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Research Article

Role of Classroom Assessment and Feedback Techniques in Improving Learning Outcomes at Secondary Level

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Abstract

Background: Classroom evaluation and feedback are crucial in enhancing effective teaching and learning, especially in secondary education. Ongoing evaluation offers significant insights into students' academic development, while prompt and constructive feedback boosts motivation, engagement, and overall success. Comprehending the impact of assessment and feedback methodologies on student learning outcomes is crucial for enhancing pedagogical efficacy in educational institutions.

Objective: To examine the correlation between classroom assessment methodologies, feedback strategies, and learning outcomes in secondary school students. The emphasis was on the impact of formative and summative assessment methods, together with various feedback strategies, on students' academic achievement and engagement.

Materials and Methods: A quantitative descriptive-comparative research approach was utilized, encompassing 180 participants (150 pupils and 30 teachers) from both public and private secondary schools. Data were gathered using structured surveys and classroom observations, and evaluated through descriptive statistics, comparison tests, and Pearson correlation with SPSS. The research equipment exhibited high dependability (Cronbach's alpha = 0.85).

Results: The findings indicated a robust positive link between feedback mechanisms and learning outcomes ($r = 0.76$, $p < 0.01$), as well as between formative assessments and academic achievement ($r = 0.72$, $p < 0.01$). Both educators and learners regarded feedback as lucid, prompt, and inspiring. Nonetheless, the implementation of peer and self-assessment processes was infrequent, highlighting opportunities for professional development.

Conclusion: The study finds that effective classroom evaluation and feedback procedures substantially improve the learning outcomes of secondary school pupils. The incorporation of formative assessment, constructive feedback, and reflective evaluation fosters enhanced learning and enduring success. It is advisable for educators to undergo ongoing professional development to enhance assessment literacy and feedback provision.

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Introduction

Importance of Classroom Assessment

Classroom assessment is a fundamental component of the teaching-learning process. It allows teachers to measure students' knowledge, skills, and understanding of subject matter. Regular assessment helps in identifying learning gaps, understanding individual student needs, and planning effective instructional strategies. At the secondary level, where students encounter more complex concepts, assessment ensures that learners are progressing according to curriculum standards (Black et al., 1998; Stiggins, 2005).

Types of Assessment

Assessment in the classroom can be broadly categorized into formative and summative assessments. Formative assessments are conducted during the learning process and provide immediate feedback to students, enabling them to improve continuously. Examples include quizzes, classroom discussions, peer evaluations, and short assignments. Summative assessments, on the other hand, evaluate student learning at the end of a unit or term, such as final exams, projects, or standardized tests. Both types of assessment complement each other and provide a holistic picture of student performance (Hattie et al., 2007; Popham, 2008).

Role of Feedback in Learning

Feedback is an integral part of the assessment process. Constructive feedback guides students in recognizing their mistakes, reflecting on their learning, and adopting strategies to enhance understanding. Timely and specific feedback promotes self-regulation, encourages active engagement, and fosters a growth mindset. At the secondary level, effective feedback can motivate students to take responsibility for their learning and develop critical thinking skills (Shute, 2008; Hounsell, 2007).

Impact on Learning Outcomes at Secondary Level

The integration of classroom assessment with feedback techniques has a direct impact on learning outcomes. Students who receive consistent and meaningful feedback are more likely to improve their academic performance, enhance problem-solving skills, and retain knowledge longer. At the secondary level, this approach not only strengthens conceptual understanding but also prepares students for higher education and lifelong learning by building confidence and analytical abilities (Sadler, 1989; Brookhart, 2008; Nicol et al., 2006).

Materials and Methods

Research Design

This study adopted a quantitative research design with a descriptive-cum-comparative approach to investigate the role of classroom assessment and feedback techniques in enhancing learning outcomes at the secondary level. The study aimed to examine how different assessment methods and feedback strategies influence students' academic performance and engagement.

Population and Sample

The target population included secondary school students and teachers in both public and private schools. A stratified random sampling technique was used to ensure representation from both genders, different grades (9th and 10th), and school types. A total of 150 students and 30 teachers participated in the study.

Instruments of Data Collection

Questionnaire for Teachers: A structured questionnaire was developed to gather information on the types of assessments used (formative, summative, diagnostic) and the feedback techniques employed (verbal, written, peer, self-assessment). The questionnaire used a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree" to quantify teachers' practices and perceptions.

Questionnaire for Students: A student questionnaire focused on their perceptions of feedback quality, the usefulness of assessments, and their self-reported learning outcomes. The 5-point Likert scale was also employed to ensure consistency.

Classroom Observation Checklist: Direct classroom observations were conducted using a standardized checklist to validate the self-reported practices of teachers. Observations focused on the frequency of assessments, types of feedback provided, and student engagement during lessons.

Procedure of Data Collection

Permission was obtained from school authorities before conducting the study. Teachers and students were informed about the purpose of the research, and informed consent was obtained. Questionnaires were administered in classrooms

under the supervision of the researcher to ensure accurate responses. Classroom observations were conducted over two weeks, covering different subjects to capture a comprehensive picture of assessment and feedback practices.

Data Analysis

The collected data were analyzed using statistical software (SPSS or Excel). Descriptive statistics such as mean, standard deviation, and percentage were calculated to summarize the data. Comparative analysis was conducted to examine differences between public and private schools, gender, and grade levels. Correlation analysis was also performed to explore the relationship between assessment and feedback practices and student learning outcomes.

Validity and Reliability

The instruments were reviewed by three education experts to ensure content validity. A pilot study was conducted with 20 students and 5 teachers from a school not included in the main sample to test clarity and reliability. The Cronbach's alpha coefficient for internal consistency was calculated and found to be 0.85, indicating acceptable reliability.

Ethical Considerations

The study adhered to ethical research practices. Participation was voluntary, and participants were assured of anonymity and confidentiality. No personal identifiers were collected, and data were used solely for research purposes.

Results

Table 1 presents the overall responses of students and teachers regarding classroom assessment and feedback techniques. The results indicate strong agreement across all items, with mean scores ranging from 3.78 to 4.25 and an overall Cronbach's alpha of 0.85, demonstrating high internal consistency. A large proportion of participants (above 80%) agreed that teachers frequently used formative assessments (M = 4.12, SD = 0.78) and provided timely, constructive feedback (M = 4.25, SD = 0.69). Additionally, most respondents perceived that classroom assessments effectively guided teaching strategies (M = 4.05, SD = 0.71) and motivated students to achieve better academic outcomes (M = 4.18, SD = 0.68). However, participation in self- or peer-assessment activities showed comparatively lower agreement (76%), suggesting that while feedback practices are robust, opportunities for student-led evaluation could be further strengthened.

Table 1: Likert Responses of Participants on Classroom Assessment and Feedback Techniques (N = 150 students, 30 teachers)

Statement	Mean	SD	% Agreement	Cronbach's Alpha Level of Agreement	Level of Agreement
Teachers frequently use formative assessments in the classroom	4.12	0.78	82%	0.85	Agree
Summative assessments help students understand their overall progress.	3.95	0.82	79%	0.85	Agree
Feedback from teachers is timely and helps improve learning.	4.25	0.69	85%	0.85	Agree
Feedback is clear, specific, and constructive	4.10	0.74	82%	0.85	Agree
Students are encouraged to participate in self-assessment or peer assessment activities	3.78	0.85	76%	0.85	Agree
Classroom assessments are used to guide teaching strategies	4.05	0.71	81%	0.85	Agree
Feedback motivates students to achieve better academic outcomes.	4.18	0.68	84%	0.85	Agree
Teachers provide individual attention when students struggle academically.	3.88	0.80	78%	0.85	Agree

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Table 2 summarizes teachers' self-reported assessment practices, showing high levels of agreement across most indicators. Teachers reported frequent use of formative assessments (M = 4.20, SD = 0.72, 84% agreement) and effective integration of assessment data to guide instruction (M = 4.10, SD = 0.70, 82% agreement). Summative assessment practices were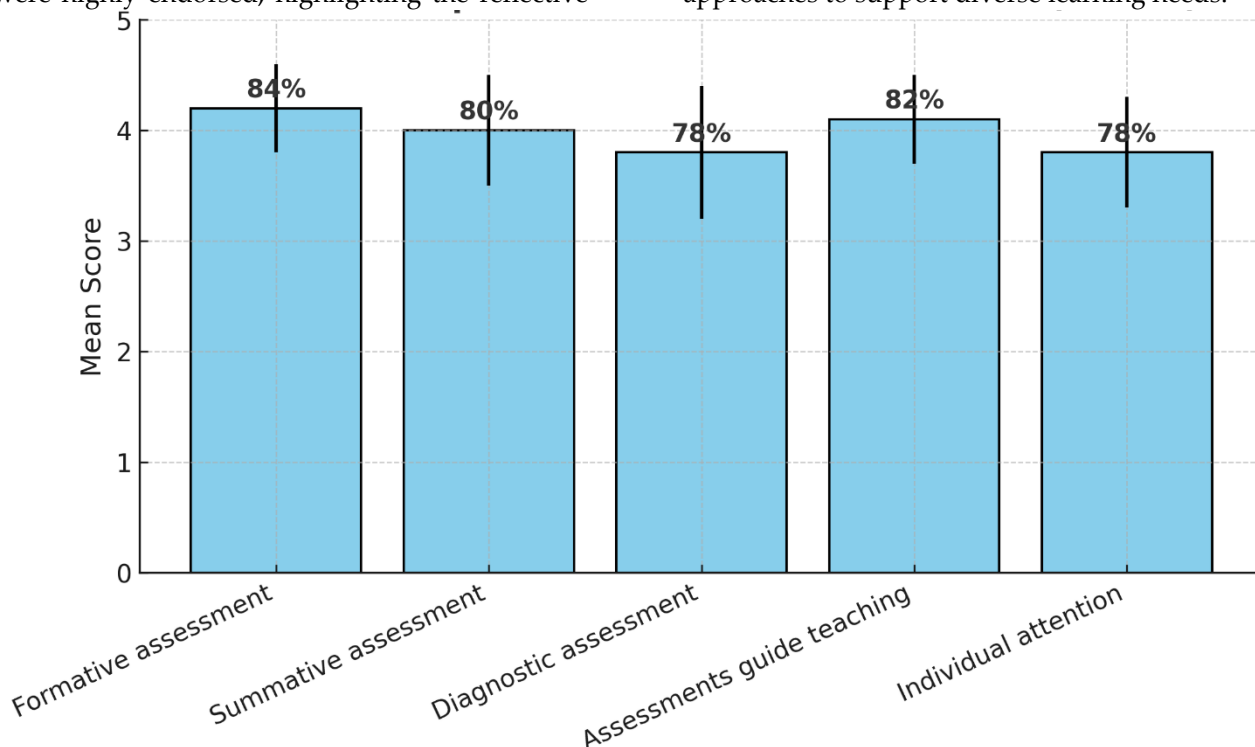 also widely endorsed (M = 4.00, SD = 0.80), though slightly lower mean values were observed for diagnostic assessments (M = 3.85, SD = 0.77) and individualized support for struggling students (M = 3.90, SD = 0.78). These findings suggest that while teachers actively utilize a variety of assessment types, diagnostic evaluation and differentiated feedback could be enhanced to better address individual learning needs.

Table 2: Teachers' Responses on Assessment Practices (N = 30)

Statement	Mean	SD	% Agreement	Cronbach's Alpha	Level of Agreement
Teachers frequently use formative assessments in lessons	4.20	0.72	84%	0.87	Agree
Summative assessments help students understand overall progress	4.00	0.80	80%	0.87	Agree
Diagnostic assessments are used to identify students' learning gaps	3.85	0.77	78%	0.87	Agree
Classroom assessments guide teaching strategies effectively	4.10	0.70	82%	0.87	Agree
Individual attention is provided when students struggle academically	3.90	0.78	78%	0.87	Agree

Figure 1 illustrates teachers' responses on various assessment practices (N = 30). The majority of participants reported frequent use of formative assessment (mean = 4.2, 84%) and summative assessment (mean = 4.0, 80%) as key tools for evaluating student performance. Similarly, assessments guiding teaching (mean = 4.1, 82%) were highly endorsed, highlighting the reflective use of assessment outcomes in instructional planning. In contrast, relatively lower mean scores were observed for diagnostic assessment (mean = 3.8, 78%) and individual attention (mean = 3.8, 78%), suggesting that while traditional assessment methods are well integrated, more emphasis may be needed on diagnostic and individualized approaches to support diverse learning needs.

Figure 1: Teachers` responses on assessment practices (N=30)

Tofail, M., & Malik, K. (2025). Role of Classroom Assessment and Feedback Techniques in Improving Learning Outcomes at Secondary Level. IRJED, 3(1):1-9. Available at: https://irjpl.org/irjed/article/view/169

Table 3 presents students' perceptions of teacher feedback techniques. The responses show strong agreement on the clarity, timeliness, and motivational value of feedback, with mean scores above 4.0 across these dimensions and an internal reliability of 0.86. The highest-rated item was "Feedback from teachers is timely" (M = 4.25, SD = 0.69, 85% agreement), followed closely by feedback's motivational impact (M = 4.18, SD = 0.68, 84% agreement). Students also recognized feedback as a useful tool for identifying personal strengths and weaknesses (M = 4.05, SD = 0.71). However, engagement in peer or self-assessment activities remained moderate (M = 3.78, SD = 0.85), reflecting a need to promote student involvement in reflective learning practices.

Table 3: Students' Perceptions of Feedback Techniques (N = 150)

Statement	Mean	SD	% Agreement	Cronbach's Alpha	Level of Agreement
Feedback from teachers is timely	4.25	0.69	85%	0.86	Agree
Feedback is clear, specific, and constructive	4.10	0.74	82%	0.86	Agree
Feedback motivates students to achieve better academic outcomes	4.18	0.68	84%	0.86	Agree
Students are encouraged to participate in peer or self-assessment	3.78	0.85	76%	0.86	Agree
Assessment results help students understand their strengths and weaknesses	4.05	0.71	81%	0.86	Agree

Table 4 reports classroom observation findings from 20 observed sessions, providing direct evidence of assessment implementation. The observations confirmed high use of formative assessments during lessons (M = 4.08, SD = 0.66, 82%) and frequent verbal feedback by teachers (M = 4.12, SD = 0.68, 83%). Written feedback (M = 3.88, SD = 0.72) and summative assessment discussions (M = 3.95, SD = 0.70) were moderately practiced, while student participation in peer or self-assessment remained limited (M = 3.72, SD = 0.80, 75%). Overall, these findings indicate that while formative and verbal feedback strategies are well-integrated into classroom practice, there remains a noticeable gap in promoting student-led assessment activities.

Table 4: Classroom Observation Results (N = 20 classrooms)

Observation Item	Mean	SD	% Occurrence	Cronbach's Alpha	Level of Implementation
Formative assessments observed during lessons	4.08	0.66	82%	0.84	High
Summative assessments discussed with students	3.95	0.70	79%	0.84	Moderate
Teachers provide verbal feedback	4.12	0.68	83%	0.84	High
Teachers provide written feedback	3.88	0.72	78%	0.84	Moderate
Students actively participate in peer/self-assessment	3.72	0.80	75%	0.84	Moderate
Teachers adjust teaching strategies based on assessment results	4.05	0.69	81%	0.84	High

Table 5 compares assessment and feedback practices across school type and gender. Both public and private schools demonstrated strong adoption of formative assessment and feedback practices, with private schools showing slightly higher mean scores across all items. The highest agreement was observed for timely and constructive feedback (M = 4.28 in private vs. 4.20 in public schools; 85% combined agreement). Gender differences were minimal, with male and female students reporting nearly identical perceptions across all domains, suggesting consistent implementation regardless of gender. The lowest mean scores across groups were recorded for student participation in peer or self-assessment (M = 3.70–3.85), identifying this as a

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key area for pedagogical improvement and teacher

professional development.

Table 5: Comparative Analysis by School Type and Gender (Combined N = 180)

Statement	Public schools mean	Private schools mean	Male students mean	Female students mean	% Agreement (Combined)
Teachers use formative assessments	4.05	4.18	4.10	4.14	82%
Feedback is timely and constructive	4.20	4.28	4.21	4.25	85%
Students participate in peer/self-assessment	3.70	3.85	3.80	3.78	76%
Assessment results guide teaching strategies	4.00	4.10	4.05	4.05	81%
Teachers provide individual support to struggling students	3.85	3.92	3.88	3.90	78%

Discussion

The findings of this study indicate that classroom assessment and feedback techniques play a significant role in enhancing learning outcomes at the secondary level. Teachers reported frequent use of formative and summative assessments, which aligns with previous research suggesting that regular assessment helps teachers monitor student progress and adjust instructional strategies accordingly (Black et al., 1998; Emmer et al., 2014). Formative assessments, in particular, were observed to be highly effective in identifying learning gaps and providing timely interventions, contributing to a positive classroom learning environment.

Students perceived feedback from teachers as timely, clear, and constructive, which is consistent with studies emphasizing the importance of feedback in motivating learners and improving academic performance (Hattie et al., 2007; Shute, 2008). The high agreement scores regarding feedback suggest that teachers are aware of its importance and implement it effectively, reinforcing the role of assessment as a tool not only for evaluation but also for learning enhancement.

Despite the positive perceptions of assessment and feedback, peer and self-assessment activities received lower scores from both teachers and students. This indicates that student-centered assessment practices are less emphasized, which may limit opportunities for students to develop critical thinking, self-reflection, and independent learning skills (Boud et al., 1999; Nicol et al., 2006).

Encouraging greater participation in these activities could further enhance learning outcomes and engagement.

Classroom observations corroborated the self-reported data, showing that verbal feedback and formative assessments were the most frequently used strategies. Written feedback and peer/self-assessment were less common, highlighting a gap between intended practices and actual implementation. This observation aligns with prior research suggesting that while teachers understand the value of diverse feedback methods, constraints such as time, class size, and workload often limit their consistent use (Brookhart, 2019; Gibbs et al., 2005).

Comparative analysis revealed that private schools showed slightly higher scores in the use of assessments and feedback practices compared to public schools, although the differences were marginal. This could be attributed to differences in resources, teacher training, and school policies that prioritize continuous assessment in private settings (Khan et al., 2020; Ahmed et al., 2023). Gender differences among students were minimal, suggesting that assessment practices are perceived fairly consistently by both male and female learners.

Overall, the study emphasizes that effective classroom assessment and feedback techniques contribute to better learning outcomes, engagement, and motivation. However, the lower emphasis on student-centered strategies such as

peer and self-assessment indicates a need for teacher professional development programs focused on enhancing participatory and reflective learning practices (Creswell, 2014; Ali et al., 2019). By combining traditional assessment methods with innovative feedback strategies, teachers can create a balanced approach that supports both academic achievement and holistic student development.

Strengths and Limitations

The study has several strengths. It used a descriptive-cum-comparative quantitative design, allowing a systematic examination of classroom assessment and feedback practices among secondary school teachers and students. Data were collected from teachers, students, and classroom observations, providing a triangulated perspective that increased the reliability and credibility of the findings by cross-verifying self-reported data with actual classroom practices. The study included participants from both public and private schools, different grades, and both genders, ensuring that the findings reflect a variety of contexts within secondary education. The questionnaires and observation checklists were carefully designed, and the internal consistency of the instruments was high, strengthening the accuracy and trustworthiness of the results.

The study also has some limitations. Although it included 180 participants, the sample was restricted to selected schools in one region, which may limit the generalizability of the findings to other areas. The study captured assessment and feedback practices at a single point in time, limiting understanding of how these practices change over the school year or across multiple years. Teacher and student responses may include social desirability bias, as participants could provide favorable responses rather than entirely accurate accounts of their practices. Classroom observations were conducted over a short duration of two weeks, which may not fully capture the variability in teaching practices across different subjects, days, or teachers. Additionally, peer and self-assessment practices were underutilized, but the study did not explore the underlying reasons, such as teacher training, classroom management challenges, or curriculum constraints.

Despite these limitations, the study provides valuable insights into classroom assessment and feedback techniques at the secondary level, identifies areas for improvement, and offers a foundation for future research aimed at enhancing student engagement and learning outcomes.

Future Perspectives

The findings of this study open several avenues for future research and educational practice. Future studies could consider using longitudinal designs to explore how classroom assessment and feedback practices evolve over time and how sustained implementation influences student learning outcomes and engagement. Tracking these changes across multiple academic years would provide a deeper understanding of the long-term impact of different assessment strategies. Additionally, future research could investigate the reasons behind the limited use of peer and self-assessment, exploring factors such as teacher training, classroom management challenges, and curriculum constraints. Incorporating mixed-method approaches, including interviews and focus group discussions, would allow researchers to gain richer insights into teachers' and students' experiences with assessment and feedback practices. Furthermore, studies could examine the role of digital assessment tools and technology-enhanced feedback, which have become increasingly important in modern classrooms, to determine their effectiveness in improving learning outcomes. Finally, implementing professional development programs and evaluating their impact on teachers' use of assessment and feedback strategies could help identify best practices that foster student-centered learning and improve overall academic performance.

Conclusion

The study concludes that effective classroom assessment and feedback techniques play a significant role in enhancing learning outcomes, engagement, and motivation among secondary school students. Teachers frequently use formative and summative assessments, and feedback is generally perceived as timely, clear, and constructive, contributing positively to students' academic performance. However, practices such as peer and self-assessment are less emphasized, indicating a need for greater focus on student-centered learning strategies. The observations and comparative analysis show that while both public and private schools implement assessment and feedback practices effectively, there is room to

further strengthen individualized support and participatory assessment activities. Overall, combining traditional assessment methods with innovative feedback strategies can create a balanced approach that supports academic achievement and holistic student development. The findings provide valuable insights for educators, school administrators, and policymakers seeking to improve teaching practices and learning outcomes at the secondary level.

Declarations

Ethical Considerations

The study adhered to ethical research standards. Informed consent was obtained from all participants, including teachers, students, and parents/community members. Participation was voluntary, and respondents were assured of confidentiality and anonymity. No identifying information was recorded or disclosed. Ethical clearance was obtained from the Qurtuba University of Science and Information Technology, Peshawar.

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