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## **Effectiveness of Formative Assessment Practices in Promoting Students' Learning Level Among Secondary Grade Students**

**Dr. Rubina Manzoor**

Associate professor of Education

Govt.Ibne Ameer associate college for women Jalalpur Jattan,Gujrat.

[rubinamanzoor03@gmail.com](mailto:rubinamanzoor03@gmail.com)

**Dr. Namra Munir**

Assistant Professor,

Department of Education, University of Education, Lahore

**Dr. Muhammad Younas Mughal**

Govt. High School No. 1 Pasrur, Sialkot, Punjab

### **Abstract**

Using a survey research methodology with 392 secondary level students, the study analyzes the effectiveness of formative assessment techniques in public and private schools, across gender and geographic areas. The Raing scale was employed to gauge how well formative assessment strategies supported students' academic progress. Results showed little differences in public schools on how instruction was changed to better suit learning objectives. The benefits of these practices were stronger for female and rural students, highlighting the need to address geographic and gender gaps in education. The results highlight how crucial it is to provide targeted professional development programs and standardize formative assessment procedures across all educational sectors in order to improve student learning outcomes, especially in public schools. In general, formative assessment techniques are essential for raising student learning outcomes, which has consequences for practice and policy in the field of education.

**Key Words:** Formative Assessment, Students' learning, Secondary students

### **Introduction:**

Good teaching is not only dispensing knowledge but also encouraging comprehension, critical thinking, and concept application. Teachers act as mentors, adjusting the way content is delivered to meet the needs and styles of students from a variety of backgrounds while fostering

a welcoming environment. However, learning is an active process in which people engage with information, reflect, and explore it to create meaning. It entails taking in information, drawing connections, and putting newly acquired understanding to use in practical situations. Participation, input, and practical experiences are essential for improving the learning process.

When learner motivation, assessment techniques, and instructional tactics work together, teaching and learning are successful. It is made even more enriching by constant adaptation, technology integration, and acceptance of other viewpoints (Moayyeri, 2015). In the end, it all comes down to giving people the tools they need to become lifelong learners who can prosper in a world that is always changing. Learning is characterized as a process that modifies a person's behavior. It is a talent that people need to develop during their academic careers and beyond. Individuals possess distinct learning styles that influence their methods of learning (Steward, Martin, Burns, Bush, 2010). One could think of it as a result. It is perceived as a visible process as well.

Change is the most important part of learning. Individual experiments combined with current knowledge, are another way that learning is accomplished. Sadler, and Eugene, (2011) further examine learning in the following ways: Learning as a measure of knowledge growth. In education, assessment is a versatile technique that is vital for determining student comprehension, directing curriculum, and promoting academic development (Kim, 2005). It offers insightful information about the strengths, shortcomings, and development of learners, going beyond simple evaluation. Assessments provide educators with information on the efficacy of their curricula and teaching strategies by gauging the development of skills, critical thinking, and knowledge (Gurpinar, Bati, & Tetik, 2011).

Furthermore, evaluations are essential for encouraging responsibility and guaranteeing that learning objectives are fulfilled. They give stakeholders—students, parents, and legislators—tangible proof of academic success and areas in which improvements are required. Furthermore, evaluations have the power to guide instructional decision-making, enabling teachers to modify their lesson plans in response to the various requirements of their students. Assessments also function as motivational tools by giving pupils the chance to reflect on themselves and set goals (Dormann, & Zapf, 2001). Assessments, when done in an equitable and open manner, have the potential to increase self-assurance, promote a growth mentality, and cultivate an environment of ongoing education (Cohen, 2006).

To put it simply, evaluation is essential to the learning process because it spurs progress, advances equity, and allows students to realize their greatest potential. Assessments are used in schools in a variety of ways, each with a specific function in assessing student learning and guiding instructional decisions (Yon, Burnap, & Kohut, 2002).

*Formative Assessment:* Ongoing, informal evaluations carried out during instruction with the goal of tracking student development, offering suggestions for improvement, and modifying teaching methods as necessary.

*Summative Assessment:* Usually given to students at the conclusion of a unit, semester, or academic year in order to assess their learning objectives and ascertain their level of topic knowledge.

*Diagnostic Assessment:* Designed to assist teachers provide focused interventions, this assessment is carried out at the start of class to determine students' prior knowledge, misunderstandings, and learning gaps.

*Performance Assessment:* Assignments or projects, such presentations, portfolios, or experiments, that call for students to use their knowledge and abilities in practical settings.

*Standardized Testing:* Large-scale, uniformly given formal exams used to compare student performance to predetermined criteria and gauge achievement.

*Alternative Assessment:* Non-traditional techniques intended to give a comprehensive picture of student learning outside of typical exams and quizzes, such as observations, interviews, and student self-assessments.

Combining these several evaluation methods allows teachers to have a thorough understanding of their students' development and successfully modify their lessons to fit each student's unique learning needs. In the educational process, formative and summative assessments play different but complimentary roles. They both provide unique insights into student learning and inform instructional approaches. Formative assessment takes place in the middle of instruction and gives teachers and students continuous feedback. It seeks to track students' progress in learning, pinpoint areas of strength and weakness, and direct in-the-moment instructional modifications. This kind of evaluation emphasizes the learning process and the progression of students throughout time (Wafubwa, &Csikos,2022).

It usually yields a grade or score and gives an overview of the performance of the learner at a specific point in time. Summative evaluations place a strong emphasis on learning outcomes and act as a gauge of overall competency. When combined, formative and summative assessments provide a fair method of assessing student development and offer insightful feedback and responsibility all along the way to graduation (Wisniewski, Zierer, & Hattie, 2020).

Emphasis on assisting students in understanding the learning objectives may also be a part of all three of these strategies. A fourth technique to formative assessment might be created by fusing these three strategies and integrating them into one cohesive strategy. The focus placed on formal evaluation procedures or data obtained on student learning from unofficial daily activities like conversations or observations may also differ between and within methods. The core of this conceptualization is how assessment data is used to modify teaching process (Gikandi, Morrow, & Davis, 2011; Hattie, & Timperley, 2007).

This concept makes it clear that in order for teachers and students to determine the best course of action for instruction, evidence regarding student learning must be gathered, evaluated, and applied. Wylie, and Lyon, (2015) define "instruction" as "any activity that is intended to create learning," which encompasses both teaching. Accordingly, formative assessment "is concerned with the creation of 'moments of contingency' in instruction and capitalizing upon them for the purpose of regulating learning processes" (Sanchez, Atkinson, Koenka, Moshontz, & Cooper,2017). These moments can be produced by educators or learners through organized evaluation tasks, and they can also arise from the use of any form of assessment method and artifact to demonstrate the abilities and knowledge of students.

Formative evaluation improves student learning and helps Singaporean teachers grow in their careers by integrating strategies for professional development into lesson planning (Wafubwa, 2020). In addition to giving the students feedback, they also look over and organize the lesson by evaluating the data and provide commentary on it. Students actively offer knowledge. In addition to engaging in instructional and learning activities, they also use evaluation data to determine how well a work is done, create goals, and determine how best to enhance their own personal growth (Faber, Luyten, & Visscher, 2017).

When used properly, formative assessment has been shown to significantly improve student learning outcomes and promote academic progress. Its capacity to encourage student participation, deliver timely and useful feedback, and support instructional decision-making accounts for its efficacy (Dunn, & Mulvenon, 2009). Formative assessment's emphasis on continuous feedback during the learning process is one of its main advantages. Formative evaluation helps students recognize their areas of strength and weakness in real time by providing them with instant insights into how well they understand topics and abilities. Students are empowered to take charge of their education, make the required changes, and establish goals for growth thanks to this feedback loop. Studies have indicated that pupils who obtain consistent feedback via formative evaluation exhibit higher levels of motivation and accomplishment in contrast to their non-receiving peers (Chen, & Andrade, 2018; McMillan, Venable, & Varier, 2013).

Participation and active engagement in learning activities are encouraged via formative assessment. Teachers give students the chance to reflect on their learning, express their ideas, and work with peers by using a variety of strategies such as peer evaluation, self-assessment, and classroom discussions. Moreover, formative evaluation is essential for guiding instructional practices and modifying teaching methods to accommodate students' varied requirements (Boström, & Palm, 2020). Through ongoing evaluation of students' progress, teachers can identify areas that require further help or enrichment. Teachers can support struggling students while challenging high achievers by customizing instruction, differentiating learning experiences, and offering focused interventions through the use of data-driven approaches (Demir, & Akengin, 2010).

By allowing educators to gather, evaluate, and act upon student data more effectively, technology integration into formative assessment processes further improves its efficacy. Quick and individualized feedback is made possible by online resources, interactive tests, and digital tools, which integrate formative assessment into the learning process seamlessly. All things considered, the efficacy of formative assessment to enhance students' learning resides in its capacity to empower students, encourage participation, and inform instruction through an ongoing feedback loop (Huang, 2016). Formative assessment strategies are teaching repertoire (DeLuca, Klinger, Pyper, & Woods, 2015).

Survey research method involving a sample of 392 students typically employed a structured approach. The sampling process was done by using random sampling to get representative of the target population to avoid skewing results. Personal visits for data collection offer direct engagement, enhancing response rates and data accuracy. During analysis, statistical tool i.e., t-test enabled a comparison of means between groups i.e., public and private, male and female, urban and rural which provided insights into significant differences. Overall, this methodological framework ensured systematic gathering and rigorous analysis of data for comprehensive understanding and informed decision-making. Interpretation of results considered the test's assumptions and limitations, and detail of results is given below:

**Table 1**  
*Comparing the Effect of Clarifying Learning Intentions as Formative Assessment Practice on Students Learning at Secondary Level Among Public and Private School Students*

Sector	N	Mean	S. D.	t-value	Sig.
Public	192	4.1674	.46781	-.681	.497
Private	200	4.2028	.55354		

The t-test table contrasts how pupils in public and private schools learn at the secondary level when learning aims are clarified as a formative assessment approach. The mean score for students attending public schools (N=192) is 4.1674, with a standard deviation of 0.46781. The t-value of -0.681 and the corresponding significance level of 0.497 show that there is no statistically significant difference between the effects of elucidating learning goals and student learning outcomes in public schools. The mean score of students attending private schools (N = 200) is slightly higher at 4.2028, with a standard deviation of 0.55354. However, the significance threshold and t-value are missing from the table.

The comparison shows that, when it comes to the influence of clarifying learning objectives, there is no statistically significant difference between secondary public and private school students, despite the possibility that private school students have somewhat better mean scores.

**Table 2**  
*Comparing the Effect of Continuous Assessment of Learning Intentions as Formative Assessment Practice on Students Learning Among Public and Private School Students*

Sector	N	Mean	S. D.	t-value	Sig.
Public	192	4.1241	.45791	-.038	.970
Private	200	4.1258	.40760		

Above table highlights the comparative effectiveness of continuous assessment as formative evaluation process to achieve the learning intentions among students at secondary level. Comparison is made between public school students and private school students of secondary grade. Both public and private school students performed almost at the same level with mean values (N=192, M= 4.1241), with a S.D.= .45791 and (N = 200, M= 4.1258), with a S.D. = 0.40760 respectively. The t-value of -0.038 and the accompanying significance level 0.970 clarified that the difference of effect of continuous evaluation of learning intentions on student learning outcomes between both sectors is not worthwhile. Nonetheless, the t-value and significance level show that there isn't a statistically significant variation in the effect of ongoing evaluation of learning goals amongst students.

Comparison shows that ongoing evaluation of learning intentions has a comparable impact on student learning outcomes.

**Table 3**  
*Comparing the Effect of Adjusting Instruction for Learning Intentions as Formative Assessment Practice on Students Learning Among Public and Private School Students*

Sector	N	Mean	S. D.	t-value	Sig.
Public	192	4.2068	.45387	1.901	.058
Private	200	4.1190	.46036		

Above table highlights the comparative effectiveness of adjusting instruction for learning intentions as formative evaluation process to achieve the learning intentions among students at secondary level. Comparison is made between public school students and private school students of secondary grade. Both public and private school students performed almost at the same level with mean values (N=192, M= 4.2068), with a S.D.= .45387 and (N = 200, M= 4.1190), with a S.D. = 0.46036 respectively. The t-value of 1.901 and the accompanying significance level 0.058 clarified that the difference of effect of adjusting instruction for learning intentions on student learning outcomes between both sectors is not worthwhile. Nonetheless, the t-value and significance level show that there isn't a statistically significant variation in the effect of adjusting instruction for learning intentions as formative evaluation amongst students.

Comparison shows that adjusting instruction for learning intentions as formative evaluation has a comparable impact on student learning outcomes.

**Table 4**  
*Comparing the Effect of Formative Assessment Practices on Students Learning Among Public and Private School Students*

Sector	N	Mean	S. D.	t-value	Sig.
Public	192	4.1661	.39465	.432	.666
Private	200	4.1492	.38145		

Above table highlights the comparative effectiveness of formative evaluation process to achieve the learning intentions among students at secondary level. Comparison is made between public school students and private school students of secondary grade. Both public and private school students performed almost at the same level with mean values (N=192, M= 4.1661), with a S.D.= .39465 and (N = 200, M= 4.1492), with a S.D. = 0.38145 respectively. The t-value of .432 and the accompanying significance level 0.666 clarified that the difference of effect formative assessment on student learning outcomes between both sectors is not worthwhile. Nonetheless,

the t-value and significance level show that there isn't a statistically significant variation in the effect formative evaluation amongst students.

Table 5

*Comparing the Effect of Clarifying Learning Intentions as Formative Assessment Practice on Students Learning at Secondary Level Among Male and Female Students*

Gender	N	Mean	S. D.	t-value	Sig.
Male	138	4.0413	.61851	-4.187	.000
Female	254	4.2638	.42669		

The t-test table compares how explaining learning aims as a formative assessment strategy affects secondary students' learning results for both male and female students. With a standard deviation of 0.61851, the mean score for male students (N = 138) is 4.0413. The influence of clarifying learning intentions on learning outcomes varies statistically significantly across male and female students (t-value = -4.187, associated significance level = 0.000). The mean score for female students (N=254) is higher at 4.2638, with a standard deviation of 0.42669. The substantial t-value suggests that, relative to their male counterparts, female students seemed to benefit more from the formative assessment strategy of defining learning intents.

Comparison shows that, when it comes to female students' secondary learning outcomes, making their learning intentions clearer has a more notable positive impact than it does on male students.

Table 6

*Comparing the Effect of Continuous Assessment of Learning Intentions as Formative Assessment Practice on Students Learning Among Male and Female Students*

Gender	N	Mean	S. D.	t-value	Sig.
Male	138	4.0042	.46190	-4.160	.000
Female	254	4.1906	.40146		

The t-test table compares how students' learning outcomes—for both male and female students—are affected by continuous assessment of learning intentions as a formative assessment method. With a standard deviation of 0.46190, the mean score for male students (N = 138) is 4.0042. The t-value of -4.160 and the corresponding significance level of 0.000 suggest that there is a statistically significant difference between male and female students in the effect of continuous assessment of learning intentions on learning outcomes. Female students (N = 254) have a higher mean score (4.1906 with a standard deviation of 0.40146). The substantial t-value suggests that, as a formative assessment strategy, continuing review of learning intentions benefited female students more than it did male students.

Comparing male and female students reveals that the continual monitoring of learning intentions significantly improves the learning outcomes of the former group of pupils.

Table 7

*Comparing the Effect of Adjusting Instruction for Learning Intentions as Formative Assessment Practice on Students Learning Among Male and Female Students*

Gender	N	Mean	S. D.	t-value	Sig.
Male	138	4.0575	.53479	-3.372	.001
Female	254	4.2189	.40139		

This study compares the effects of using formative assessment to adjust instruction for learning purposes on the learning outcomes of male and female students. With a standard deviation of 0.53479, the mean score for male students (N = 138) is 4.0575. The influence of modifying instruction for learning purposes on student learning outcomes varies statistically significantly between male and female students, as demonstrated by the t-value of -3.372 and the corresponding significance level of 0.001. With a standard deviation of 4.2189, the mean score for female students (N = 254) is higher at 0.40139. The substantial t-value suggests that, in comparison to male students, female students seemed to benefit more from formative assessment procedures that involved adapting instruction for learning purposes.

Comparative analysis shows that female students perform better when instruction is adjusted to explain learning intents, and that changing instruction for learning intentions has a more significant positive influence on their learning outcomes than it does on male students.

Table 8

*Comparing the Effect of Formative Assessment Practices on Students Learning Among Male and Female Students*

Gender	N	Mean	S. D.	t-value	Sig.
Male	138	4.0343	.42364	-4.765	.000
Female	254	4.2244	.34955		

The formative assessment methodologies' overall effect on male and female students' learning outcomes is compared in the t-test table. With a standard deviation of 0.42364, the mean score for male students (N = 138) is 4.0343. The combined effect of formative assessment methods on learning outcomes varies statistically significantly between male and female students, as shown by the t-value of -4.765 and the corresponding significance level of 0.000. With a standard deviation of 0.34955, which is higher, the mean score for female students (N=254) is 4.2244. The statistical analysis reveals that female pupils benefited more from formative evaluation processes when compared to their male counterparts.

In contrast to male students, female students perform better across a range of formative assessment approaches, suggesting that formative assessment practices have a more notable beneficial impact on female students' learning outcomes.

Table 9  
*Comparing the Effect of Clarifying Learning Intentions as Formative Assessment Practice on Students Learning at Secondary Level Among Urban and Rural Students*

Locality	N	Mean	S. D.	t-value	Sig.
Urban	165	4.0673	.45195	-3.961	.000
Rural	227	4.2714	.53802		

The influence of clarifying learning intents as a formative assessment strategy is contrasted between the secondary learning outcomes of urban and rural pupils, as shown by the t-test table. Children from urban areas (N = 165) have a mean score of 4.0673 and a standard deviation of 0.45195. The t-value of -3.961 and the corresponding significance level of 0.000 suggest that there is a statistically significant difference between urban and rural students in the effect of clarifying learning intentions on student learning outcomes. With a standard deviation of 0.53802, the mean score for students in rural areas (N = 227) is 4.2714.

In comparison to urban students, the substantial t-value indicates that rural students profited more from the formative assessment technique of stating their learning aims. Comparing rural and urban students shows that making learning aims clearer has a greater favorable impact on secondary learning outcomes for rural students.

Table 10  
*Comparing the Effect of Continuous Assessment of Learning Intentions as Formative Assessment Practice on Students Learning Among Urban and Rural Students*

Locality	N	Mean	S. D.	t-value	Sig.
Urban	165	4.0162	.39934	-4.342	.000
Rural	227	4.2040	.43915		

The t-test table compares the effects of continuous assessment of learning intentions as a formative assessment method on learning outcomes for both urban and rural pupils. Urban students (N=165) have a mean score of 4.0162 and a standard deviation of 0.39934. The influence of continuous assessment of learning intentions on learning outcomes varies statistically significantly between urban and rural pupils, as demonstrated by the t-value of -4.342 and the accompanying significance level of 0.000. Students in rural areas (N = 227) have an average score of 4.2040, with a standard deviation of 0.43915.

Compared to urban students, the rural students appeared to gain more from the formative assessment approach of continuous assessment of learning intentions, as indicated by the significant t-value. Overall, the comparison shows that, when compared to urban students, continuous monitoring of learning intentions has a more notable positive impact on the learning outcomes of rural students.

Table 11  
*Comparing the Effect of Adjusting Instruction for Learning Intentions as Formative Assessment Practice on Students Learning Among Urban and Rural Students*

Locality	N	Mean	S. D.	t-value	Sig.
Urban	165	4.0268	.47028	-5.134	.000
Rural	227	4.2603	.42486		

The following t-test table compares the impact of instructional modifications for learning intents as a formative assessment strategy on learning outcomes for students in urban and rural areas. N=165 urban children had a mean score of 4.0268 and a standard deviation of 0.47028. The t-value of -5.134 and the corresponding significance level of 0.000 suggest that there is a statistically significant difference between urban and rural students in the effect of tailoring teaching for learning intents on student learning outcomes. The mean score for rural pupils (N=227) is higher at 4.2603, with a standard deviation of 0.42486.

Rural students benefited more from formative assessment procedures that entailed adapting instruction for learning intentions, according to the considerable t-value when compared to urban students. Overall, the comparison shows that, when instruction is modified to account for learning goals, learning results for rural students are positively impacted more than those of urban students.

Table 12  
*Comparing the Effect of Formative Assessment Practices on Students Learning Among Urban and Rural Students*

Locality	N	Mean	S. D.	t-value	Sig.
Urban	165	4.0673	.45195	-5.447	.000
Rural	227	4.2714	.53802		

The t-test table compares and contrasts the overall effects of formative assessment methodologies on the learning outcomes of urban and rural students. Children from urban areas (N = 165) have a mean score of 4.0673 and a standard deviation of 0.45195. The combined effect of formative assessment methods on learning outcomes varies statistically significantly across students in urban and rural areas, as shown by the t-value of -5.447 and the corresponding significance level of 0.000. With a standard deviation of 0.53802, the mean score for students in rural areas (N = 227) is 4.2714.

The large t-value suggests that rural children benefited more from formative assessment processes than did urban students. Formative assessment techniques improve learning outcomes for rural children more than for urban ones, according to comparisons.

### **Findings:**

- Regardless of the style of school, both sectors have equivalent mean scores, indicating similar effectiveness.
- The influence on student learning results does not differ significantly, suggesting that the two sectors are equally successful.
- In public schools, modifying instruction to align with learning intentions has a slightly significant effect on student learning outcomes; however, no discernible difference is found in private schools. This raises the possibility that formative assessment practices in public and private educational contexts differ in their efficacy.
- The mean scores of both sectors are similar, suggesting that formative assessment procedures are generally effective.
- Compared to male students, female students regularly exhibit better mean scores and gain more from a variety of formative assessment approaches.
- When compared to urban students, rural kids regularly show higher mean scores and more advantages from formative assessment approaches. This suggests that formative assessment techniques are especially useful for raising the learning outcomes of rural pupils.

### **Recommendations**

- ✓ Effectiveness of formative assessment practices is comparable between public and private schools, the slightly significant effect observed in public schools when modifying instruction to align with learning intentions suggests an opportunity for improvement. Public schools could benefit from targeted professional development initiatives focusing on instructional alignment with learning objectives to further enhance student learning outcomes.
- ✓ Female students and rural students benefit more from formative assessment practices highlight the importance of addressing gender and geographic disparities in education. Educational policymakers should prioritize initiatives aimed at providing equitable access to high-quality formative assessment approaches for all students, with particular attention to supporting female students and those in rural areas.

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