NJDRS
CDRD

Nepalese Journal of Development and Rural Studies, Vol. 21 (1), 2024
ISSN: 2392-4403 (Print)
ISSN: 3021-9884 (Online)

A Peer-Reviewed, Open Access Journal, Index in NepJOL

[ORIGINAL RESEARCH ARTICLE]

Internal Assessment of Students in Mathematics at the Basic Level: Teachers' Perspectives

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Article History

Received: August 07, 2024
Accepted: September 21, 2024
Published: December 31, 2024

How to Cite

Sharma, B. Gnawali, Y. P. (2024). Internal assessment of students in mathematics at the basic level: Teachers' perspectives. *Nepalese Journal of Development and Rural Studies, 21*(1), 72-86. https://doi.org/10.3126/njdrs.v21i01.80377

Online Access

DOI: https://doi.org/10.3126/njdrs.v21i01.80377
Website: https://www.nepjol.info/index.php/njdrs
Email: info@cdrd.tu.edu.np

Abstract

This study explores the internal assessment system in basic school-level mathematics from the perspectives of teachers, with the primary aim of evaluating how internal assessments are conducted and their alignment with actual classroom practices. Utilizing a quantitative research methodology within a survey design, data were collected from 80 mathematics teachers across 40 schools. Grounded in the post-positivist paradigm, the study adhered to the assumptions of a single social reality, objectivity, and a value-free axiology. For data analysis, Cronbach's alpha was employed to assess the reliability of the research instruments, Exploratory Factor Analysis (EFA) was used to identify underlying dimensions, one-sample t-tests were applied to determine agreement or disagreement with key statements, and Cohen's d was used to interpret effect sizes.

The findings revealed that internal assessment practices are largely focused on assigning numerical grades to enhancement student results rather than fostering for learning. Teachers reported difficulties in maintaining systematic records of internal assessments. Despite the clarity of the policy, its guidelines were not consistently followed in actual classroom settings. The study emphasized the urgent need for capacity-building training programs aimed at enhancing teachers' understanding and competencies in implementing internal assessments as meaningful tools for improving student learning, rather than as mere administrative formalities.

Keywords: Internal assessment, effectiveness, subjectivity, immediate, constructive, feedback

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Introduction

The term assessment refers to the process of gathering, interpreting, and using information to make informed decisions about learners' knowledge, skills, attitudes, and performance (Black & Wiliam, 1998). It is a fundamental part of the teaching and learning process for the students' evaluation. In education, assessment encompasses a broad range of methods and tools that educators utilize to assess, measure, and record students' academic preparedness, learning progress, skill development, and educational requirements (Linn & Miller 2011). Student assessment plays a vital role in the teaching-learning process within the formal education system. Assessment should be an essential component of the teaching-learning process (Azmi & Kankarej, 2015; Darling-Hammond, 2006).

It should include both formative and summative approaches to evaluate students' learning effectively. The primary aim of formative assessment is to enhance and support learning. This type of assessment can involve both formal and informal strategies (Mogboh & Okoye, 2019). Tools for formative assessment may include classroom activities and tasks, observing students' work and behavior, assigning homework, engaging in project work, administering oral and written tests, conducting unit and trimester exams, and incorporating self and peer assessments (Clark, 2010).

Formative assessment is often poorly understood by teachers and tends to be implemented weakly in actual classroom settings (Black & Wiliam, 2009). Its effective use is heavily influenced by broader national or local policies related to certification and accountability, which can shape teachers' assessment practices. Moreover, successfully integrating formative assessment into teaching requires profound changes in how teachers perceive their roles in relation to students, as well as significant adjustments in their everyday classroom practices (Black & Wiliam, 1998; Black & Wiliam, 2018). On the other hand, summative assessment is used to measure students' overall learning achievement. It involves gathering, evaluating, analyzing, and recording students' progress through a range of assessment methods, tools, and strategies. Schools utilize various assessment techniques, including oral tests, written exams, practical assessments, project work, group activities, and other non-traditional methods (Narayan et al., 2014).

Internal Assessment System in Nepal

Internal assessment holds significant importance in making the mathematics curriculum for grades 6 to 8 more meaningful, effective, and learner-centered (Curriculum Development Center, 2020). It serves as a continuous and integral part of the teaching-learning process, allowing teachers to monitor students' progress in real time and adjust instructional strategies accordingly (Dahal, 2019). Through formative approaches such as classwork observation, project work, quizzes, oral and written tasks, self and peer evaluations, and unit tests, internal assessment not only helps identify students' strengths and weaknesses but also encourages active engagement and deeper understanding of mathematical concepts (Dhakal, 2019; Saud et al., 2024). This ongoing evaluation supports the development of essential 21st-century skills such as critical thinking, logical reasoning, and problem-solving by providing timely feedback and opportunities for improvement (Muchlis et al., 2020).

The internal assessment system of Class Eight Mathematics in Nepal, as outlined by the Curriculum Development Centre (CDC), focuses on continuous, formative evaluation aligned with the national curriculum (Curriculum Development Center, 2020). This system is designed to assess not only students' mathematical knowledge but also their skills in reasoning, application, and problem-solving. The internal assessment holds a 50% weight of the total evaluation and complements the 50% weight of the final written examination (Curriculum Development Center, 2020). The purpose of the internal assessment is to ensure a balanced evaluation that promotes competency-based learning and encourages students' active participation in the classroom (Torres, 2019). In this context, teachers are guided to assess students through various tools such as class tests, homework, project work, practical activities, oral questions, and class participation (Shah, 2021).

The outlines of the structure of internal assessment of class eight mathematics are given 50% marks in internal assessment, which is based on the national curriculum guidelines. It highlights that internal evaluation is part of decision-oriented assessment (Moyosore, 2015), which includes class participation, trimester exams, and project or practical work (Njiru, 2015). These components collectively measure students' performance and provide constructive feedback aimed at improving their learning outcomes (Karki, 2021). The internal assessment holds a weightage of 50 marks out of the total, emphasizing its significance in the overall evaluation process.

The assessment is divided into three main areas: class participation and attendance (4 marks), performance in trimester exams (10 marks), and project or practical work (36 marks). Among these, the largest share is allocated to project and practical work, reflecting the curriculum's emphasis on handson learning and the application of mathematical knowledge in real-life or creative contexts. This structure encourages students not only to be present and actively participate in classroom activities but also to demonstrate their understanding through meaningful assignments (Özcan & Kurtuluş, 2023).

Overall, this internal assessment system is designed to support a more student-centered and process-oriented approach to mathematics teaching. By integrating continuous assessment methods and practical tasks, it aims to enhance both teaching quality and student learning (Lock & Munby, 2000). Teachers are encouraged to use the results of internal assessments to diagnose learning gaps and to modify their instructional strategies for better educational outcomes (Gardner, 2010).

Despite its well-intended design, the internal assessment system faces implementation challenges, especially in under-resourced schools (Mwita, 2023). Teachers may struggle with large class sizes, lack of training, or limited time to design and evaluate creative assessments. To overcome these issues, continuous professional development of teachers, the use of standardized assessment formats, and supportive monitoring by school leadership and local education units are recommended. Strengthening the internal assessment system will contribute significantly to improving the quality of mathematics education and students' achievement at the basic level (Holmes, 2011).

Theoretical Review

The theoretical review of the internal assessment system in Class Eight Mathematics can be framed around five key dimensions. *Continuous and Comprehensive Evaluation (CCE)* focuses on assessing students regularly through diverse tools to capture their holistic development, moving beyond a sole reliance on final examinations. This method contributes to *Reducing Exam Pressure* by spreading assessment activities throughout the academic year, thus easing student anxiety. Moreover, *Immediate and Constructive Feedback* enables teachers to promptly identify students' learning gaps and tailor instruction to support academic progress. Despite these advantages, the system faces challenges, particularly regarding *Subjectivity,* as assessments may be influenced by individual teacher biases or inconsistencies. Furthermore, there are growing concerns about the increased *Workload for Teachers and the lack of Standardization* and uniformity in internal assessment practices across different schools, which can undermine fairness and the credibility of the evaluation process which are given below.

Continuous and Comprehensive Evaluation

Continuous and Comprehensive Evaluation (CCE) at the basic education level refers to an assessment system that emphasizes the overall development of students through regular evaluation (Byrd & Alexander, 2020). It focuses not only on academic progress but also on co-scholastic aspects such as life skills, attitudes, values, and participation in co-curricular activities. The evaluation is continuous, meaning it is conducted throughout the academic year using various methods like assignments, projects, quizzes, and classroom participation to monitor student learning and provide timely feedback. It is also comprehensive, covering both scholastic areas like mathematics, creative skills (Zhao et al., 2021). CCE includes both formative assessment, which is diagnostic and helps in learning improvement during the process, and summative assessment, which evaluates overall learning at the end of a term. This child-centered and activity-based approach encourages active learning and reduces exam-related stress, promoting meaningful feedback and individual growth over mere academic comparison.

Continuous and Comprehensive Evaluation (CCE) is an approach that aims to assess students' progress in a complete manner, covering both academic and non-academic aspects of learning (Walde, 2016). In the context of subjects like sets, geometry, algebra, mensuration, and statistics, CCE encourages regular and varied forms of assessment to monitor students' understanding and skills over time. For the topic sets, it can include assessing students' ability to define and represent different types of sets, union and intersection of sets and their Venn diagram and for geometry, evaluating their comprehension of shapes, properties, and theorems. In algebra, assessments may focus on solving equations, simplifying expressions, and applying concepts in real-world situations. For mensuration, evaluations can include tasks involving calculations of area, volume, and surface area, while in statistics, students can be assessed on their ability to collect, organize, and interpret data, as well as apply statistical methods to solve problems (Kadau & Mallya, 2023). By integrating both formative and summative assessments, CCE ensures that students receive comprehensive feedback, promoting deeper learning and continuous improvement in these mathematical areas.

Continuous and Comprehensive Evaluation (CCE) at the basic education level offers several strengths in classroom practices. It supports the holistic development of students by evaluating both academic performance and co-scholastic aspects such as life skills, attitudes, values, and participation in co-curricular activities (Kapambwe, 2010). By incorporating continuous assessment throughout the academic year, CCE reduces the stress associated with traditional high-stakes examinations and creates a more student-friendly learning environment. It encourages active, child-centered, and activity-based learning, allowing students to engage more deeply with the content.

Teachers receive regular feedback on students' progress, enabling them to identify learning gaps early and provide timely remedial support. CCE also promotes individualized learning by tracking each student's growth over time and adapting instruction to meet diverse needs (Pennycuick, 2012). Furthermore, it enhances classroom practices by encouraging the use of diverse assessment tools like group activities, projects, oral presentations, and peer assessments. This approach not only improves teaching effectiveness but also cultivates essential life skills such as teamwork, leadership, and communication, making education more inclusive and meaningful.

Reduces Exam Pressure

Reduces Exam Pressure in the context of the internal assessment system refers to the strategy of evaluating students through continuous and varied assessments rather than depending solely on a final, high-stakes examination (Putwain, 2009). This approach helps distribute the evaluation load across multiple activities such as class tests, homework, project work, and classroom participation. Internal assessment system reduces exam pressure primarily through the use of internal assessments conducted regularly throughout the academic year. Instead of relying solely on one-time final examinations, CCE emphasizes formative assessments such as class tests, quizzes, projects, assignments, and classroom participation. These internal assessments help distribute the evaluation load evenly, making the process less stressful for students (Mohan, 2023). By focusing on continuous observation and regular feedback, internal assessments under CCE allow students to improve gradually, build confidence, and engage in learning without the fear of a single high-stakes exam determining their overall performance (Ghaleb, 2024).

Implementing an internal assessment system in Grade Eight mathematics covering topics such as Set, Arithmetic, Mensuration, Algebra, Geometry, and Statistics helps reduce exam pressure by shifting the focus from final exams to continuous, formative evaluation. Internal assessment approach includes classwork, quizzes, group projects, practical activities, and self-assessment, which promote active learning, regular feedback, and deeper understanding. By engaging students in meaningful, real-life applications of mathematical concepts, internal assessment supports steady progress, boosts confidence, and creates a less stressful, more supportive learning environment that enhances both academic performance and overall well-being (Eneogu et al., 2024).

Immediate and Constructive Feedback

Internal assessment system gives immediate constructive feedback refers to the practice of providing students with timely and meaningful responses on their performance during the learning process (Epstein et al., 2002). Providing immediate and constructive feedback on topics such as Set, Arithmetic, Mensuration, Algebra, Geometry, and Statistics in Grade Eight requires a thoughtful and supportive approach that encourages student understanding and growth (Lee et al., 2012). When a student completes a task or answers a question, feedback should be given right away to reinforce correct understanding or to address misconceptions while the content is still fresh in the student's mind. For example, in Set theory, if a student misidentifies elements of a set, the teacher can promptly clarify with examples using familiar objects, helping them visualize and understand the concept of elements, subsets, and Venn diagrams. In Arithmetic, when errors in basic operations or order of operations occur, feedback should point out where the mistake happened and guide the student through the correct process (London & McFarland, 2017).

This immediate feedback helps students quickly understand their mistakes, correct misconceptions, and reinforce what they have learned. When the feedback is constructive, it not only points out areas for improvement but also guides students on how to improve, thereby supporting deeper understanding, motivation, and continuous academic growth (Dixson & Worrell, 2016). For Mensuration, if a student misapplies a formula, the teacher should walk them through the formula's derivation and application using real-life examples, helping them see its practical value (Naroth, 2010). In Algebra, when students struggle with solving equations or understanding variables, feedback should be encouraging and aim to simplify abstract ideas through pattern recognition or step-by-step strategies. For Geometry, visual tools and models can be used alongside verbal feedback to correct misconceptions about shapes, angles, and properties. In Statistics, students should be guided in interpreting data correctly, and errors in graph plotting or mean, median, and mode calculations should be addressed by revisiting the steps and encouraging critical thinking (Niyibizi & Mutarutinya, 2024). Overall, feedback must be specific, focused on effort and process, and promote a growth mindset helping students feel confident in correcting their errors and motivated to improve.

Subjectivity, Increased Workload for Teachers

Internal assessment system increases subjectivity refers to the concern that evaluations may be influenced by individual teacher biases, perceptions, or inconsistencies (Van der Heijden & Nijhof, 2004). Since assessments like class participation, project work, or oral presentations are often judged qualitatively, there is a risk that the marks awarded may not be entirely objective or uniform across different teachers or schools. This lack of standardization can affect the fairness and credibility of the evaluation process.

Similarly, internal assessment increases workload for teachers, as it requires continuous monitoring, recording, and evaluation of student performance through multiple activities over time (Acharya, 2023; Hodwitz et al., 2019). Teachers must prepare assessment tools, give timely feedback, maintain detailed records, and ensure each student is assessed fairly. This added responsibility can be time-consuming and burdensome, especially in schools with large class sizes or limited resources, potentially affecting the quality of both teaching and assessment.

Internal assessment in Grade Eight mathematics, particularly in topics like Set, Arithmetic, Mensuration, Algebra, Geometry, and Statistics, often brings challenges such as subjectivity and increased workload for teachers. Since internal assessment involves evaluating students' performance through classwork, assignments, projects, and participation, it can be influenced by personal biases or inconsistent criteria, leading to subjectivity (Van Rinsum & Verbeeten, 2012). Teachers may struggle to maintain uniform standards, especially when interpreting open-ended responses in topics like Geometry proofs or Algebraic reasoning.

Additionally, the process of designing diverse assessment tools, checking numerous answer scripts, giving personalized feedback, and maintaining detailed records significantly increases the teachers' workload. In areas like Statistics or Mensuration, where accuracy and precision are vital, teachers must spend extra time reviewing each calculation and diagram to ensure fairness and correctness (Wick, 2021). This added responsibility can affect the quality and timeliness of instruction. While internal assessment is valuable for continuous learning and development, addressing these challenges through clear rubrics, teacher training, and digital tools is essential to make it more efficient and objective (Wilkinson et al., 2009).

Lack of Standardization and Uniformity

Lack of standardization and uniformity in the internal assessment system refers to the inconsistency in how different schools and teachers implement and evaluate internal assessments. his can led to variation in the quality, difficulty, and fairness of assessments across schools (Ceriotti, 2014). As a result, two students with similar abilities may receive different grades based on how their teachers interpret and apply the assessment guidelines. This inconsistency affects the comparability and reliability of the assessment outcomes and raises questions about equity in student evaluation across the education system (Muchlis et al., 2020).

The implementation of internal assessment in basic level education, especially in Grade Eight mathematics covering topics such as Set, Arithmetic, Mensuration, Algebra, Geometry, and Statistics, often suffers from a lack of standardization and uniformity. Different schools and teachers may use varying criteria, formats, and grading practices, leading to inconsistencies in how students are evaluated (Narayan et al., 2014). For example, while one teacher might assess Algebra through written tests focused on equations, another might emphasize project-based tasks or class participation, making it difficult to compare student performance across institutions.

In Mensuration or Statistics, the tools used to assess understanding such as charts, diagrams, or formula applications may vary significantly in complexity and expectation. Without clear guidelines or standardized rubrics, students may receive uneven feedback, and their marks may not truly reflect their learning progress (Reynolds et al., 2011). This disparity undermines the reliability of internal assessments and poses challenges for ensuring fairness and quality in basic education (Wixson et al., 1994). To address this, there is a pressing need for standardized assessment frameworks, teacher training, and monitoring mechanisms that align internal assessments with curriculum goals and national education standards. (Nordesjö, 2020).

The objective of the study was to explain and analyze how mathematics teachers perceive and implement internal assessment in classrooms, particularly in terms of its purpose, effectiveness, challenges, and influence on teaching practices. The study aims to gain insights into the practical application of internal assessments and how they contribute to the overall teaching-learning process in basic-level mathematics education.

The research is guided by several key questions: What are teachers' perceptions of the effectiveness and purpose of internal assessments? What challenges do they face in applying internal assessments, especially regarding fairness, consistency, and workload? To what extent do teachers believe that internal assessments reduce exam pressure and support student learning?

To address these questions, the study proposes a set of hypotheses. It assumes that there is no significant difference in teachers' perceptions of internal assessment based on their teaching experience. Additionally, it hypothesizes that there is no significant relationship between the challenges teachers face and their perception of internal assessment effectiveness. These hypotheses will help in examining the consistency and reliability of internal assessment practices across different educational contexts and teacher perceptions.

Black and Wiliam's Formative Assessment Theory

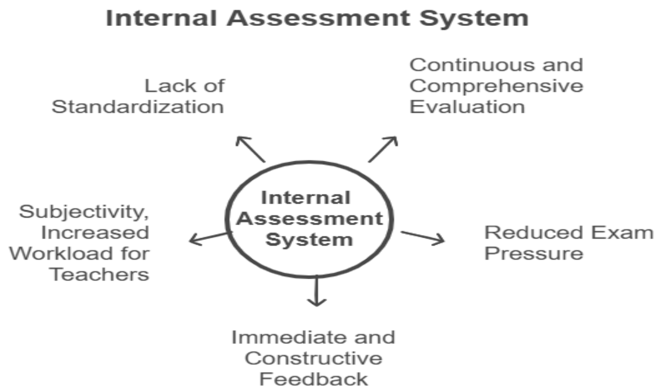
This study is grounded in Black and Wiliam's Formative Assessment Theory, which emphasizes the use of assessment as an ongoing process to support and enhance student learning rather than merely evaluate it (Black & Wiliam, 2009). The theory outlines key strategies such as clarifying learning intentions, eliciting evidence of understanding, providing constructive feedback, and promoting student ownership of learning principles that align closely with the goals of internal assessment in mathematics at the basic level (Wiliam, 2010). By focusing on teachers' perspectives, the study examines how these formative principles are perceived and practiced in real classroom settings. The identified factors such as continuous and comprehensive evaluation, reduction of exam pressure, immediate feedback, subjectivity, and increased workload reflect core elements of formative assessment (Black & Wiliam, 2018; Lee, 2012). This theoretical framework thus provides a lens through which teachers' beliefs and experiences with internal assessment can be systematically analyzed and interpreted.

Conceptual Framework

The conceptual framework of this study is centered around the *Internal Assessment System* in mathematics at the basic level, as perceived by teachers. It identifies five key factors that influence the implementation and effectiveness of internal assessment. These include Continuous and Comprehensive Evaluation, which reflects the ongoing process of monitoring student progress; Reduces Exam Pressures, highlighting the system's role in alleviating student stress associated with summative evaluations; and Immediate and Constructive Feedback, which supports students' timely improvement and learning. However, the framework also incorporates perceived challenges such as Subjectivity and Increased Workload for Teachers, indicating concerns about fairness and teacher burden, and Lack of Standardization and Uniformity, which points to inconsistencies in assessment practices across different contexts. This framework is theoretically grounded in Black and Wiliam's Formative Assessment Theory, emphasizing the formative nature of internal assessments in promoting learning through active feedback, clear learning goals, and student engagement, which is given in following figure.

Figure1

Conceptual Framework



Methods

In this study, a quantitative research approach was employed, grounded in the post-positivist paradigm, which assumes a single, observable social reality and emphasizes objectivity in knowledge acquisition. The study adhered to a value-free axiology, ensuring the research process remained neutral and unbiased (Lincoln et al., 2011). A cross-sectional survey design was adopted to gather data at a specific point in time. The sample consisted of 80 mathematics teachers selected from 40 randomly chosen community schools in the Kathmandu district, utilizing a probability sampling technique to ensure representativeness (Creswell, 2008). Data were collected using a structured Likert-type scale questionnaire, which included carefully designed statements aligned with the research objectives. To ensure instrument reliability, Cronbach's alpha was calculated for each dimension, and the internal consistency was confirmed to be acceptable, with alpha values exceeding 0.6. For content validity, the questionnaire was reviewed and refined based on suggestions from senior educational experts (Lincoln et al., 2011).

A total of 50 questionnaire items were initially developed, grounded in a thorough review of relevant literature and aligned with the study's specific objectives. These items were crafted to effectively capture the key constructs underpinning the research variables, ensuring comprehensive representation of the conceptual framework (Kumar, 2014).

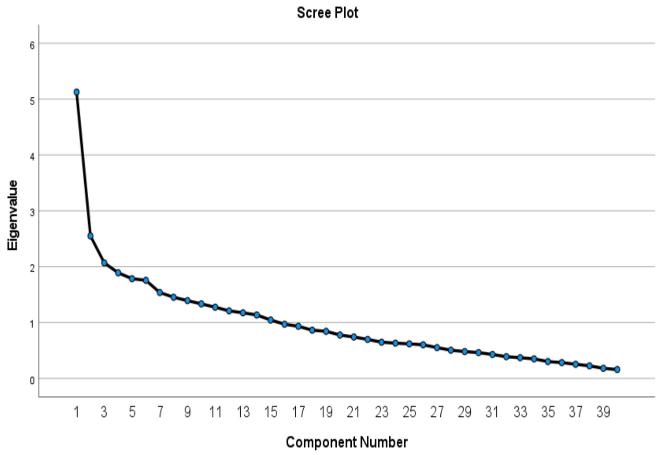
To ensure content validity, the draft version of the questionnaire was reviewed by a panel of subject matter experts, including seasoned professors and researchers from Tribhuvan University. Each item was assessed for clarity, relevance, and alignment with the intended constructs. As a result of this expert review, 40 items were validated and deemed suitable for the study. The remaining 10 items were either removed due to issues such as redundancy, ambiguity, or misalignment with the study's focus.

Exploratory Factor Analysis (EFA) was carried out on the 40 approved items to explore the underlying factor structure of the instrument. The Scree plot was used to determine the optimal number of factors to retain. Based on the EFA results, 25 items were selected for further analysis, as they satisfied key statistical criteria, including factor loadings above 0.4, adequate communalities, and minimal cross-loading across factors (Creswell, 2008). These retained items were organized into five clearly defined groups, each corresponding to a specific dimension within the broader framework of the study.

Following data collection, the dataset was coded and entered into SPSS for statistical analysis. An Exploratory Factor Analysis (EFA) was performed to identify the underlying structure of the data, which revealed five distinct factors representing internal assessment of students in mathematics at the basic level: Teachers' perspectives. Each factor demonstrated acceptable reliability. To interpret the responses to the Likert-scale items, a one-sample t-test was conducted by comparing the sample mean to the theoretical population mean of 3 (neutral point), thereby determining whether there was statistically significant agreement or disagreement with each statement. Furthermore, Cohen's d was calculated to assess the magnitude of the effect size, which provides insight into the practical significance of the findings beyond mere statistical significance (Patton, 2002). Overall, the rigorous use of quantitative tools ensured the validity and reliability of the results, thereby contributing to a better understanding of internal assessment of students in mathematics at the basic level classroom context (Creswell, 2008). The scree plot is given below.

Figue2

Scree Plot



We listed all five components in Table 1 together with factor loading and reliabilities values (Cronbach's Alpha) for each component related to the internal assessment of students in mathematics at the basic level: teachers' perspectives.

Table 1

Principal Component Analysis of use of Internal Assessment of Students in Mathematics at the Basic Level: Teachers' Perspectives

Factor Loading from Rotated Components Rotated Component Matrix Items	Factor Loading	Components
CCE1: Internal assessment system improves students' conceptual understanding in Geometry, Mensuration, and Statistics.	0.731	
CCE2: Internal assessment helps me monitor students' progress continuously in all topics of mathematics, including Set, Arithmetic, and Algebra.	0.728	
CCE3: I regularly use formative tools such as class tests, oral questioning, and assignments to assess student performance in Algebra and Arithmetic.	0.708	Factor-1 *Continuous and Comprehensive Evaluation* (Cronbach's Alpha=0.734)
CCE4: Internal assessment allows me to identify and address individual learning needs in topics like Set and Statistics effectively.	0.656	
CCE5: Continuous internal assessment is an effective tool for enhancing the overall academic achievement of Grade Eight students in mathematics.	0.638	
CCE6: Continuous internal assessment is an effective tool for enhancing the overall academic achievement of Grade Eight students in mathematics.	0.611	
CCE7: I receive adequate training and support to implement internal assessment effectively across all areas of the mathematics curriculum.	0.601	
REP1: Internal assessments help distribute students' performance evaluation over time, reducing last-minute exam stress.	0.708	
REP2: I believe internal assessments reduce the pressure on students during final examinations.	0.690	Factor 2: *Reduces Exam Pressure* Cronbach's Alpha = 0.68
REP3: Using internal assessment methods allows me to support students' learning progress without overemphasizing exams.	0.595	
REP4: In my experience, internal assessment practices create less stressful academic environment.	0.592	

REP5: Internal assessments enable me to identify and address learning gaps earlier, which lessens exam-related anxiety.	0.589	
ICF1: Through internal assessment, I can quickly identify students' misconceptions in Algebra and address them with targeted feedback.	0.679	Factor-3 *Immediate and Constructive Feedback* (Cronbach's Alpha=0.65)
ICF2: The internal assessment system supports timely and helpful feedback in Arithmetic, enhancing students' foundational understanding.	0.629	
ICF3: Internal assessments help me track student progress in Statistics and offer constructive suggestions for improvement.	0.552	
ICF4: Immediate feedback through internal assessments boosts students' confidence and engagement in learning Set, Algebra, Arithmetic, Mensuration, Geometry, and Statistics.	0.528	
ICF4: I find it easier to give individualized feedback in Geometry when I use internal assessments regularly.	0.528	
SIWT1: The math teacher evaluates students' work based on precise, dependable standards.	0.844	Factor-4 *Subjectivity, Increased Workload for Teachers* (Cronbach's Alpha=0.63)
SIWT2: To help students understand their performance, the teacher gives timely and helpful feedback on assessments.	0.784	
SIWT3: When it comes to the evaluation process, the teacher is impartial and treats each student fairly.	0.765	
SIWT4: When creating math assessments, the teacher takes into account the different learning styles of the students. 0.595		
LSU1: The community is informed about curriculum and classroom activities in an open and honest manner by the math teacher.	0.750	Factor-5 *Lack of Standardization and Uniformity* (Cronbach's Alpha=0.601)
LSU2: Teachers who are committed to helping students succeed academically in mathematics.	0.743	
LSU3: The teacher actively solicits and appreciates feedback on mathematics instruction from parents and community members.	0.663	
LSU4: Teachers regularly inform parents and the community about the progress their students are making in mathematics.	0.508	

Results and Discussion

The study identified five major factors through factor analysis using SPSS: *Continuous and Comprehensive Evaluation, Reduces Exam Pressure, Immediate and Constructive Feedback, Subjectivity, and Increased Workload for Teachers and Lack of Standardization and Uniformity.* A one-sample t-test was conducted to compare the mean responses of each factor against the theoretical mean of 3.0 (neutral point on a five-point Likert scale). Effect sizes were calculated using Cohen's d to determine the practical significance of each result.

Continuous and Comprehensive Evaluation

The one-sample t-test, conducted with a test value of 3 and a sample size of 80, revealed that all seven factors under the Continuous Comprehensive Evaluation, (CCE) dimension were statistically significant at the 0.001 level. This indicates that the mean scores for each factor were significantly higher than the neutral midpoint of the Likert scale. Specifically, the mean values ranged from 3.46 adequate training and support to implement internal assessment effectively to 4.24 internal assessment is an effective tool for enhancing the overall academic achievement, all exceeding the test value, suggesting a generally positive perception among participants. The effect sizes, measured using Cohen's d, further reinforce this finding. Internal assessment is an effective tool for enhancing the overall academic achievement demonstrated a very large effect size (d = 1.46), indicating a strong practical impact and suggesting it is the most influential factor among all. Use formative tools such as class tests, oral questioning, and assignments to assess student performance (d = 0.749) and internal assessment allows me to identify and address individual learning needs in topics (d = 0.726) showed medium to large effect sizes, highlighting their substantial role in the context being studied. Meanwhile, internal assessment system improves students' conceptual understanding in geometry, mensuration, and statistics (d = 0.513) and continuous internal assessment is an effective tool for enhancing the overall academic achievement (d = 0.453) showed moderate effect sizes, while internal assessment helps me monitor students' progress continuously in all topics of mathematics (d = 0.398) and adequate training and support to implement internal assessment effectively (d = 0.370) had small to moderate effect sizes, reflecting comparatively weaker but still meaningful effects. The average score across all items was 3.70 with an overall Cohen's d of 0.698, representing a medium to large effect. These findings suggest that all CCE factors were positively perceived and statistically meaningful, with varying degrees of practical importance. Notably, continuous internal assessment is an effective tool for enhancing the overall academic achievement stands out as a key factor that should be prioritized in educational strategies aiming to enhance classroom and community engagement.

Table 2

Descriptive Statistics and One Sample T-test for the Components in Continuous and Comprehensive Evaluation

One Sample t- Test (Test- Value=3), N=80, df=79								
							95% Confidence Interval of the Difference	
Factors	Mean	SD	t	Sig. (2-tailed)	MD	Cohens'd	LCI	UCI
CCE1	3.59	1.150	5.786	.000	.591	0.513	.39	.79
CCE2	3.50	1.246	4.485	.000	.496	0.398	.28	.71
CCE3	3.79	1.051	8.441	.000	.787	0.749	.60	.97
CCE4	3.77	1.063	8.181	.000	.772	0.726	.58	.96
CCE5	3.54	1.200	5.101	.000	.543	0.453	.33	.75
CCE6	4.24	.852	16.458	.000	1.244	1.46	1.09	1.39
CCE7	3.46	1.233	4.175	.000	.457	0.370	.24	.67
Average	3.6985	.67156	11.722	.000	.69854	0.698	.5806	.8165

Reduces Exam Pressure

The results of the one-sample t-test conducted with a test value of 3, a sample size of 80, and degrees of freedom 79, indicate important insights into participants' perceptions across five items labeled under the *Reduces Exam Pressure [REP] dimension*. The mean scores of the REP factors range from 3.06 to 3.75, suggesting a general tendency toward positive agreement with the items, except for one case. Among the five items, internal assessments help distribute students' performance evaluation over time, reducing last-minute exam stress (M = 3.61, t = 6.179, p < .001), internal assessments reduce the pressure on students during final examinations (M = 3.72, t = 6.920, p < .001), internal assessment methods allows me to support students' learning progress without overemphasizing exams (M = 3.43, t = 3.651, p < .001), and internal assessments enable me to identify and address learning gaps earlier, which lessens exam-related anxiety (M = 3.75, t = 6.866, p < .001) all show statistically significant results with p-values less than .001, indicating that their means are significantly greater than the neutral test value of 3. The effect sizes (Cohen's d) for these four items range from 0.324 internal assessment methods allows me to support students' learning progress without overemphasizing exams to 0.614 (Internal assessments help distribute students' performance evaluation over time, reducing last-minute exam stress. and up to 0.748 internal assessments enable me to identify and address learning gaps earlier, which lessens exam-related anxiety indicating small to large practical effects. This suggests that respondents perceive these aspects of the *REP* dimension positively and meaningfully.

However, internal assessment practices create less stressful academic environment (M = 3.06, t = 0.543, p = 0.588) does not show a statistically significant difference from the test value of 3, and its 95% confidence interval ranges from -0.17 to 0.29, crossing zero. This means that internal assessment practices create less stressful academic environment is not reliably different from the neutral point and may indicate either neutral or uncertain perceptions among the participants regarding this particular aspect. The lack of significance here suggests a potential weakness or area needing further exploration or improvement.

The overall mean score for the *REP* items is 3.66 with a standard deviation of 0.73, and the average t-value of 10.173 is highly significant (p < .001). The overall effect size (Cohen's d = 0.5328) reflects a moderate practical impact, suggesting that the *REP* dimension is positively and significantly perceived by the respondents. In summary, while most *REP* factors are viewed positively and significantly different from neutrality, internal assessment practices create less stressful academic environment stands out as an exception and may warrant further attention in future research or policy action.

Table 3

Descriptive Statistics and One Sample T-test for the Components in Reduces Exam Pressure

One Sample t- Test (Test- Value=3), N=80, df=79								
							95% Confidence Interval of the Difference	
Factors	Mean	SD	t	Sig. (2-tailed)	MD	Cohens'd	LCI	UCI
REP1	3.61	1.120	6.179	.000	.614	0.548	.42	.81
REP2	3.72	1.180	6.920	.000	.724	0.614	.52	.93
REP3	3.43	1.337	3.651	.000	.433	0.324	.20	.67
REP4	3.06	1.308	.543	.588	.063	0.749	-.17	.29
REP5	3.75	1.228	6.866	.000	.748	0.609	.53	.96
Average	3.6614	.73269	10.173	.000	.66142	0.5328	.5328	.7901

Immediate and Constructive Feedback

The one-sample t-test (test value = 3, N = 80, df = 79) for the ICF Immediate and Constructive Feedback [ICF] dimension reveals mixed perceptions among respondents. Among the five items analyzed, four items have mean values significantly greater than 3, indicating that participants generally agreed with these statements. Specifically, quickly identify students' misconceptions (M = 3.68, t = 6.864, p < .001) and immediate feedback through internal assessments boosts students' confidence and engagement in learning (M = 3.66, t = 5.880, p < .001) showed large effect sizes with Cohen's d values of 0.609 and 0.522, respectively, suggesting strong practical significance. Similarly, internal assessments help me track student progress in Statistics and offer constructive suggestions for improvement (M = 3.55, t = 5.488, p < .001) and internal assessment system supports timely and helpful feedback in arithmetic, enhancing students' foundational understanding (M = 3.37, t = 3.616, p < .001) were also statistically significant with moderate effect sizes, indicating meaningful but slightly lower levels of agreement.

In contrast, it easier to give individualized feedback in Geometry when I use internal assessments regularly is the only negatively significant item in the group. It has a mean value of 2.57, which is significantly lower than the test value of 3 (t = -3.352, p = .001), and its Cohen's d is -0.297, reflecting a small to moderate negative effect. The negative confidence interval (LCI = -0.69, UCI = -0.18) confirms that this item is viewed unfavorably by participants. This suggests dissatisfaction or disagreement related to the factor measured by it easier to give individualized feedback in Geometry when I use internal assessments regularly, possibly pointing to a contextual or institutional weakness.

The overall mean of the ICF dimension is 3.37 with a standard deviation of 0.65905, and the t-value for the average is 6.247 (p < .001), confirming that the overall perception is significantly above the neutral point. The average effect size (Cohen's d = 0.554) indicates a moderate practical effect. In summary, while most institutional and contextual factors are positively perceived, it easier to give individualized feedback in Geometry when I use internal assessments regularly. stands out as a concern, signaling the need for further investigation or policy-level improvement in that specific area.

Table 4

Descriptive Statistics and One Sample T-test for the Components in Immediate and Constructive Feedback

One Sample t- Test (Test- Value=3), N=80, df=79								
				Sig. (2-tailed)			95% Confidence Interval of the Difference	
Factors	Mean	SD	t		MD	Cohens'd	LCI	UCI
ICF1	3.68	1.112	6.864	.000	.677	0.609	.48	.87
ICF2	3.37	1.153	3.616	.000	.370	0.321	.17	.57
ICF3	3.55	1.132	5.488	.000	.551	0.487	.35	.75
ICF4	3.66	1.268	5.880	.000	.661	0.522	.44	.88
ICF5	2.57	1.456	-3.352	.001	-.433	-0.297	-.69	-.18
Average	3.3654	.65905	6.247	.000	.36535	0.554	.2496	.4811

Subjectivity, and Increased Workload for Teachers

The one-sample t-test (test value = 3, N = 80, df = 79) conducted on the Subjectivity, and Increased Workload for Teachers [SIWT] dimension reveals generally positive student perceptions, with some variations across the individual items. Out of the four items analyzed, three items the teacher gives timely and helpful feedback on assessments, creating math assessments, the teacher takes into account the different learning styles of the students, and creating math assessments, the teacher takes into account the different learning styles of the students show statistically significant mean differences from the neutral value of 3, while one item math teacher evaluates students' work based on precise, dependable standards does not Specifically, the teacher provides prompt and constructive feedback on their assessments (M = 3.38, t = 3.167, p = .002), the teacher is impartial and treats each student fairly (M = 3.68, t = 6.154, p < .001), and creating math assessments, the teacher takes into account the different learning styles of the students (M = 3.87, t = 7.704, p < .001) are all significantly higher than the test value. The corresponding effect sizes Cohen's d = 0.281 for the teacher provides prompt and constructive feedback on their assessments, 0.546 for the teacher is impartial and treats each student fairly, and 0.684 for creating math assessments, the teacher takes into account the different learning styles of the students indicate increasing levels of practical significance, from small to large. This suggests that students perceive their interactions with teachers in these dimensions positively, especially for the teacher is impartial and treats each student fairly and creating math assessments, the teacher takes into account the different learning styles of the students, which show strong agreement and high confidence intervals, indicating consistent positive responses.

In contrast, math teacher evaluates students' work based on precise, dependable standards (M = 3.05, t = 0.368, p = .713) is not statistically significant, with a very small mean difference (MD = 0.047) and a confidence interval that includes zero (LCI = -0.21, UCI = 0.30), suggesting a neutral or uncertain perception. The negligible effect size (Cohen's d = 0.033) further confirms the lack of meaningful difference, indicating that students may not strongly agree or disagree with the statement in math teacher evaluates students' work based on precise, dependable standards.

The overall mean of the SIWT items is 3.49 with a standard deviation of 0.81313, and the test value is significantly exceeded (t = 6.848, p < .001), with an average Cohen's d of 0.608, indicating a moderate to large effect size. This shows that, on average, students have significantly positive experiences and perceptions regarding their interactions with teachers, though there may still be some specific areas (as highlighted by math teacher evaluates students' work based on precise, dependable standards) that need further attention or improvement.

Table 5

Descriptive Statistics and One Sample T-test for the Components in Subjectivity, and Increased Workload for Teachers

One Sample t- Test (Test- Value=3), N=80, df=79								
							95% Confidence Interval of the Difference	
Factors	Mean	SD	t	Sig. (2-tailed)	MD	Cohens'd	LCI	UCI
SIWT1	3.05	1.447	.368	.713	.047	0.033	-.21	.30
SIWT2	3.38	1.345	3.167	.002	.378	0.281	.14	.61
SIWT3	3.68	1.240	6.154	.000	.677	0.546	.46	.89
SIWT4	3.87	1.279	7.704	.000	.874	0.684	.65	1.10
Average	3.4941	.81313	6.848	.000	.49409	0.608	.3513	.6369

Lack of Standardization and Uniformity

The one-sample t-test (test value = 3, N = 80, df = 79) conducted on the Lack of Standardization and Uniformity [LSU] dimension demonstrates strong positive perceptions from the respondents. All four items show statistically significant results with p-values less than 0.001, indicating that the mean responses are significantly higher than the neutral benchmark of 3. This reflects that students perceive strong support from the learning environment and resources.

Among the items, teachers who are committed to helping students succeed academically in mathematics stands out with the highest mean score of 4.28, a t-value of 16.252, and an exceptionally large effect size (Cohen's d = 1.442). The narrow confidence interval (LCI = 1.13, UCI = 1.44) further suggests a consistent and strong agreement among participants. This indicates that the availability and effectiveness of educational resources (possibly including digital tools, library materials, or classroom infrastructure) are highly appreciated and widely recognized by the students.

Teachers regularly inform parents and the community about the progress their students are making in mathematics (Mean = 4.01, t = 10.516, p < .001) also shows a strong positive perception with a large effect size (Cohen's d = 0.933), followed by the community is informed about curriculum and classroom activities in an open and honest manner by the math teacher. (Mean = 3.68, Cohen's d = 0.657) and the teacher actively solicits and appreciates feedback on mathematics instruction from parents and community members (Mean = 3.52, Cohen's d = 0.450), both of which have medium to large effect sizes. These results collectively indicate that students perceive their learning environment whether physical, social, or instructional as supportive and conducive to learning.

The overall average mean of 3.87 with a standard deviation of 0.63844, and a very high t-value of 15.393 (p < .001), reflects a consistently favorable opinion across the LSU items. The Cohen's d for the average is 1.366, indicating a very large effect size, which suggests that the difference from the test value is not only statistically significant but also practically meaningful.

In conclusion, these findings imply that the educational settings and resources provided to students are significantly enhancing their learning experiences. This highlights the importance of maintaining and further developing supportive learning environments and ensuring access to quality resources in order to sustain and elevate student success.

Table 6

Descriptive Statistics and One Sample T-test for the Components in Lack of Standardization and Uniformity

One Sample t- Test (Test- Value=3), N=80, df=79								
							95% Confidence Interval of the Difference	
Factors	Mean	SD	t	Sig. (2-tailed)	MD	Cohens'd	LCI	UCI
LSU1	3.68	1.030	7.406	.000	.677	0.657	.50	.86
LSU2	4.28	.890	16.252	.000	1.283	1.442	1.13	1.44
LSU3	3.52	1.154	5.076	.000	.520	0.450	.32	.72
LSU4	4.01	1.080	10.516	.000	1.008	0.933	.82	1.20
Average	3.8720	.63844	15.393	.000	.87205	1.366	.7599	.9842

Discussion

The results of the study showed strong, consistent positive perceptions toward the Continuous and Comprehensive Evaluation (CCE) system in basic-level mathematics, with all seven items significantly exceeding the neutral value = 3. Continuous internal assessment is an effective tool for enhancing the overall academic achievement of Grade Eight students in mathematics. stood out with the highest mean and large effect size, indicating its high value, likely due to active student monitoring or community involvement. Other items also had moderate to large effect sizes, reinforcing the positive reception of CCE. With an average score of 3.70 and a substantial effect size, the results support Black and Wiliam's Formative Assessment Theory, highlighting the importance of diversified assessment practices in enhancing learning (Dhakal, 2019). The findings suggest that CCE should be prioritized in future educational planning.

The study found that the internal assessment system in mathematics is generally perceived positively in *Reducing Exam Pressure*. Four out of five items (Internal assessments help distribute students' performance evaluation over time, reducing last-minute exam stress, I believe internal assessments reduce the pressure on students during final examinations, using internal assessment methods allows me to support students' learning progress without overemphasizing exams) showed statistically significant results with moderate to large effect sizes, indicating strong agreement that internal assessments help alleviate exam stress through continuous and varied evaluation methods (Wafubwa, 2022). However, internal assessment practices create a more balanced and less stressful academic environment did not show a significant difference, suggesting mixed or uncertain views about that specific aspect (Sibanda & Rambuda, 2024), potentially related to fairness or clarity. Linking with Black and Wiliam's formative assessment theory, the findings support the notion that continuous assessment, with its diverse approaches, can reduce exam pressure and enhance learning by providing ongoing feedback and opportunities for improvement (Putwain, 2009; Shah, 2021; Wixsonet al., 1994). The study highlights the need for further investigation into specific elements like fairness to fully optimize the internal assessment system

The one-sample t-test results for the Immediate and Constructive Feedback (ICF) dimension indicated that participants generally view internal assessment feedback positively, with four out of five items rated significantly above neutral and showing moderate to large effect sizes. This suggests that respondents value timely and meaningful feedback. However, it easier to give individualized feedback in Geometry when I use internal assessments regularly received a significantly lower mean score and a small to moderate negative effect size, indicating dissatisfaction or inconsistency, potentially related to feedback personalization, consistency, or follow-up. Overall, while feedback is generally well-regarded, improvements in it easier to give individualized feedback in Geometry when I use internal assessments regularly are necessary to enhance consistency and effectiveness. Linking this with Black and Wiliam's Formative Assessment Theory, the findings align with the theory's emphasis on feedback as a critical component of formative assessment that guides learning and promotes improvement. Addressing the concerns with it easier to give individualized feedback in Geometry when I use internal assessments regularly could further align the feedback system with formative assessment principles, enhancing its overall impact on student learning (London & McFarland, 2017; Niyibizi & Mutarutinya, 2024).

The Subjectivity and Increased Workload for Teachers (SIWT) dimension revealed generally positive teachers' perceptions, with three out of four items showing significant differences above neutral, indicating strong agreement. In the evaluation process, the teacher is impartial and treats each student fairly and creating math assessments, the teacher takes into account the different learning styles of the students had moderate to large effect sizes, suggesting positive interactions with teachers. However, math teacher evaluates students' work based on precise, dependable standards showed no significant difference, indicating a neutral perception. The overall positive mean score and moderate to large effect size suggest that students generally view their interactions with teachers positively, but math teacher evaluates students' work based on precise, dependable standards highlights areas for improvement. These findings align with Black and Wiliam's Formative Assessment Theory, emphasizing the importance of teacher-student interactions and the need for continued improvement in assessment practices (Wick, 2021).

The results of the Standardization and Uniformity (LSU) dimension showed that students have a highly positive perception of their learning environment and resources, with all items significantly exceeding the neutral value. Teachers who are committed to helping students succeed academically in mathematics in particular, received the highest mean and large effect size, reflecting strong appreciation for the effectiveness of educational resources. The other items also showed medium to large effect sizes, indicating positive perceptions of both physical and instructional support. These findings highlight the importance of effective learning environments in student success and align with Black and Wiliam's Formative Assessment Theory, emphasizing the role of supportive environments in improving student engagement and achievement (Black & Wiliam, 2018; Wixson et al., 1994).

Conclusion

The study found that the one-sample t-test results for Continuous and Comprehensive Evaluation (CCE) show strong positive perceptions of internal assessment practices in mathematics, with all seven CCE items statistically significant at the 0.001 level. Continuous internal assessment is an effective tool for enhancing the overall academic achievement received the highest rating and a very large effect size (Cohen's d = 1.46), emphasizing its importance in community participation and student monitoring. The findings highlight the value of continuous assessment in shifting from rote memorization to process-oriented learning. Strengthening components like continuous internal assessment is an effective tool for enhancing the overall academic achievement can further enhance effective internal assessment practices and improve student evaluations.

The results highlight a positive trend in perceptions of internal assessments in reducing exam pressure among basic-level students and teachers, with a moderate effect size for the reducing exam pressure dimension. However, the lack of significance in one item internal assessment practices create less stressful academic environment suggests that not all assessment elements are equally effective or understood, pointing to the need for refinement and clearer communication or training. Educational policymakers and practitioners should use these findings to improve the design and implementation of internal assessments, focusing on enhancing student well-being, academic confidence, and overall consistency in assessment practices.

The one-sample t-test results for the Immediate and Constructive Feedback (ICF) dimension show generally positive perceptions, with four items receiving significant, moderate to large effect sizes. However, it easier to give individualized feedback in Geometry when I use internal assessments regularly received lower ratings, indicating issues with feedback personalization, consistency, or follow-up. This aligns with Black and Wiliam's Formative Assessment Theory, which emphasizes the role of feedback in guiding student learning. Refining it easier to give individualized feedback in geometry when I use internal assessments regularly to improve consistency and personalization will enhance the feedback system's alignment with formative assessment principles and its overall effectiveness.

The one-sample t-test results for the Subjectivity and Increased Workload for Teachers (SIWT) dimension indicate generally positive teachers' perceptions, with most items showing significant agreement. In the evaluation process, the teacher is impartial and treats each student fairly and when creating math assessments, the teacher takes into account the different learning styles of the students, with moderate to large effect sizes, suggest positive teacher-student interactions. However, the lack of significance for math teacher evaluates students' work based on precise, dependable standards highlights areas that require attention. Overall, the findings align with Black and Wiliam's Formative Assessment Theory, underscoring the importance of teacher-student interactions in assessment. To further enhance assessment practices, addressing the concerns raised by math teacher evaluates students' work based on precise, dependable standards will be crucial for improving the overall teacher-student dynamic.

The one-sample t-test results for the Lack of Standardization and Uniformity (LSU) dimension reveal highly positive student perceptions of their learning environment and resources, with all items significantly exceeding neutral. Teachers who are committed to helping students succeed academically in mathematics in particular, received the highest mean and large effect size, reflecting strong appreciation for the effectiveness of educational resources. The positive perceptions of physical and instructional support, indicated by medium to large effect sizes, emphasize the importance of a well-supported learning environment in student success. These findings align with Black and Wiliam's formative assessment theory, which highlights the critical role of supportive environments in fostering student engagement and achievement.

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