

Implementation of Classroom-Based Assessment Feedback Strategies on Enhance Subsequent Lesson Plan Preparation at Secondary Schools in Rombo District, Tanzania

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Abstract:- This study investigated the implementation of classroom-based assessment (CBA) feedback strategies on enhance subsequent lesson plan preparation at Secondary Schools in Rombo District, Tanzania. The study was guided by Reflective Practice Theory introduced by Donald Schon in the 1980s. This study adopted convergent design under a mixed methods approach. Target population of the study was 51 secondary school, 51 Heads of schools, 170 secondary school mathematics teachers, 270 Internal School Quality Assurers (ISQA), 28 Ward Educational Officers (WEO) in Rombo district Council. The study employed probability and non-probability sampling techniques including purposive and simple random sampling techniques. The sample size consisted of 16 secondary schools, 16 heads of schools, 51 mathematics teachers, 8 WEO and 32 ISQA, making a total number of 107 respondents. Research instruments included questionnaires, interview schedules and document analysis schedules. Quantitative data were analyzed by sorting data in frequencies, percentages, and means, with the aid of statistical Package for Social Science (SPSS) version 26. Qualitative data was analyzed through transcribing and contextual analysis. The study found that Classroom based assessment (CBA) feedback strategies had a significant influence on subsequent lesson plan preparation to mathematics teachers in Rombo district council. The study highlighted the crucial role of motivation in mathematics teaching and learning, benefited both teachers and students in creating a conducive learning environment for CBA feedback practices. The study recommended that Mathematics teachers should seek opportunities for professional development workshops focused on reflective feedback in lesson planning. Additionally, mathematics teachers should explore and utilize technology tools for analyzing assessment data, as they

are viewed positively and can contribute to enhanced education and time-saving.

Keywords:- Implementation, Classroom-Based Assessment Feedback, Subsequent and Preparation.

I. INTRODUCTION

Global education systems have undergone significant transformations in recent years, with a growing emphasis on student-centered learning and the integration of assessment as an essential component of the teaching and learning process. Classroom-Based Assessment (CBA) has emerged as a powerful tool to evaluate students' progress, provide timely feedback, and inform subsequent lesson planning (Shrivastava and Shrivastava, 2020). The study conducted by Kukreja and Singh, (2019) emphasized the significant impact of implementing feedback on student performance to bridge the gap between current and desired levels of understanding. Effective feedback strategies within CBA can significantly enhance subsequent lesson plan preparation, resulting in improved educational outcomes (Ion et al., 2019). Regardless, the need for teachers to provide timely, specific, and actionable feedback to enhance learning outcomes there is a great need to investigate the implementation of CBA feedback strategies to enhance the preparation of subsequent lesson plans.

Educational policies In Europe have increasingly emphasized the integration of assessment practices that promote formative feedback. These systems have undergone significant transformations, placing greater emphasis on student-centered learning and the integration of assessment practices (Yang et al., 2021). CBA has gained recognition as an effective approach to evaluate student learning outcomes and provide valuable feedback to both students and teachers. The European educational landscape, represented by

countries such as Finland, Sweden, and the Netherlands, has embraced student-centered approaches where assessments play a pivotal role in informing instruction and enhancing teaching practices (Bjælde et al, 2023). For instance, countries like Finland have implemented comprehensive assessment systems that prioritize feedback and self-assessment as key drivers of student learning (Shrivastava and Shrivastava, 2020). Despite the success of effective CBA feedback strategies attention is calling upon its implementation to enhance subsequent lesson plan preparation particular to mathematic teachers in secondary schools.

Across the African continent, educational systems have been striving to improve learning outcomes through various assessment practices and implementation. While summative assessment has traditionally dominated, there is a growing recognition of the value of formative assessment approaches (UNESCO, 2022). The African Union's Continental Education Strategy for Africa (CESA) 2016-2025 emphasizes the importance of feedback and assessment strategies to implement teaching and learning across the continent (Razzaq et al, 2020). In Sub-Saharan Africa, several countries have embarked on educational reforms to strengthen assessment practices. For instance, Kenya has implemented the Competency-Based Curriculum (CBC), which emphasizes continuous assessment and feedback to support student learning (Das, 2023). This shift highlights the growing acknowledgment of the potential of formative feedback to enhance educational outcomes in the region. However, there is an urgent need to investigate the implementation of CBA feedback strategies as among essential tool of formative assessment that empower mathematic teachers in subsequent lesson plan preparation.

Other countries in East Africa apart from Kenya have made notable strides in educational reforms. Countries such as Uganda and Rwanda have recognized the significance of feedback in the teaching and learning process. Uganda's National Assessment System (UNAS, 2016) focuses on both formative and summative assessment, promoting the use of feedback to improve teaching and learning (Faulconer et al., 2022). Rwanda's Curriculum Based Competence Assessment (CBCA) framework places a strong emphasis on feedback and self-assessment to enhance student achievement (Brooks et al., 2021). Tanzania has also emphasized the importance of effective feedback within the teaching and learning process (BEST, 2021; Kyaruzi et al., 2019). However, educational reforms and quality of education will not avoid CBA feedback strategies on enhance subsequent lesson plan preparation hence there is a need to investigate the strategies mathematics teachers use to utilize CBA feedback on enhance subsequent lesson plan preparation at secondary schools in Rombo District, Tanzania.

CBA feedback practices in Tanzania faces challenges related to educational quality and equity Notably Rombo District Teachers face challenges related to instructional practices and student engagement. The need to improve teaching practices and enhance student learning outcomes is

of paramount importance (John and Mkulu, 2022). Enhancing teachers' pedagogical skills and providing them with evidence-based strategies are crucial for improving educational outcomes. By examining the applicability of CBA feedback strategies in secondary schools in Rombo District, this study aims to contribute to the ongoing educational reforms in Tanzania.

II. LITERATURE REVIEW

Pang, (2022) in Hong Kong China conducted a study aim to investigate teachers' reflective practices in implementing assessment for learning skills in classroom teaching. The study employed a qualitative research design, specifically utilizing interviews and observations to gather data. The target population of the study was teachers who were actively engaged in classroom teaching and involved in implementing assessment for learning skills. The study utilized a purposive sampling technique to select 15 teachers from various educational institutions. The selected teachers were diverse in terms of experience, subject specialization, and grade levels teachers. The sample was a group of 34 teachers from 10 secondary schools and 10 primary schools who have participated in the project. Data collection methods included semi-structured interviews and classroom observations.

The findings of the study revealed several key points. Firstly, teachers demonstrated varying levels of engagement in reflective practices related to assessment for learning skills. Some teachers were highly reflective and actively sought feedback, while others exhibited minimal reflection. Secondly, the study identified a range of factors influencing teachers' reflective practices, including pedagogical beliefs, professional development opportunities, and organizational support. Lastly, the findings highlighted the importance of collaboration among teachers to enhance reflective practices and the effective implementation of assessment for learning skills. The study concluded that teachers' reflective practices play a crucial role in the successful implementation of assessment for learning skills in classroom teaching. The study recommended that educational institutions provide adequate support and resources to foster teachers' reflective practices. Additionally, collaboration among teachers should be encouraged to facilitate knowledge sharing and the development of effective assessment for learning strategies. The former study provides valuable insights for enhancing teaching effectiveness. However, the former study provides insufficient information on the sample, sampling procedure and methodology used in the study were unclear, which raised concerns about the representativeness and generalizability of the findings. Therefore, the current study will employ a convergent design under a mixed method approach to guide the study and generalization of findings.

The study by Malicay, (2023) in Philippines aims to explore the role of reflective practice in shaping and refining teacher preparation programs, ultimately enhancing the quality and effectiveness of education in the 21st century. The study employs a mixed-methods research approach, combining qualitative and quantitative data collection and

analysis methods. The target population of the study is teacher candidates enrolled in teacher preparation programs. The sample consists of respondents who have experienced reflective practice activities as part of their teacher education. Data collection methods include surveys, interviews, and analysis of reflective artifacts. The study reveals that reflective practice activities are prevalent in teacher preparation programs and contribute to the self-awareness and professional growth of teacher candidates. Respondents strongly affirm the positive influence of reflective practice on teaching skills, particularly in classroom management, instructional strategies, and student engagement. The study concludes that reflective practice plays a crucial role in enhancing teacher preparation programs by fostering self-awareness and professional growth among teacher candidates. It highlights the need for standardized integration of reflective practice, professional development initiatives, and long-term impact assessments to maximize its transformative potential. The study recommends that educators, teacher preparation institutions, and policymakers prioritize the integration of reflective practice to elevate the quality of education and better equip educators for the challenges of the future. The former study provides valuable information regarding the role of reflective practice in shaping and refining teacher preparation to enhance the quality and effectiveness of education in the 21st century. However, the current study is different from the former study similarly the environment for recruiting teachers might be different hence there is a great need to investigate strategies implemented by mathematics teachers on CBA feedback on enhance subsequent lesson plan preparation.

Ahmed, (2019) in Qatar conducted the study about An Impactful Strategy That Informs Instructional Practices in English as a Foreign Language (EFL) Writing. The purpose of the study was to explore the use of reflective journaling as a strategy to inform instructional practices in an EFL writing university context in Qatar. The studying area was Qatar, specifically focused on the university context. The targeted population consisted of students in the EFL writing program at the university. The study utilized a qualitative research design and approach. The data collection instrument used was reflective journals written by the students. The findings of the study highlighted the positive impact of reflective journaling on students' language development, motivation, and engagement, as well as its ability to inform instructional practices. The study concluded that incorporating reflective journaling in EFL writing classes can enhance students' learning experiences and recommended its integration into instructional practices in similar contexts. The study by Ahmed, (2019) has major contributions to the current study as it explores the strategies implemented to enhance reflectiveness of CBA feedback on the next lesson plan preparation. However, the approach, sample and sampling procedure used in the study were missing which raises concerns about the representativeness and generalizability of the findings. Without information on how participants were selected, it is difficult to assess the study's external validity.

The study conducted by Lubbe and Botha, (2020) in the USA explores the dimensions of reflective practice from the perspectives of a teacher educator and a nurse educator. The purpose of the study is to examine how these educators perceive and engage in reflective practice. The targeted population consists of teacher educators and nurse educators, and the study's focus area is reflective practice in education and healthcare. The researchers adopted a qualitative approach and employed a phenomenological design to gain an in-depth understanding of the educators' perspectives. Data was collected through individual interviews and analyzed thematically. The findings indicate that both teacher educators and nurse educators' value reflective practice as a means of professional development, self-improvement, and enhancing teaching and learning. The dimensions of reflective practice identified include self-reflection, critical reflection, collaboration, and action-oriented reflection. The study concludes that reflective practice plays a crucial role in educators' professional growth and suggests that institutions should provide support and create opportunities for educators to engage in reflective practice.

The study has a positive contribution to the current study as it gave the basis for the perceptions of the educators and engagement in reflective practice. However, While the findings suggest that both teacher educators and nurse educators' value reflective practice for professional development and enhancing teaching and learning, the environments are quite different with Tanzania indicating the need to investigate the strategies that should be implemented to enhance the Reflectiveness of CBA feedback on next lesson plan preparation in Rombo district.

Razzaq et al., (2020) in Greece conducted a study aimed to examine the effect of immediate feedback on math achievement at the high school level. The study utilized a counterbalanced randomized controlled trial design. Two conditions were compared: first immediate feedback, where students received feedback and hints during computer-based learning tasks, and second practice only, where feedback was provided only after a posttest. Targeted population was tenth and eleventh grade mathematics students at the high school level. The sample of the study included 243 students across 10 classrooms. The data were collected using an online learning platform called ASSISTments, which provided immediate feedback and tutoring. Students were assigned to either the immediate feedback condition or the practice-only condition, and their performance was measured through pretests and posttests. The results indicated that immediate feedback from computer-based learning tasks benefited both high and low prior knowledge students. Low prior knowledge students showed greater gains in math achievement when provided with immediate feedback. The study concluded that immediate feedback in computer-based learning tasks has a positive impact on math achievement, particularly for students with low prior knowledge. The study suggests further investigation into the use of computer-based learning tasks that provide immediate feedback, emphasizing the potential benefits for students with low prior knowledge. The study by Razzaq et al,

(2020) has major contributions to the current study as explore the importance of immediate feedback on student's mathematics achievement. However, the former study was unclear on the strategies used to implement CBA feedback to inform subsequent lesson plan preparation hence the current study will fill this gap in describing the implementation strategies used by mathematics teachers to inform subsequent lesson plan preparation.

Mavumba and Mtitu, (2022) in Dar es Salaam Tanzania conducted a Case study titled "The Use of Learner-centered Approaches in Mathematics Subject at Pugu Secondary School in Ilala District, Tanzania". The study aimed to examine the implementation of learner-centered approaches in teaching mathematics. The targeted population consisted of teachers and students. The data collection techniques employed were interviews, focus group discussions, documentary reviews, and classroom observations.

The study found that both advanced mathematics teachers and students had a positive perception of the use of learner-centered approaches. However, teachers faced challenges in effectively integrating different strategies during lessons, including inadequate lesson planning. The study recommends that school administrators ensure teachers prepare and utilize lesson plans to improve teaching and learning processes. Additionally, it suggests providing regular in-service training to mathematics teachers to enhance their competence in integrating various teaching and learning strategies, aiming to enhance students' achievement in mathematics. The former study provided useful information about the perception of teachers on the use of learner-centered approaches in Tanzania. However, the study highlighted that teachers faced challenges in effectively integrating different strategies during lessons, including inadequate lesson planning. Therefore, the current study will investigate the strategies implemented by teachers to enhance the reflectiveness of CBA feedback on the next lesson plan preparation.

The study conducted by Kavenuke and Muthanna, (2021) focuses on teacher educators' perceptions and challenges regarding the use of critical pedagogy in higher teacher education in Tanzania. The purpose of the study is to investigate the role of critical pedagogy in developing students' critical reflection abilities and to identify the challenges that hinder its effective implementation. The targeted population comprises teacher educators in Tanzania's higher teacher education programs. The researchers employed a qualitative case study design, collecting data through semi-structured interviews and direct classroom observations. The findings reveal that critical pedagogy is crucial for promoting critical reflection among students, but its implementation is hindered by challenges such as crowded classes, lecturing teaching style, the use of English as the language of instruction, unsuitable assessment formats, and a lack of teaching resources.

The study concludes that policymakers and institutional leaders should prioritize the provision of teaching resources and promote the use of critical pedagogy in higher teacher education programs to overcome these challenges. The findings of Kavenuke and Muthanna, (2021) in Tanzania shed light on the importance of critical pedagogy for promoting critical reflection among students. However, the study employed a qualitative case study design guiding the study whereas the current study will employ convergent design under a mixed research approach to guide the study.

III. METHODOLOGY

The research study utilized a convergent design within a mixed-methods research approach. The convergent design involved the simultaneous collection and analysis of qualitative and quantitative data to gain a more comprehensive understanding of the research problem (Creswell & Creswell, 2018). The study focused on a target population consisting of 51 secondary schools, 170 mathematics teachers, 51 heads of schools, and 28 Ward education officers from Rombo District in Kilimanjaro Region. To select the participants, a combination of simple random sampling, systematic sampling, and purposive sampling techniques was employed, resulting in a sample of 16 secondary schools, 51 mathematics teachers, 16 heads of schools, and 8 Ward Educational Officers (Creswell & Creswell, 2018). Data collection involved the use of questionnaires administered to mathematics teachers and heads of schools, interviews conducted to Ward Educational Officers, and the analysis of documents by internal school quality assurers. To ensure the validity of the research instruments, three research experts from Mwenge Catholic University were consulted. A pilot study was conducted from February 21st to 28th, 2024, to assess whether the instruments effectively measured what they were intended to measure and to determine their clarity, accuracy, and comprehensiveness. Reliability testing was carried out using the Cronbach Alpha formula, which yielded reliability coefficients of 0.892 and 0.878 for mathematics teachers and heads of schools, respectively, using Likert scale questions. The collected data were analyzed using descriptive statistics such as mean, frequencies, and percentages. Qualitative data was analyzed through transcribing and contextual analysis. Throughout the research process, ethical considerations were followed, including acknowledging all sources of information from other researchers and respondents.

IV. FINDINGS AND DISCUSSION

The study sought to investigate the implementation of classroom-based assessment (CBA) feedback strategies on enhance subsequent lesson plan preparation at secondary schools in Rombo District, Tanzania. The responses were collected from mathematic teachers (MT) and Heads of schools (HoS) who filled out the questionnaires and Ward Education Officers who field interview guide. Several documents reviewed to check whether schools use assessment feedback to inform subsequent lesson plan

preparation. Such documents for instance lesson plan, students exercise books, presence of subject continuous assessments (CA) and whether mathematics teachers have regular attendance of providing exercise and marking. The responses of mathematic teachers and Heads of schools are presented in the table.

➤ *Responses of Mathematic Teachers (N=51) and Heads of Schools (N=16) on the Implementations of Classroom-Based Assessment Feedback Strategies on Enhance Subsequent Lesson Plan Preparation*

Table 1 Responses of Mathematic Teachers (N=51) and Heads of Schools (N=16) on the Implementations of Classroom-Based Assessment Feedback Strategies on Enhance Subsequent Lesson Plan Preparation

s/n	Statement	CA	SD		D		U		A		SA		Mean Score
			f	%	f	%	f	%	f	%	f	%	
1	The reduction of mathematics teachers work load to reduce the number of teaching periods.	MT					11	21.4	29	57	11	21.6	4
		HoS					8	15.4	33	65	10	19.6	3.88
2	The use of motivation for both teachers and students.	MT					6	11.8	29	57	16	31	3.8
		HoS					11	22	19	37	21	41.2	4.2
3	Encouraging collaborative learning involving content knowledge, students and mathematics teachers.	MT	18	35			5	9.8	11	22	17	33.3	3.18
		HoS					12	24	17	33	22	43.1	4.2
4	Implementing a system for peer observation and feedback on lesson planning incorporating reflective feedback	MT	6	12	17	33			11	22	17	33.3	3.31
		HoS					14	28	20	39	17	33.3	4.06
5	Providing access to technology tools or software that facilitate the analysis of classroom-based assessment data.	MT	18	35	5	10			11	22	17	33.3	3.08
		HoS					17	33	15	29	19	37.4	4.04
6	Engaging in self-reflection activities for teachers to assess their use of feedback in lesson planning.	MT	6	12			5	9.4	29	57	11	21.6	3.76
		HoS			3	6	8	16	29	57	11	21.6	3.94
7	Offering professional development workshops on effective utilization of reflective feedback in mathematics lesson planning.	MT			6	12	17	33	17	33	11	21.6	3.65
		HoS			3	6	8	16	25	49	15	29.4	4.02
8	Influence of peer pressure attract CBA feedback in improving mathematics teaching.	MT	6	12	12	24	11	22	22	43			2.96
		HoS			6	12	12	24	16	31	17	33.3	3.86
9	Providing examples or models of lesson plans that effectively incorporate reflective feedback.	MT	6	12			17	33	28	55			3.31
		HoS	4	7.8			8	16	22	43	17	33.3	3.94
10	The use peer mathematics teaching lesson.	MT	6	12	12	24			22	43	11	21.6	3.39
		HoS					12	24	13	26	26	51	4.27
Grand Mean Score											MT	3.45	
											HoS	4.04	

Source: Field Data (2024)

Key: Category: MT=Mathematics Teachers, HoS=Head of Schools

Choices = SD =Strongly Disagree, D=disagree, U=Undecided, A=Agree, SA=Strongly agree,

Responses: f=frequency, %=percentage, CA=Category

Mean Score Interpretation: 4.30-5.00=Very high, 3.50-4.29=High, 2.70-3.49=Moderate, 1.90-2.69=Low, 1.00-1.89=Very low (Hashim et al., 2022).

Information in table 1 shows that, 88.2% of the mathematics teachers and 75% of the heads of schools indicated to agree and strongly agree that the use of motivation for both mathematics teachers and students during teaching mathematics lessons attract subsequent lesson plan preparations whereas 11.8% of mathematics teachers and 25% of heads of school's undecided to the same statement. The results indicate that mathematics teachers' response is high than heads of schools' because

mathematics teachers struggle to create an environment that fosters engagement, curiosity, and a desire for students to learn. The results are supported by the interview when one of the Ward Education Officer (WEO) was asked to respond on whether motivation for both mathematics teachers and students during teaching mathematics lessons make mathematics teachers use it for subsequent lesson plan preparations. The WEO said that: "Motivation is crucial in mathematics teaching and learning, impacting subsequent lesson planning. When teachers and students are motivated, it fosters engagement, curiosity, and a desire to learn, creating an optimal learning environment" (WEO A: personal communication, 09th April 2024). The Head of School (HoS) added that,

Motivation is crucial for mathematics teachers as it fuels their passion and enables effective teaching. Motivated teachers invest time in well-structured and engaging lesson plans, utilizing innovative strategies and real-life examples. This enthusiasm inspires students, enhancing their

understanding and appreciation of mathematics (HoS B: personal communication, 9th April, 2024).

Another respondent said: *“Motivated students display a positive attitude, active participation, and persistence in problem-solving. They take ownership, ask questions, and seek clarification. Intrinsic motivation fosters better comprehension, retention of mathematical concepts, and a willingness to explore further”* (WEO D: personal communication, 15th April 2024). The information from the respondents indicates that the motivation is a powerful catalyst for effective mathematics teaching and learning. It energizes teachers to create engaging lesson plans and empowers students to actively participate in the learning process. Fostering motivation in both teachers and students, create a positive classroom environment that promotes mathematical understanding, critical thinking, and long-term success in mathematics education. The findings concurred with the study done by Ahmed, (2019) on the positive impact of motivation, and engagement, as well as its ability to inform instructional practices. The findings of Ahmed imply that motivated learners exhibit higher levels of interest, enthusiasm, and persistence in their learning endeavors. Students are more likely to actively seek out information, ask questions, and explore new concepts. This intrinsic motivation drives students to take ownership of their learning process and invest effort in mastering the subject matter.

Data in table 1 shows that, 56.5% of heads of schools and slight majority 55.3% of mathematics teachers indicated to agree and strong agree to the statement that providing access to technology tools or software that facilitate the analysis of classroom-based assessment data and results in subsequent lesson plan preparation whereas minority 44.7% of mathematics teachers indicated to disagree and strong disagree the statement and 43.5% of heads of schools indicated undecided to the same statement. This means that more than half of the mathematics teachers and heads of schools surveyed expressed a positive view towards utilizing technology tools to facilitate the analysis of assessment data and aid in lesson plan preparation. While relatively smaller portion of mathematics teachers held a negative view towards the use of technology tools or software for analyzing assessment data and preparing lesson plans, heads of schools signifies that neither agreed nor disagreed with the idea of utilizing technology tools or software for analyzing assessment data and preparing lesson plans. This finding aligns with Reflective Practice Theory emphasizes the need for clear, specific, and goal-related feedback, which helps teachers assess their performance and make informed decisions. This type of feedback helps teachers gain a deeper understanding of how their current performance aligns with the desired goals and enables them to identify areas for growth and refinement. By receiving clear and relevant feedback, teachers can make informed decisions about their instructional practices and adjust accordingly. Moreover, the theory emphasizes the importance of timely feedback in facilitating immediate reflection and adjustment. By incorporating these principles into the implementation of classroom-based assessment

feedback strategies, mathematics teachers can engage in reflective practice and enhance subsequent lesson plan preparation.

During the in-person interview with the ward education officer, this finding becomes more certainty. The WEO “C” reported: *“I strongly believe that providing access to technology tools or software that facilitate the analysis of classroom-based assessment data is crucial in enhancing the quality of education and improving teaching practices. In today's digital age, technology plays a vital role in transforming various sectors, including education.”* (WEO C: Personal communication. April 12, 2024).

By utilizing technology tools or software for analyzing classroom-based assessment data, educators can gain valuable insights into the performance and progress of their students. This data-driven approach allows teachers to identify areas where students may be struggling, understand their individual needs better, and tailor lesson plans accordingly. It enables educators to make informed decisions and implement targeted interventions to support student learning effectively. (WEO A: Personal communication. April 09, 2024).

The responses from the WEO imply that technology tools and software can streamline the process of analyzing assessment data, saving teachers valuable time and effort. They can automate data collection and analysis, generate visual representations of student performance, and provide comprehensive reports. This have been seen in the documents reviewed since the schools have the tendency of giving the students exercise, weekly or monthly test as well as different assignment and keep record for giving students feedback later. Reflective Practice Theory suggest that reflective practice is a crucial component of the learning process, providing information about the gap between current understanding and desired goals that concur with WEO who agreed that this empowers teachers to identify trends and patterns in student learning, identify areas of improvement, and adjust their teaching strategies accordingly. The use of technological tools in enhancing subsequent lesson plan preparation has been found to align with the student-centered perspective suggested by Kleij (2022) in Australia, which challenges traditional approaches where assessment and feedback are solely teacher-driven practices. Kleij's perspective emphasizes the importance of student agency and active involvement in the assessment process. Furthermore, the integration of technological tools in subsequent lesson plan preparation supports personalized and differentiated instruction. These tools can provide data and analytics that help teachers gain insights into students' individual learning needs and progress. By using technology, teachers can tailor their instruction to meet the specific needs of each student, ensuring a more targeted and effective learning experience.

Data in table 1 shows that, majority 81% of the heads of schools and 78.6% of the mathematics teachers indicated to a agree and strongly agree to the statement that the reduction of mathematics teachers work load to reduce the

number of teaching periods and extreme minority 21.4% of the mathematics teachers indicated to undecided and 18.8% of the heads of schools indicated to disagree to the same statement. Mathematics teachers indicates that the idea of reducing their workload by decreasing the number of teaching periods. These teachers likely believe that a reduced workload would allow them to allocate more time and resources to effectively plan and deliver quality instruction. The data from the heads of schools show that mathematics teachers were favored by reducing their workloads. These school administrators likely recognize the potential benefits of reducing mathematics teacher's workload, such as improved teacher well-being, enhanced instructional quality, and increased opportunities for professional development.

However, a minority of mathematics teachers, implies that a small number of mathematics teachers and heads of schools neither agreed nor disagreed with the idea of reducing their workload. These mathematics teachers and heads of schools may have reservations about the potential impact of reducing teaching periods on their instructional effectiveness or other aspects of their professional responsibilities. Furthermore, by indicating undecided heads of schools as administrators may have concerns about how the workload reduction could impact timetabling, curriculum coverage, or other administrative considerations. The findings also were supported by the study of Mavumba and Mtitu, (2022) who affirm that mathematics teachers and students had a positive perception on the use of learner-centered approaches as the means to inform subsequent lesson plan preparation.

Data from table 1 suggests that, a majority 74.8% of heads of schools and slight majority 54.6% of mathematics teachers agree or strongly agree with the idea of offering professional development workshops on reflective feedback utilization in mathematics lesson planning. However, minority 33% of the mathematics teachers and 25% of the heads of schools indicated to undecided to the same statement whereas 12% of the mathematics teachers indicated to disagree to the same statement. This suggests that a significant portion of mathematics teachers and heads of schools recognized the value of professional development workshops focused on utilizing reflective feedback for mathematics lesson planning. These teachers and heads of schools likely understand the benefits of effective reflective feedback in improving instructional practices and enhancing student learning outcomes. Their agreement aligns with the Reflective Practice Theory, as they acknowledge the importance of feedback and are open to utilizing it to enhance their teaching practices. According to the Reflective Practice Theory, feedback plays a crucial role in promoting learning and improvement. It emphasizes the idea that feedback should be timely, specific, and actionable to be effective. In the context of professional development workshops on reflective feedback utilization in mathematics lesson planning, the theory suggests that feedback can serve as a valuable tool for teachers to enhance their instructional practices and ultimately improve student learning outcomes.

The statement regarding the importance of feedback and its alignment with the Reflective Practice Theory does not directly contradict but rather address different aspects of feedback and assessment practices. The findings of the study conducted by Mjenda et al. (2023) in Tanzania highlighted the limited knowledge and utilization of assessment rubrics among teachers, it does not necessarily negate the significance of feedback or the Reflective Practice Theory. The Reflective Practice Theory emphasizes the importance of feedback for promoting learning and improvement, emphasizing the need for timely, specific, and actionable feedback. This aligns with the notion that feedback can serve as a valuable tool for teachers to enhance their instructional practices and improve student learning outcomes. Although the study by Mjenda et al. focuses on the limited knowledge and utilization of rubrics, it does not undermine the importance of feedback. In fact, using rubrics can be seen as a form of feedback that provides specific criteria for assessing students' performance and identifying learning obstacles. The study emphasizes the significance of utilizing rubrics to make effective teaching and learning adjustments, which can also be considered a form of feedback to drive improvement.

In contrast, a minority of mathematics teachers and heads of schools neither agreed nor disagreed with the idea of offering professional development workshops on reflective feedback utilization. These teachers may have uncertainties about the effectiveness or relevance of such workshops in their specific teaching context. Furthermore, a small number of mathematics teachers held a negative view towards the idea of offering professional development workshops on reflective feedback utilization. These teachers may have different perspectives on the effectiveness of reflective feedback or may prefer alternative approaches to enhancing their lesson planning skills. This response aligns with the Reflective Practice Theory, which acknowledges that not all individuals may immediately embrace or fully understand the value of feedback. It suggests that these teachers and school leaders may require further information or clarification to fully appreciate the benefits of reflective feedback and its potential impact on their teaching practices.

Similarly, a smaller number of heads of schools neither agreed nor disagreed with the idea of offering professional development workshops on reflective feedback utilization. These school administrators may have uncertainties about the logistics or implementation of such workshops. Small number of mathematics teachers 12% expressed disagreement is also in line with the Feedback Loop Theory, as it acknowledges that feedback may not resonate with everyone in the same way. It recognizes the diversity of opinions and the need for individualized approaches to professional development. The findings also were supported by the study of Lubbe & Botha, (2020) who indicated that educators particular mathematics teachers value reflective practice as a means of professional development, self-improvement in the subjects, and informing subsequent lesson plan preparation in secondary schools.

Data in table 1 shows that, a majority 75.3% of the heads of schools and 64.6% of the mathematics teachers indicated to agree and strongly agree to the statement that the use of peer mathematics teaching lessons is among the strategies to inform subsequent lesson plan preparation and extreme minority 25% of the heads of schools neither agree nor disagree the statement. Additionally, a notable proportion of 35.4% of the mathematics teachers indicated to disagree and strongly disagree the same statement. This suggests that a significant portion of mathematics teachers and school leaders recognized the value of using peer mathematics teaching lessons as a strategy to inform their subsequent lesson plan preparation. These teachers and heads of schools likely understand the potential benefits of observing and learning from their peers' teaching practices and collaboration in promoting professional growth and improving instructional techniques, practices and approaches among their mathematics teachers.

On the other hand, a small minority of heads of schools neither agreed nor disagreed with the idea of using peer mathematics teaching lessons as a strategy for subsequent lesson plan preparation. These school administrators may have uncertainties such as lack of training and previous negative experiences about the logistics or implementation of peer teaching strategies or may require further information to form a definitive stance on the matter. Furthermore, a notable number of mathematics teachers indicated their disagreement or strong disagreement with the statement. This suggests that a significant proportion of mathematics teachers held a negative view towards the use of peer mathematics teaching lessons as a strategy for informing subsequent lesson plan preparation. These mathematics teachers have different perspectives like Lack of support or resources, Trust and rapport among colleagues, Pedagogical preferences, and Lack of experience regarding instructional approaches and may not consider peer teaching lessons as an effective or suitable method for their own professional growth. The teachers' perspectives align with the study conducted by Bezerra et al., (2021) in Brazil, which emphasizes the importance of creative feedback in enhancing students' mathematical creativity. The findings of Bezerra implies that lack of support or resources hinder teachers from engaging in peer teaching lessons, as they require additional time, materials, or training. Without adequate support, teachers may not perceive peer teaching as a beneficial approach for their professional growth. Trust and rapport among colleagues play a significant role in the success of peer teaching. If teachers do not have a supportive and collaborative environment where they can feel comfortable sharing their lessons and receiving feedback, they may be less inclined to engage in peer teaching activities.

Data in table 1 demonstrates that, a slight majority 56.5% of heads of schools and 55.3% of the mathematics teachers recognize the value of incorporating self-reflection activities for assessing feedback use in lesson planning by indicated to agree and strongly agree to the statement that Incorporating self-reflection activities for teachers to assess their use of feedback in lesson planning inform subsequent

lesson plan preparation. This suggests that a significant proportion of both teachers and school leaders recognize the importance of incorporating self-reflection activities as a means to assess their use of feedback in lesson planning and improve subsequent lesson plans. These individuals likely understand the value of self-assessment in promoting professional growth and enhancing instructional practices. On the other hand, extreme minority 43% of the heads of schools neither agree nor disagree the statement while 45% of the mathematics teachers indicated to disagreement and strongly disagreement the same statement. This indicates that school leaders may have reservations or uncertainties about the incorporation of self-reflection activities. They believe that motivation can make teachers use CBA practice to inform subsequent lesson plan preparation rather than self-reflection activities.

Furthermore, a notable number of mathematics teachers indicated their disagreement or strong disagreement with the statement 45% mathematics teachers who indicated to disagree and strongly disagree to the same statement hold a negative view towards incorporating self-reflection activities for assessing feedback use in lesson planning. They may have different perspectives on the effectiveness or relevance of self-reflection or prefer alternative approaches to improving their lesson plans. These findings are in line with study conducted by Kavenuke & Muthanna, (2021) who revealed critical pedagogy is crucial for promoting critical reflection among students, but its implementation is hindered by challenges such as crowded classes, lecturing teaching style, the use of English as the language of instruction, unsuitable assessment formats, and a lack of teaching resources. This imply that there are strategies that may be affected based on the nature of the classroom and number of students in the classroom. Administrators should engage in open dialogue with these mathematics teachers and students for better understand their concerns and explore alternative strategies that align with their needs.

Data in table 1 shows that, a majority 75.5% of the heads of schools and slight majority 55.3% of the mathematics teachers indicated to agree and strongly agree to the statement that providing examples or models of lesson plans that effectively incorporate reflective feedback inform subsequent lesson plan preparation and extreme minority 9.8% of the mathematics teachers and 25% of the heads of schools neither agree nor disagree the statement whereas 12% mathematics teachers and none of the heads of schools indicated to strong disagree to the same statement. This indicates that these mathematics teachers and heads of schools recognize the value of having access to examples or models of lesson plans that effectively incorporate reflective feedback. Mathematic teachers affirm that studying and analyzing these examples can provide practical guidance and insights for improving their own lesson planning process. By incorporating reflective feedback, these teachers aim to enhance their instructional practices and promote student learning. The teachers' acknowledgment of the value of examples or models in lesson planning aligns with the Reflective Practice Theory, as it signifies their willingness to engage in a reflective practice. They are receptive to

receiving feedback in the form of examples and using that information to adjust their lesson plans, thereby closing the reflective practice and fostering improvement.

On the other hands heads of schools contends that, offering these resources, they can support their teachers in improving their instructional practices and fostering a culture of reflection and continuous improvement within the school. These heads of schools likely prioritize professional development and aim to create a supportive environment for teacher growth. This demonstrates their understanding of the feedback loop process at the organizational level, where feedback is provided to teachers, and adjustments are made to improve teaching practices. In contrast, a small percentage of mathematics teachers and heads of schools indicates that, they may have uncertainties about the practicality of using examples or models in lesson planning. They may require more information or clarification to make an informed decision. Furthermore, a notable proportion of mathematics teachers hold a negative view toward providing examples or models of lesson plans that incorporate reflective feedback. They may have different perspectives on the effectiveness or relevance of using examples in their lesson planning process or prefer alternative approaches to inform their preparations. These individuals may be less inclined to engage in the feedback loop process, potentially hindering their ability to benefit from the feedback provided through examples or models. The willingness to receive feedback, adjust based on that feedback, and prioritize continuous improvement in instructional practices are all indicative of an understanding and appreciation of the feedback loop process.

Majority of mathematics teachers and heads of schools agree or strongly agree that providing examples or models of lesson plans incorporating reflective feedback informs subsequent lesson plan preparation. This indicates that these individuals recognize the value of having access to such examples or models and acknowledge their potential to enhance instructional practices. The teachers' acknowledgment of the value of examples or models in lesson planning reflects their willingness to engage in reflective practice, which aligns with the Feedback Loop Theory. By studying and analyzing these examples, they seek practical guidance and insights to improve their own lesson planning process. This demonstrates their receptiveness to feedback and their intention to use it to adjust their teaching strategies and promote student learning. The heads of schools recognize that offering these resources can support teachers in improving their instructional practices and foster a culture of reflection and continuous improvement. This understanding aligns with the feedback loop process, where feedback is provided to teachers, and adjustments are made to enhance teaching practices. Therefore, the willingness to receive feedback, adjust subsequent lesson planning based on that feedback, and prioritize continuous improvement in instructional practices reflects an understanding and appreciation of the feedback loop process, as advocated by the Feedback Loop Theory.

Data in Table 1 show that a moderate 43% of the mathematics teachers and a slight majority 56.5% of the heads of schools indicated to agree and strongly agree to the statement that peer pressure has Influence on the mathematics subject that attract CBA feedback in improving mathematics teaching. This suggests that these teachers and heads of schools acknowledge the influence of peer pressure on the mathematics subject in attracting CBA feedback. They recognize that when their peers engage in providing feedback and sharing insights related to mathematics teaching, it can create an environment of collaboration and motivation. Peer pressure in this context refers to the positive influence of colleagues encouraging each other to actively participate in CBA feedback processes, which can lead to improved mathematics teaching practices. In contrast, extreme minority 22% of the mathematics teachers and 25% of the heads of schools neither agree nor disagree the statement. This group may have uncertainties like anxiety, self-doubt, and disengagement about the influence of peer pressure on attracting CBA feedback for improving mathematics teaching.

Additionally, a notable proportion of 35% of the mathematics teachers and 18.8% of the heads of schools indicated to disagree and strongly disagree the same statement. Furthermore, a notable proportion of mathematics teachers and heads of schools hold a negative view regarding the influence of peer pressure on attracting CBA feedback for improving mathematics teaching. They may have concerns about the potential negative aspects of peer pressure or believe that other factors, such as personal reflection or external professional development, have a more significant impact on their teaching practices. During the in-person interview with the ward education officer, this finding concurs with mathematic teachers and heads of school by affirm that, *“Mathematics is often perceived as a difficult subject by both students and parents. This perception can create a challenging learning environment where students may feel discouraged or lack confidence in their mathematical abilities. As a result, teachers may also face difficulties in effectively teaching the subject and providing appropriate feedback”* (WEO F: Personal communication, April 21, 2024).

Mathematics is often perceived as a difficult subject by both students and parents. This perception can create a challenging learning environment where students may feel discouraged or lack confidence in their mathematical abilities. As a result, teachers may also face difficulties in effectively teaching the subject and providing appropriate feedback (WEO B: Personal communication, April 10, 2024).

During the in-person interview with the Ward Education Officer, this finding becomes more deceptive. The WEO “E” reported: *it is important to recognize that peer pressure can have both positive and negative effects on students' attitudes and performance in any subject, including mathematics* (WEO E: Personal communication. April 20, 2024). When it comes to a difficult subject like mathematics, negative peer pressure can exacerbate feelings

of anxiety, self-doubt, and disengagement among students. It may contribute to a culture where students are afraid to ask questions or seek help, fearing judgment or ridicule from their peers.

Another WEO affirm that, *As the WEO, it is my responsibility to promote an environment where students feel motivated, confident, and supported in their mathematics learning journey. By addressing the influence of peer pressure and implementing these strategies, we can help students overcome the perception of mathematics as a difficult subject and create a more positive and effective learning experience for all* (WEO G: Personal communication, 22 April, 2024).

Head of school reported that *“peer pressure can indeed have an influence on the mathematics subject and the attraction of CBA feedback to improve mathematics teaching”* (HoS of school G, Personal comments, April 16th, 2024). When students observe their peers actively engaging in mathematics, participating in CBA feedback processes, and showcasing improvement, it can create a positive peer pressure environment.

Mathematics teachers agreed with the heads of schools that *“encourage students to view mathematics as a subject that requires effort and perseverance, rather than innate talent”*. Emphasize the importance of learning from mistakes and embracing challenges as opportunities for growth. This positive peer pressure can motivate other students to get involved, seek feedback, and strive for improvement in their own mathematical skills.

The information from mathematics teachers, heads of schools, and WEOs imply the need for a holistic approach to address the negative perception of mathematics by promoting a growth mindset and emphasizing effort and perseverance over innate talent. On top of that strategies should be implemented to help students overcome their anxiety, self-doubt, and disengagement in mathematics. Additionally, creating a supportive and motivating learning environment is crucial for students to develop confidence in their mathematical abilities. Moreover, Positive peer pressure, where students observe their peers actively engaging in mathematics, participating in feedback processes, and showcasing improvement, can motivate other students to get involved and strive for improvement. Furthermore, collaboration between heads of schools, WEOs, and teachers is essential to create a cohesive approach to support students' mathematical learning and growth.

Data from the table 4.7 indicates that, high agree 4.04 grand mean scores for heads of schools and moderately agree 3.45 grand mean scores for mathematics teacher's knowledge the strategies to inform subsequent lesson plan preparation. This suggests that, on average, mathematics teachers recognize the value and benefits of utilizing peer mathematics teaching lessons as a strategy to inform their subsequent lesson planning. While there is a notable proportion of mathematics teachers who expressed

disagreement or strong disagreement, the overall average score still leans towards agreement. On the other hand, heads of schools indicate a high level of agreement among school leaders regarding the use of peer mathematics teaching lessons as a strategy for subsequent lesson plan preparation. The majority of heads of schools in the sample strongly agree or agree with the statement, suggesting that they recognize the importance and potential benefits of incorporating peer teaching practices in their schools.

In the analysis of documents, it was seen that *both mathematics teachers and heads of schools acknowledge the value and benefits of Using scheme of work, lesson plan and lesson note in preparation for teaching and learning. Document indicated that majority of the mathematics teachers use feedback in the subsequent lesson planning preparations for instance in doing corrections of the previous lessons, introductions which initiate the knowledge of the past lesson are some of the useful strategies that can positively impact the quality of next lesson plans, as it allows teachers to incorporate effective teaching techniques and approaches learned from observing their peers* (School C: Reviewed documents, April 12, 2024). These findings highlight that, in general, both mathematics teachers and heads of schools in the district acknowledge different strategies in mathematics teaching lessons to inform subsequent lesson plan preparation. The higher agreement level among heads of schools may indicate their role in promoting and facilitating the implementation of peer teaching practices within their schools.

The study indicated that motivation plays a crucial role in mathematics teaching and learning, with both teachers and students benefiting from a motivated learning environment. Mathematics teachers recognize the positive impact of motivation on lesson planning, while heads of schools are slightly less in agreement. Technology tools for analyzing assessment data are viewed positively by teachers and heads of schools, as they believe it enhances education and saves time. Reducing mathematics teachers' workload is favored by many mathematics teachers, although questioning the favour given to mathematics teachers such attending supervisions of examinations like form two, form four and form six. Professional development workshops on reflective feedback in lesson planning are valued, but a minority disagrees. Peer mathematics teaching lessons are recognized as beneficial, although some teachers hold negative views. Incorporating self-reflection activities is valued, but there are reservations. Access to examples of lesson plans incorporating reflective feedback is seen as valuable, but uncertainties exist. These findings emphasize the importance of motivation, technology integration, workload reduction, professional development, collaboration, and access to resources in enhancing mathematics teaching and learning.

V. CONCLUSION OF THE STUDY

Based on the findings the study highlighted the crucial role of motivation in mathematics teaching and learning, benefited both teachers and students in creating a conducive

learning environment for CBA feedback practices. While mathematics teachers acknowledged the positive impact of motivation on lesson planning, heads of schools show slightly less agreement. The study also highlighted a positive perception of technology tools for analyzing assessment data, as they believed to enhance education and save time, according to teachers and heads of schools. Many mathematics teachers favor reducing their workload, although there are concerns regarding attending supervisions of examinations like form two, form four, and form six. Professional development workshops focusing on reflective feedback in lesson planning are valued, although a minority expressing disagreement. Peer mathematics teaching lessons are recognized as beneficial, although some teachers hold negative views. Incorporating self-reflection activities is valued, although reservations exist. Access to examples of lesson plans incorporating reflective feedback is seen as valuable, but uncertainties persist. The study underscored the importance of motivation, technology integration, workload reduction, professional development, collaboration, and access to resources in enhancing mathematics teaching and learning. Addressing these factors will contribute to creating a supportive and effective learning environment that caters to the needs and expectations of all stakeholders involved in mathematics education.

RECOMMENDATION FOR ACTION

Based on the findings the study recommended that Mathematics teachers should seek opportunities for professional development workshops focused on reflective feedback in lesson planning. Additionally, mathematics teachers should explore and utilize technology tools for analyzing assessment data, as they are viewed positively and can contribute to enhanced education and time-saving. Heads of schools should prioritize creating a motivated learning environment for mathematics teaching and learning. Recognizing the positive impact of motivation on lesson planning, heads of schools should provide support and resources to promote a motivating atmosphere in mathematics classrooms. Wards educational officers should focus on facilitating access to resources and examples of lesson plans that incorporate reflective feedback in mathematics teaching. By providing mathematics teachers with access to such resources, officers can support their professional development and enable them to implement effective reflective practices in their lesson planning.

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