
Information Sheet, Consent Forms and Dates	<input type="checkbox"/> English.	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil

Other Study Documents	Questionnaire.	
Number of Participants Approved for Study		

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

CONDITIONS OF APPROVAL

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.
- All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to HSSREC within 5 working days.
- All recruitment materials must be approved by HSSREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled "late submissions" and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.
- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.
- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.

- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.
- A reprint of this letter shall be done at a fee.
- All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,



DR. J. I. Ziwa
CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND
SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE - IRB

CC: Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Assistant Registrar (Research), Directorate of Research and Graduate Studies