ORIGINAL ARTICLE

Effect of Formative Assessment on Student's Achievement in Secondary Grades in Private Schools of Pakistan

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Abstract:

The study aimed to investigate the effect of formative assessment on student achievement in secondary grades in private schools in Pakistan. The action research dissects the effect of formative assessment on student's achievement in secondary classrooms. This study attempts to investigate which strategies in formative assessment would result in improved student achievement and if they do influence learners as claimed by the literature. Formative strategies such as exit tickets, class discussions, pair work, group presentations, and peer evaluation are extensively discussed. The research approach chosen was a qualitative study. The design chosen was action research because in this research an educational problem was being addressed. The sampling technique was purposive sampling. The characteristics of the individuals would be students of secondary grades between the age of 12-15. Both genders are included. The individuals would be students studying in a private school. The subjects chosen were English, Social Studies, and Islamiyat. This study found that several formative assessment strategies such as discussions, group presentations, and peer evaluation increased student engagement, and willingness and displayed their understanding of the content which in turn reflected their ability to perform well when evaluated. The study was qualitative, yet in the future, researchers could go a step ahead and conduct a quantitative study. Likewise, it was conducted in one metropolitan city of Karachi therefore, its results could not apply in the rural areas, future researcher needs to include the rural population for generalizability of the result.

Key Words: Formative Assessment, Strategies, Secondary Classrooms, Student Achievement, Qualitative Analysis.

Introduction

Locally

Most schools in Pakistan offer a rote learning-based education. Here, learning is evaluated based on memorization and reproducing facts as they are, seldom focusing on understanding the content being delivered (Ahmed, Akhther, & Aslam, 2020). Student's learning is evaluated without a feedback mechanism involved. Imagine getting a bad grade and pondering on what you did wrong. This never happens in real life. As adults when we make a mistake, we're told what went wrong and how could improve it (Shahzad, Hussain & Habib, 2022). This needs to happen in schools too. This is a standard practice across the globe called "assessments" (Solangi, Laghari, & Ghafoor, 2022). I've observed that in schools, students hardly get feedback on their work in terms of daily feedback. Students end up struggling to understand concepts, and the teacher has no idea if the students have grasped the concepts. This situation made me quite curious to understand if formative assessment is as necessary and effective as scholars make it out to be. In regions like South Asia, especially Pakistan, formative assessment is gaining popularity in addressing disparities in student achievement (Ajmal, Khalid, & Ahmed, 2022). Despite the importance of formative assessment, challenges arise whilst implementing it across diverse cultural and socioeconomic spectrums. Several factors such as economic strain, lack of resources, and untrained teachers hinder the adoption of formative assessment practices (Shakir *et al.*, 2021).

Internationally

Understanding the importance and impact of formative assessment on student achievement globally is crucial. Educators and policy makers highlight the importance of formative assessment to enhance the learning objective and to ensure success (Irons & Elkington, 2021). As opposed to summative assessment which only provides feedback at the end of a learning journey, formative assessment ensures that timely and prompt feedback is given to the students (McCallum & Milner 2021). The implementation of formative assessment strategies has become a foundation of modern pedagogy in classrooms all over the world. Formative assessment is recognized as a dynamic process that involves a cycle of monitoring and providing timely feedback to the students (Morris, Perry, & Wardle, 2021). In most first-world countries formative assessment is deeply ingrained in their educational framework. Formative assessment is integral to promote student cantered learning as well as fostering metacognitive skill such as critical thinking skills and problem-solving skills within the students as opposed to merely gauging student understanding (Boston,2019).

Problem Statement

Despite the widely acknowledged importance of formative assessment in enhancing student's learning and achievement, the impact of formative assessment strategies on student achievement in the secondary sections of private schools in Pakistan is still unexplored (Shahzad, Hussain, & Habib, 2022) The lack of empirical research hinders educators to implement evidence-based strategies specifically made for the students. Therefore, there needs to be an in-depth investigation regarding the relationship between formative assessment strategies and student achievement in secondary grades in private schools of Pakistan (Ajmal, Khalid, & Ahmed, 2022).

Research Questions

1. What is the effect of formative assessment on student's learning?
2. What are the ways to implement formative assessment in classrooms?

Objectives

1. To evaluate the effect of formative assessment on students
2. To find out effective formative assessment strategies

Significance

This study would help all the teachers who are trying to implement formative assessment strategies in Pakistan especially in regular middle-income schools. This would guide them to understand what has worked with students before and it might help them with their classrooms.

Review of Literature

Assessment for learning involves supporting instructional decisions with hard evidence, it focuses on the student's responses to the feedback and their learning journey (Li *et al.*, 2023). According to Asamoah, Shahrill, & Abdul Latif (2022), the process of assessment involves obtaining evidence and taking appropriate action to improve performance. The two kinds of assessment strategies commonly used in classrooms are summative and formative assessment strategies.

Assessment is an important tool that aims to enhance learning and align the educational objectives and uses a variety of tools for students with different learning styles (Broadbent *et al.*, 2021). Summative assessment is used to evaluate and qualify students, and this assessment is used to award accreditation (Heritage, 2021). Summative assessment is the culmination of all assessments, and it gives information on the student's mastery of the content (Cekic &. Bakla, 2021). Formative assessment is the opposite of summative assessment, according to Koka, Bremane, & Koke (2023), it can be defined as a process through which teachers recognise and respond to student learning to enhance their learning during the learning process. Formative assessment helps to respond to student's diverse learning needs through constant assessments. It is a diverse set of activities that help the students gauge the content better (Hopfenbeck *et al.*, 2023). Formative assessment is an integral part of the educational process, and its importance has been recognised globally. The current structure of formative assessment and the impact of it on students, is important in understanding the current landscape of Pakistan's educational system. This research will help our understanding of impacts of formative assessments on students as well as effective formative assessment strategies (Sudakova *et al.,* 2022). The structure of formative assessment is multifaceted, and its characteristics are being responsive to student needs, using multiple criteria sources to gauge the quality of student responses, focusing on learning as a continuous journey involving feedback that contributes to the improvement and development of various skills (Geezer *et al.*, 2021). The studies suggest that formative assessment positively impacts student learning as it increases performance, collaboration, engagement and motivation. (Dunn, KE, & Mulvenon, 2019). Formative assessment incorporates interactive and fun approach which helps to boost engagement amongst students and garners a positive response which inevitably leads to better performance (Granberg, Palm, & Palmberg, 2021). It also contributes to student's intrinsic motivation by enhancing their feeling of autonomy and competence. According to Leenknecht *at al.* (2020), research shows that use of formative assessment leads to intrinsic motivation. Formative assessment holds great significance as it can increase student engagement and retention of the content through continuous feedback, formative assessment enables learners to identify their learning gaps to achieve higher academic performance (Schildkamp, 2020).

Significance

Formative assessment plays a massive role in learning as it provides a loop of feedback between the teachers and the students during instruction. It helps to figure the strengths and weaknesses of the students and helps to tailor the lessons to be better suited for the students (Irons & Ellington, 2021). Formative assessment offers the students feedback on their learning and the areas needed for improvement. It helps to foster a safe learning environment where students participate actively in their learning (McCallum & Milner, 2021). In Pakistan, the focus of education is often academic excellence and students learning needs are often ignored, formative assessment in Pakistani schools gives an excellent opportunity to serve as means of ensuring that every student's learning needs are addressed individually (Ahmed, Akhtar, & Aslam, 2020).

Effectiveness

Research has shown that formative assessment improves student achievement through on time feedback and opportunities for reflections. Formative practices lead to significant changes in student achievement by providing specific and actionable feedback (Zhai & Nehm, 2023). In the context of Pakistan implementing formative assessment practices contributes to promoting a continuous cycle of improvement (Shakir *et al*., 2021). Furthermore, formative assessment leads towards an interactive learning environment which fosters a sense of ownership and responsibility in learners. This not only motivates learners but also enhances the retention of the content and leads to better academic performance (Solangi, Laghari, & Ghafoor, 2022).

Necessity

Formative assessment is now more necessary than ever as it provides an in-depth understanding of the student's progress which allows teachers to restructure and adapt their instruction so that individual attention and the student learning are taken care of (Yan & Pastore, 2022). Research indicated that formative assessment strategies can significantly increase student engagement by making learning more interactive. The formative assessment strategies allow teachers to gauge student comprehension and enables them to alter their teaching strategies (McCallum & Milner, 2021).

Peer Interaction

Integration of peer interaction shows promising results to enhance student engagement. Peer assessment strategies such as group discussions, peer assessment, and group presentations allow the students to actively participate in their learning (Granberg, Palm, & Palmberg, 2021). These strategies create opportunities for students to share their thoughts, confront different views, and work on ideas together. Research highlights that collaborative learning improves academic performance. Students engaged in group work and discussions end up with a deeper understanding of the content, as they usually explain concepts to their peers and engage in discussions (Chen, Jiao, & Hu, 2021).

Designing Formative Assessments

Designing formative assessments for classrooms is crucial for a teacher to understand. The first step is to thoroughly understand the learning objectives that need to be assessed (Lui & Andrade, 2022). The second step is to select the most appropriate tool to assess the learning objectives such as questioning, discussions, quizzes, peer assessment and performance tasks (Sudakova *et al.,* 2022). The third step is to provide clear expectations and to communicate with the students the purpose of the assessments and the criteria for success (Morris, Perry & Wardle, 2021). The fourth step is to offer timely and constructive feedback so that the students can understand their strengths and the areas of improvement (Koka, Bremane, & Koke, 2023). The feedback must be constructive which guides the students towards achieving their learning objectives. The fifth step is to monitor the students' progress to identify learning gaps so that the strategies can be adjusted accordingly (Broadbent *et al*., 2021). The last step was to reflect on the assessment strategies and adjust as required (Kaya, O'Leary & Costello, 2022).

Constructivism

The theoretical framework of the research draws upon the constructivist theory as it provides a theoretical lens through which we can understand the relationship between formative assessment practices and student outcomes. Constructivism says that learning is an active process of constructing knowledge based on prior experiences of an individual and interactions with the environment (Lombardo & Kantola, 2021). In this context of formative assessment, the emphasis is on the importance of providing students with timely and meaningful feedback to support their learning and understanding. Constructivism emphasizes that students should actively participate in their assessment tasks along with feedback to construct their knowledge of the subject matter (Brau, 2020). Another important aspect of constructivism is providing scaffolding sequentially helping the students to promote their learning. Formative assessments act as scaffolds for the students by providing them with on-time feedback and

helping them bridge the gap between their current understanding and the desired learning outcomes (Muller, 2020). Constructivist principles suggest that formative assessment must be aligned with the individual needs and the abilities of the students. This way the students would be able to engage within their zone of proximal development and they would be able to make progress with appropriate support (Taber, 2019).

Methods

Approach

The research approach chosen was a qualitative study. The design chosen was action research because in this research an educational problem was being addressed. The sampling technique was purposive sampling. The characteristics of the individuals would be students of secondary grades between the age of 12-15. Both the genders are included. The individuals would be students studying in a private school. The subjects chosen were English, Social Studies and Islamiyat.

School Milieu

HCS, a purpose-built school following the Agha Khan System of Education. The school caters to the middle and upper middle class. The school is in the Korangi district. The school is not technology oriented.

Class Milieu

The chosen grades were grade seven and eight. There were 35 students in grade 7 and 25 in grade 8. Both the grades had students from various socio-cultural backgrounds. The teachers for the chosen subjects were the same in both grades. There were barely any formative assessment practices in the class.

Reconnaissance

I found that teachers had little to no knowledge of what formative assessment meant. According to them assessment meant to test the students like an exam. This was consistent with the two teachers I interviewed. When I asked how the students were given feedback on their learning the teachers had no answers apart from saying that they normally give feedback on written answers in the student's notebook. The students weren't given feedback to gauge or to improve their learning. I came to notice a pattern within both grades, teachers would come to the class and deliver a lesson which would include simply explaining the lesson in simpler words or Urdu and focusing on answering the questions at the end of the chapters in their notebooks. The only kind of formative assessment technique I observed was asking questions however the feedback of the teacher was missing. I observed that the students were explained the content, and then they were asked to copy questions and answer from the board or sometimes the teacher would ask them to look for answers themselves in the books, but that was a rarity. The teacher would later check if the students answered correctly or incorrectly. However, the student's understanding was not assessed in any shape or form. The only form of feedback given from the teacher to the students was writing good or bad in their copies or sometimes the teacher would share verbally if the answers were correct or incorrect. The teacher did not share what part the students did wrong or how they could improve it; this was a consistent observation in both the grades.

I also analysed their grades to understand if the students were getting bad grades due to lack of formative assessment, however the average data of the monthly quiz suggested that the students were performing well over all and there were no below average grades. When I analysed the existing data such as monthly quizzes of grades seven and eight it was found that students in both classes performed generally well. This led me to enquire if assessment practices do have an impact. Quizzes generally ask questions that require a learned answer. Rather than students critically, analysing and thinking students stuck to rote learning, which showed me the environment of the school and their education practices.

Data Collection

The data was collected through six weeks of observations and reflection of grade 7 and 8. Observation protocols were employed to observe formative assessments in the classrooms. I employed different types of assessment strategies used, and provided feedback to the students, and assessed the level of student engagement during formative assessment. Another data collection tool that was employed was student work samples. This was used to analyse the quality of the student's work.

Data Analysis Technique

The data was analysed using thematic analysis. The observation notes were thoroughly analysed, and key themes and pattern were generated related to the formative practices. Each observation was coded based on the type of assessment, the nature of the feedback, and the level of student engagement. Student work samples were also evaluated, based on the learning outcomes. Patterns and trends were identified based on student performances in different formative tasks. Then the data sources would be triangulated and the finding of both observation protocols and student work samples would be compared to gain a comprehensive understanding of the impact of the formative assessment on student achievement.

Ethical Considerations

The ethical considerations were also considered as the consent was given freely and voluntarily. The anonymity and confidentiality of the participants was also maintained. Participants were assured that their responses would only be used for this research and would not be shared with anyone else (Arifin, 2018).

Intervention

Cycle 1: Implementation of Verbal Strategies

Step 1: Planning and Delivering a Traditional Lesson

Firstly, to understand if formative assessment strategies are necessary and if are students struggling in their absence. I would plan and execute lesson in both grade 7 and 8. The lesson would follow the standard teaching methods that are used by the teachers of HCS school by focusing on delivering the content thorough lecture and teacher centred lessons. This way I would get a clearer idea if and where the students are struggling. This step would be crucial to establish a baseline for student performance and engagement without the use of formative assessment strategies. I would take notes on student participation and comprehension during the lesson.

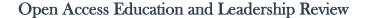*Step 2: Introduce Formative Assessment Strategies*

After comprehensive analysis identify areas where the students are struggling. Formative strategies such as thumbs up, exit tickets, and classroom discussions would be employed.

Thumbs up: During the lesson I will ask the students to show thumbs up if they understand the material and thumbs down if they do not, this will allow me to gauge their understanding of the lesson and adjust the lesson accordingly.

Exit Tickets: At the end of each class, ask the students to write done one thing they learned in the lesson and one thing they disliked. Collect the exit tickets to assess individual student understanding.

Classroom Discussions: Encourage open-ended discussions where the students can ask questions and engage with each other. I would facilitate discussions and encourage students to ask and respond to questions.

These strategies would provide feedback which could help to improve both teaching and learning gaps promptly.

Step 3: Student Impact

The student's response to the strategies would show whether their classroom engagement has made improvement and understanding of concepts has been achieved. I would observe changes in student's engagement and participation during the lesson. Feedback from the students would be in the shape of student's work such as exit tickets. This step helps to evaluate the success of formative assessment strategies and their impact on students learning. It will also provide insights on how to improve and refine strategies for the next cycles.

Cycle 2: Implementation of Group Formative Assessment Strategies

Step 1: Review findings of cycle 1

The findings of cycle 1 would be reviewed. This includes results of exit tickets, thumbs up and down, and classroom discussions. I would identify the areas where students showed improvements and areas, they kept struggling in. I would look for patterns in student engagement. Patterns such as which technique worked better than the others? Reviewing the findings of cycle 1 is important to implement new strategies for cycle 2. This step ensures that the intervention is responding to the needs of the students.

Step 2: Implement Strategies

Pair work: Design activities that enable students to work together to complete assignments or to discuss concepts. Implement pair work activities such as working on class tasks together and brainstorming.

Group Presentations: Create tasks such as working together in groups to prepare presentations and present their findings to the rest of the class. I would facilitate group work and provide guidance and resources. Each group would present their finding with the class. Throughout the implementation I would provide continuous feedback to the students. These strategies would provide the students with opportunities to learn from each other and develop a deeper understanding of concepts through pair work and group presentations.

Step 3: Student Impact

Observe changes in student behaviour and engagement during pair work and group presentations. Observe student interactions, participation levels and difficulties during the activities and compare the results of cycle 1 and 2 to evaluate if there has been any improvement in student understanding and achievement. The students' response to the strategies would show whether their classroom engagement has improved and whether understanding of concepts has been achieved.

Cycle 3: Peer assessment strategies

Step 1: Review Findings from Cycle 2

Review the findings from cycle 2 and identify improvements in student engagement and understanding. Determine which strategy was most effective in enhancing student learning. Identify the challenges of cycle 2.

Step 2: Implement peer evaluation

I would design peer assessment strategies such as peer grading and peer feedback.

Peer Grading: Here the students would grade each other's work. Encourage the students to share their rationale for the given grade.

Peer Feedback: After group presentations ask the student to share feedback on their peers' presentations focusing on the delivery and the quality of the content. Peer assessment strategies promote a deeper understanding of the material by encouraging students to evaluate their peers' work. It improves the students' ability to reflect on their learning.

Step 3: Student's Impact

Observe changes in student behaviour, engagement, and interactions during peer assessment. Compare the results of formative assessments from cycles 2 and 3 to determine if there has been any improvement in student understanding and achievement.

Findings

Cycle 1

Step 1: Planning and Delivering a Traditional Lesson

I delivered 4 traditional lessons in both classes and observed that the students would passively listen and write down answers I wrote on the board. When I asked them a question at the end of the lesson to gauge their comprehension most of the class would be blank. Apart from a handful of students I received no answers. This led me to believe that the students were not quite understanding the content shared with them through conventional teaching methods.

Step 2: Introduce Formative Assessment Strategies

I then planned simple formative assessment strategies to incorporate into my lessons. Strategies such as:

1. Thumbs up or thumbs down to check for understanding.
2. Exit tickets.
3. Discussions

These three strategies were incorporated in the lessons throughout the two weeks. Since these strategies would highlight the students' understanding. In both grades 7 and 8, the students were eager and excited to respond to the questions and were quite interested in the strategies I used. This gave students a chance to actively participate in the lesson.

Step 3: Student Impact

These strategies had a positive impact. The students shared their understanding very well through exit tickets. I had certain biases that they would not be able to share their understanding, likes, and dislikes regarding the lesson. They shared very clearly what they understood and what they did not like such as how I taught a certain lesson through exit tickets. Discussions also proved to be very helpful as the students who were not understanding certain topics were identified. This helped me with the lesson a lot and I was able to modify the lesson according to the student's needs. Thumbs up and down was a strategy they were already aware of which they weren't using. This was a strategy that could not work out in the class.

Cycle 2

Step 1: Reflection of Cycle 1

Cycle 1 showed that the students enjoyed the formative assessments employed within the lessons. They understood the content easier through the strategies used and they gave feedback and demonstrated their understanding by answering questions and participating in discussions. These strategies were used in both grades 7 and 8 throughout two weeks. I also observed increased participation in the classrooms. The two strategies that helped me gauge student understanding and identify misconceptions were classroom discussions and exit tickets. Keeping in mind the student's feedback on wanting to work together and assess what effects other techniques could have on student's achievement.

Step 2: Implementation of Formative Strategies

After thorough reflection I concluded that since the students now understand the purpose of formative assessment, I would challenge them to work together and demonstrate their understanding of the content through pair work and

group presentations. These strategies were also implemented throughout two weeks in the same grades. In the group presentation after a thorough explanation me, I told the students that they would be working in groups, and I made groups by doing a headcount and grouped the whole class in this manner. Then I assigned the students a role in their group such as illustrator, narrator, fact writer, etc. This way the students had their role defined. The students would make presentations over the course of two days and then present. The presentations were quite detailed, and it reflected their understanding. The pair work on the other hand would take 10-15 minutes total and the students were much easier to manage.

Step 3: Student Impact

Initially, the students were creating quite a lot of chaos as they had a harder time working together to achieve the lesson outcomes. Over time, I observed that the students did their group presentations exceptionally well however they took a lot of time to do them which is not practical to implement frequently. The pair work was not as engaging for the students as the group presentations however the students understood the content well. However, there was a difference between the student's work on the presentation and pair work. The students had much longer time to work on the presentation and that might be a reason for the difference in quality of work.

Cycle 3: Peer Assessment Strategies

Step 1: Reflection

Cycle 2 showed that students performed much better in group presentations as opposed to pair work. The students were more engaged, and active and their quality of work was higher as opposed to pair work. During presentations, the students were free to share and question their knowledge and they also shared their feedback of what they liked and disliked. The students actively participated.

Step 2: Implementation of Peer Assessment

After cycle 2, I came to understand that students learned better when they would talk and discuss things amongst themselves however, I could not implement frequently the group presentation strategy as it was time-consuming. So, after much thought I decided to incorporate a peer assessment strategy where the students would assess each other's answers. Initially, I would ask a question, and the student would share their answers and then I would ask the rest of the class to assess whether the answer was correct or incorrect. Similarly, I also asked them to assess each other's work such as assessing applications. The students would mostly comment verbally since it took less time.

Step 3: Student Impact

Students in both grades would listen carefully to each other so that they could find mistakes and errors and upon finding the mistakes they would correct the student. This way the students would share and assess each other's work and would do their best to ensure that they were sharing their best responses. This ensured active participation in the class throughout the lesson. The students at times would defend their answers if wrongly criticized this showed their understanding of the subject matter. The students had high engagement during peer assessment.

Results

The recurring themes from the observations were higher student engagement and eagerness to participate in class discussions. The students showed higher engagement when interacting with their peers during the lesson. Individual formative assessment strategies although effective such as exit tickets the students showed more interest when formative assessment practices involved peer interaction. All in all, the students answered questions correctly and paid more attention in class when classroom discussions, group work presentations, and peer evaluations took place.

Conclusions and Recommendations

The research on the effect of formative assessment strategies on student learning and engagement in secondary school students revealed several insights. Students demonstrated increased interest and participation when formative assessment strategies involved collaborative elements. Strategies such as classroom discussions, group work, presentations, and peer evaluation fostered a more interactive learning environment and led to more accurate and enthusiastic responses. Overall, the research highlights the importance of formative assessment, and it shows that formative assessment strategies do have an impact on student achievement. Particularly, peer-based formative assessment as they foster collaboration. Some recommendations regarding the research are:

1. Offer professional development for teachers through training sessions and workshops for teachers on effective formative assessment strategies and ways to implement them in the classroom.
2. Conduct studies with larger and more diverse samples to generalize findings across various contexts.
3. This research can be done to assess the impact on different subjects such as maths, science, Urdu, etc. This will aid in the understanding of the influence of learning in different academic disciplines.

Limitations and Future Research Directions

The study was qualitative, yet in the future, researchers could go a step ahead and conduct a quantitative study. Likewise, it was conducted in one metropolitan city of Karachi therefore, its results could not apply in the rural areas, future researcher needs to include the rural population for the generalizability of the result.

Acknowledgments

Declaration of Interest

The author declared that there is no clash of interest

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