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The Role of Effective Feedback in Enhancing Student Academic Achievement through Virtual Formative Assessment: A Comprehensive Study

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Abstract

This study investigates the role of effective feedback in enhancing students' academic achievement through virtual formative assessment in high schools in Bahrain. It aims to explore how different dimensions of feedback understanding, usefulness, timeliness, and motivational aspects affect students' academic performance. A quantitative research design utilized a structured survey with 365 high school students as participants. The survey measured their perceptions of feedback using a Likert scale across various dimensions. Data analysis included descriptive statistics, and regression analysis to determine the impact of feedback on academic achievement. The study found that feedback understanding, usefulness, and motivation significantly influence students' academic performance. Clear and actionable feedback was shown to improve students' academic outcomes. Timely feedback also had a positive impact, although its effect was less pronounced compared to other factors. Motivational feedback played a crucial role in enhancing students' engagement and performance. Effective feedback is pivotal in improving academic achievement. Feedback that is comprehensible, useful, timely, and motivational positively influences students' performance. The findings highlight the need for educators to focus on delivering clear, relevant, and supportive feedback. This study contributes valuable insights into the educational context of Bahrain and offers practical recommendations for enhancing feedback practices in high schools.

Keywords: Feedback, Academic Achievement, Formative Assessment, Students' Engagement, Motivational Aspects

Introduction

Virtual formative assessment is a dynamic process that supports learning by offering continuous feedback to students, enabling them to reflect on their progress and adjust their

learning strategies accordingly. With the increasing recognition of student-centered education, the concept of virtual formative assessment has gained prominence as a means to foster deep learning, self-regulation, and improved academic performance (Black & Wiliam, 2021; Rafiq & Qaisar, 2021). Central to the process of virtual formative assessment is the provision of timely, constructive, and targeted feedback, which serves as a catalyst for enhancing student achievement. Effective feedback helps students identify their strengths and weaknesses, encourages active learning, and promotes the development of critical thinking and problem-solving skills (Hattie & Clarke, 2020). In recent years, a growing body of research has explored the impact of feedback on student learning outcomes, with particular attention to how different types of feedback influence academic achievement. According to Brookhart (2021), effective feedback is not merely about correcting errors; rather, it is about guiding students toward higher-order thinking and deeper understanding of content. This feedback-centered approach aligns with contemporary educational theories, such as constructivism, which emphasize the role of learners as active participants in the construction of knowledge.

Despite the acknowledged importance of feedback, research shows that not all feedback is equally beneficial. Feedback that is too vague, overly critical, or lacks specificity can hinder student progress (Shute, 2021). Moreover, how students interpret and act upon feedback can vary significantly, influenced by factors such as motivation, self-efficacy, and prior knowledge (Sadler, 2020; Rafiq, Kamran & Afzal, 2023). Hence, educators must carefully design feedback that is clear, actionable, and aligned with the learning goals to maximize its effectiveness in enhancing student achievement.

Defining Virtual Formative Assessment and Feedback

Virtual formative assessment is a range of informal and formal assessment procedures conducted by teachers during the learning process to modify teaching and learning activities to improve student attainment (Wiliam & Leahy, 2020). Virtual formative assessment is distinct from summative assessment in that its primary purpose is to provide ongoing feedback that can be used by both instructors and students to guide future learning (Carless, 2020; Rafiq, Qaisar & Butt, 2022). This definition emphasizes that feedback is not an isolated component of virtual formative assessment but rather an integral part of the learning cycle. Feedback, in the context of formative assessment, refers to information provided to the learner that is intended to help them close the gap between their current performance and the desired learning outcomes (Sadler, 2020). Hattie and Timperley (2021) identify three key questions that effective feedback should address: "Where am I going?" (the goals), "How am I going?" (progress towards the goals), and "Where to next?" (future actions to improve). By answering these questions, feedback can provide students with a clear roadmap for improvement and encourage self-regulated learning.

Characteristics of Effective Feedback

Recent research has identified several characteristics of feedback that make it more effective in enhancing student achievement. First and foremost, feedback must be specific, focused on the task, and aligned with the learning objectives (Brookhart, 2021). General comments such as "good job" or "needs improvement" provide little actionable information and are unlikely to lead to significant learning gains. In contrast, specific feedback that highlights both the strengths and areas for improvement in a student's work can help them understand exactly

what they need to do to achieve mastery (Nicol, 2020). Timeliness is another crucial aspect of effective feedback. Studies have shown that feedback is most beneficial when it is provided soon after the task is completed, as it allows students to make immediate corrections and reinforces learning (Shute, 2021). Delayed feedback, on the other hand, can result in missed opportunities for improvement and a disconnect between the learning experience and the feedback provided.

Additionally, feedback should be delivered in a way that promotes a growth mindset, encouraging students to view challenges as opportunities for growth rather than as reflections of their innate abilities (Dweck, 2020). According to Nicol (2020), feedback that focuses on effort, strategies, and persistence fosters resilience and motivates students to take ownership of their learning. In contrast, feedback that emphasizes grades or rankings can lead to fixed mindsets, where students become overly concerned with external validation rather than the learning process itself.

The Role of Feedback in Self-Regulated Learning

Self-regulated learning (SRL) refers to the process by which learners take control of their own learning by setting goals, monitoring their progress, and adjusting their strategies as needed (Zimmerman, 2021). Feedback plays a pivotal role in promoting self-regulated learning by providing students with the information they need to assess their own performance and make informed decisions about how to improve (Panadero & Broadbent, 2020). Effective feedback helps students develop metacognitive skills, such as the ability to plan, monitor, and evaluate their learning, which are essential for academic success. Empirical studies have demonstrated the positive impact of feedback on self-regulation and academic achievement. For instance, Panadero and Broadbent (2020) found that students who received formative feedback that included self-regulation prompts were more likely to engage in reflective practices and perform better on subsequent assessments. Similarly, Shute (2021) highlights that feedback interventions that encourage students to set specific, achievable goals and monitor their progress can lead to significant improvements in both motivation and academic performance.

Challenges in Implementing Feedback Effectively

While the benefits of feedback are well-documented, there are several challenges associated with its implementation in educational settings. One common challenge is the lack of time for teachers to provide individualized feedback to all students, particularly in large classrooms (Wiliam & Leahy, 2020; Rafiq, Kamran & Afzal, 2024). This can result in feedback that is either too generic or delayed, limiting its impact on student learning. Additionally, teachers may struggle with providing feedback that is both critical and supportive, as overly negative feedback can demotivate students and discourage further effort (Carless, 2020). Another challenge is ensuring that students understand and act upon the feedback they receive. Research by Nicol (2020) indicates that students do not always interpret feedback in the way it was intended, which can lead to confusion and a lack of improvement. To address this, educators should consider using strategies such as feedback dialogues, where students have the opportunity to ask questions and seek clarification, as well as incorporating peer feedback to encourage collaborative learning (Nicol, 2020).

Strategies for Enhancing Feedback in Formative Assessment

Given the challenges associated with feedback, it is important for educators to adopt strategies that maximize its effectiveness in enhancing student achievement. One such strategy is the use of formative feedback loops, where students receive multiple rounds of feedback on a task and have the opportunity to revise their work based on the feedback provided (Carless, 2020). This iterative process encourages deeper engagement with the material and promotes mastery learning. Moreover, the use of digital tools and learning management systems can help streamline the feedback process, allowing teachers to provide more timely and detailed feedback (Panadero & Broadbent, 2020). Technology can also facilitate peer assessment, where students evaluate each other's work and provide constructive feedback, fostering a collaborative learning environment (Rafiq, Afzal & Kamran, 2022).

Background of the Study

Education systems around the world have increasingly recognized the critical role that virtual formative assessment and feedback play in student learning and achievement. In recent years, countries in the Middle East, including Bahrain, have made significant strides in improving their educational systems, with a focus on enhancing teaching quality and student outcomes (Al-Ahmadi & Romanowski, 2020). In the context of high school education, virtual formative assessment has been identified as a key tool in improving student engagement, motivation, and academic achievement. Bahrain, with its growing emphasis on educational reform, provides an ideal context for examining the impact of virtual formative assessment and feedback at the secondary school level. Bahrain's educational system, governed by the Ministry of Education, has undergone several reforms to align with global educational standards and to meet the needs of a rapidly changing workforce. The Ministry has emphasized the importance of student-centered learning, where students take an active role in their education, and teachers act as facilitators of learning (Ministry of Education Bahrain, 2021). As part of these reforms, virtual formative assessment has gained increasing attention as a strategy for fostering critical thinking, problem-solving, and independent learning among high school students (Moussa-Inaty et al., 2022).

However, despite these efforts, challenges remain in the effective implementation of virtual formative assessment and feedback in Bahraini schools. Research suggests that while teachers in Bahrain recognize the importance of formative assessment, many struggles with providing feedback that is timely, specific, and actionable (Al-Mohannadi & Romanowski, 2020). This highlights the need for further research on how virtual formative assessment practices, particularly feedback, can be enhanced to improve student outcomes at the high school level in Bahrain.

Educational Reforms and Virtual Formative Assessment in Bahrain

The educational landscape in Bahrain has undergone substantial changes over the past two decades, driven by the government's vision to create a knowledge-based economy (Kingdom of Bahrain Economic Vision 2030). Central to these reforms has been the focus on improving the quality of teaching and learning in schools. The Ministry of Education has introduced various initiatives aimed at enhancing teacher training, curriculum development, and assessment practices (Ministry of Education Bahrain, 2021). One of the key components of these reforms has been the integration of virtual formative assessment into everyday

classroom practices. Formative assessment, characterized by its continuous and interactive nature, is intended to provide students with feedback that helps them understand their learning progress and identify areas for improvement (Wiliam, 2020). In Bahrain, virtual formative assessment is increasingly being recognized as a vital tool for improving student learning, particularly in high schools, where students are preparing for university education or entering the workforce (Al-Harthy & Al-Harthy, 2021). The introduction of virtual formative assessment has shifted the focus from traditional, summative assessment methods, which primarily measure what students know at the end of a learning cycle, to a more process-oriented approach that emphasizes ongoing feedback and adjustment of teaching strategies.

The Role of Feedback in Bahraini High Schools

Feedback is at the heart of formative assessment, acting as a bridge between teaching and learning. It provides students with critical information about their performance, helping them to understand their strengths and weaknesses and guiding them toward improvement (Hattie & Clarke, 2020). In Bahraini high schools, feedback is essential not only for academic achievement but also for fostering student engagement and motivation. Despite its importance, recent studies suggest that the quality of feedback provided in Bahraini high schools varies significantly. Al-Harthy and Al-Harthy (2021) found that while many teachers recognize the value of feedback, they often struggle to provide feedback that is timely and actionable. This can be attributed to factors such as large class sizes, limited time for individualized feedback, and a lack of professional development on effective feedback strategies. As a result, students may not always receive the guidance they need to improve their learning outcomes. Moreover, the way students in Bahrain perceive and respond to feedback is influenced by cultural factors. Research by Al-Mohannadi and Romanowski (2020) suggests that in collectivist cultures, such as Bahrain, students may be more likely to view feedback as a form of criticism rather than a tool for improvement. This can affect how they respond to feedback, potentially reducing its effectiveness in promoting learning. Therefore, understanding the cultural context in which feedback is given and received is crucial for designing effective virtual formative assessment practices in Bahraini high schools.

Challenges in Implementing Effective Feedback

One of the key challenges in providing effective feedback in Bahraini high schools is the traditional focus on summative assessment. While recent reforms have emphasized formative assessment, many teachers and students are still accustomed to high-stakes testing, which often prioritizes grades over the learning process (Al-Ahmadi & Romanowski, 2020). This focus on summative assessment can lead to a situation where feedback is perceived as less important, with teachers focusing more on preparing students for exams rather than providing ongoing, formative feedback.

Another challenge is the variation in teacher training on virtual formative assessment and feedback. Research by Moussa-Inaty et al. (2022) indicates that many teachers in Bahrain have not received adequate training on how to implement virtual formative assessment effectively. As a result, teachers may lack the skills needed to provide feedback that is clear, specific, and actionable. This can limit the effectiveness of virtual formative assessment in improving student achievement. Additionally, large class sizes in Bahraini high schools present a practical challenge for providing individualized feedback. Teachers may find it difficult to provide detailed, personalized feedback to every student, leading to feedback that is too

general or delayed (Al-Harthy & Al-Harthy, 2021). This highlights the need for innovative approaches to feedback, such as the use of peer assessment or technology to support the feedback process.

The Importance of Culturally Responsive Feedback

Given the unique cultural context of Bahrain, feedback practices must be culturally responsive. Culturally responsive feedback recognizes the cultural values, beliefs, and experiences of students and adapts feedback to be more relevant and meaningful to them (Gay, 2020). In Bahrain, where students may place a strong emphasis on relationships and social harmony, feedback that is perceived as too harsh or critical may be less effective (Al-Mohannadi & Romanowski, 2020). To address this, educators in Bahrain must develop feedback strategies that are sensitive to the cultural context of their students. This could include using more collaborative feedback practices, where students and teachers engage in a dialogue about learning, rather than a one-way delivery of feedback. Additionally, feedback that focuses on effort and improvement, rather than simply highlighting mistakes, may be more effective in motivating students in this context (Wiliam, 2020).

The Role of Technology in Enhancing Feedback Practices

As part of Bahrain's educational reforms, there has been a growing emphasis on integrating technology into teaching and learning (Ministry of Education Bahrain, 2021). Technology has the potential to play a significant role in enhancing feedback practices, particularly in the context of large class sizes. Digital tools such as learning management systems (LMS) can be used to provide timely, personalized feedback to students, helping to bridge the gap between teacher capacity and student needs (Moussa-Inaty et al., 2022). Furthermore, technology can support peer feedback, where students assess each other's work and provide constructive feedback. This not only reduces the burden on teachers but also promotes a more collaborative learning environment. In Bahraini high schools, where the use of technology is increasingly common, leveraging digital tools to support feedback practices could be a key strategy for improving virtual formative assessment outcomes (Al-Ahmadi & Romanowski, 2020).

Problem Statement

Despite ongoing educational reforms in Bahrain, aimed at improving teaching quality and student learning outcomes, the implementation of virtual formative assessment practices—particularly effective feedback remains inconsistent at the high school level. Research indicates that formative feedback is a crucial element for fostering student learning, engagement, and academic achievement (Hattie & Clarke, 2020). However, in Bahraini high schools, teachers often struggle with delivering timely, specific, and actionable feedback, a challenge compounded by large class sizes, time constraints, and limited professional development on virtual formative assessment strategies (Al-Harthy & Al-Harthy, 2021). Moreover, cultural factors unique to Bahrain's collectivist society may further hinder the effectiveness of feedback. Students may perceive feedback as criticism rather than a tool for improvement, which can reduce its impact on their learning progress (Al-Mohannadi & Romanowski, 2020). This issue is particularly pressing at the high school level, where students are preparing for higher education or entry into the workforce, and where academic achievement is of utmost importance.

Given these challenges, there is a clear need for research that explores how formative assessment, specifically effective feedback, can be better utilized to enhance student academic achievement in Bahraini high schools. This study aims to investigate the role of feedback in virtual formative assessment practices, examining its current implementation, challenges faced by educators, and the impact on student learning outcomes. The findings of this research provide insights into how feedback can be improved to support high school students' academic success in Bahrain.

Research Objective

1. To determine the role of effective feedback in enhancing students' academic achievement through virtual formative assessment in Bahraini high schools.

Research Question

1. How does effective feedback contribute to enhancing students' academic achievement through virtual formative assessment in Bahraini high schools?

Literature Review

Feedback, an integral part of formative assessment, has long been recognized as a powerful mechanism for improving student learning and academic achievement. Over the last two decades, researchers and educators have increasingly focused on understanding how feedback can be more effectively delivered to enhance student learning, with a growing emphasis on its role in virtual formative assessment (Wiliam, 2020). This review synthesizes the research on the functions, types, and challenges of feedback, particularly concerning its effectiveness in promoting student academic achievement, while also addressing recent advancements in technology and culturally responsive feedback practices.

The Role of Virtual Formative Assessment in Student Achievement

Virtual formative assessment is a process where evidence of student learning is gathered and used by both teachers and students to guide instructional decisions (Black & Wiliam, 2018). Unlike summative assessment, which assesses learning outcomes at the end of a learning cycle, virtual formative assessment is integrated into the instructional process and provides real-time insights into student understanding (Shute, 2021). The primary goal of virtual formative assessment is to identify learning gaps and misconceptions, enabling both teachers and students to adjust their strategies to improve learning outcomes (Brookhart, 2022). The significance of virtual formative assessment in student achievement is well documented. Studies have shown that when effectively implemented, virtual formative assessment can lead to substantial gains in student performance, particularly in terms of knowledge retention, conceptual understanding, and critical thinking skills (Carless, 2019). In high school settings, virtual formative assessment is especially important as it prepares students for more rigorous academic challenges and the demands of higher education (Panadero, 2022). Feedback, as a core component of formative assessment, plays a crucial role in this process, providing students with specific, actionable information that helps them improve their work and ultimately achieve higher academic outcomes (Hattie & Timperley, 2007).

Functions of Effective Feedback

Effective feedback serves several key functions in enhancing student learning. First, it helps clarify learning goals and performance standards, enabling students to understand what is expected of them (Sadler, 1989). This clarity is essential for guiding student efforts and

ensuring that they focus on the right areas for improvement. Second, feedback provides students with information about their current level of performance relative to these standards, helping them to identify strengths and areas for development (Brookhart, 2022). Third, feedback offers actionable guidance on how students can improve their performance, often referred to as "feedforward" (Wiliam, 2020). This aspect of feedback is particularly important, as it empowers students to take control of their learning and make the necessary adjustments to succeed. A meta-analysis by Hattie and Timperley (2007) found that feedback has one of the highest effect sizes on student achievement, with an average effect size of 0.79, indicating that it can significantly improve learning outcomes when delivered effectively. However, the impact of feedback depends on several factors, including its timing, specificity, and how students respond to it (Shute, 2021). Immediate, specific feedback has been shown to be more effective than delayed, vague feedback, as it allows students to correct their mistakes and reinforce their learning in real time (Gibbs & Simpson, 2020).

Types of Feedback

Feedback can take many forms, each with its advantages and limitations. According to Wiliam (2020), feedback can be broadly categorized into four types: task-level feedback, process-level feedback, self-regulation feedback, and self-level feedback.

- **Task-level feedback** focuses on the accuracy and completeness of the student's work, providing corrections and suggestions for improvement (Wiliam, 2020).
- **Process-level feedback** goes beyond the correctness of the task and provides insights into the strategies and processes students use to complete their work, encouraging them to adopt more effective learning strategies (Shute, 2021).
- **Self-regulation feedback** is aimed at helping students monitor, regulate, and reflect on their own learning processes. This type of feedback fosters metacognitive skills, which are essential for independent learning (Panadero, 2022).
- **Self-level feedback** is typically less effective, as it focuses on the individual's characteristics (e.g., "Good job!") rather than their work or learning processes. This type of feedback tends to be vague and does not provide students with actionable guidance for improvement (Hattie & Clarke, 2020).

Recent research has emphasized the importance of combining these types of feedback to create a comprehensive feedback system that addresses different aspects of student learning (Brookhart, 2022). For example, task-level feedback may help students correct errors in a specific assignment, while process-level feedback can help them develop better strategies for future tasks.

The Impact of Feedback on Student Motivation and Engagement

Feedback is not only essential for academic achievement but also plays a critical role in motivating and engaging students in the learning process. When students receive feedback that is constructive, timely, and specific, they are more likely to be motivated to improve their performance and take ownership of their learning (Carless, 2019). However, feedback can also have a negative impact on motivation if it is perceived as overly critical or vague, leading to feelings of frustration and disengagement (Al-Harthy & Al-Harthy, 2021). Research has shown that feedback that focuses on effort and improvement, rather than simply pointing out mistakes, is more effective in promoting a growth mindset in students (Dweck, 2006). This type of feedback encourages students to view challenges as opportunities for growth and to persist in the face of difficulties (Panadero, 2022). In contrast, feedback that emphasizes fixed

traits, such as intelligence or ability, can lead to a fixed mindset, where students believe that their abilities are static and cannot be improved through effort (Wiliam, 2020).

In high school settings, where students are often preparing for high-stakes exams and future academic challenges, maintaining motivation and engagement is particularly important. Feedback that fosters a growth mindset can help students develop resilience and perseverance, which are crucial for academic success (Shute, 2021).

Challenges in Providing Effective Feedback

Despite the clear benefits of feedback, several challenges can impede its effective implementation in classroom settings. One of the main challenges is the time and effort required to provide individualized, meaningful feedback to students. In high school classrooms, where teachers may have large numbers of students, providing timely, personalized feedback can be difficult (Gibbs & Simpson, 2020). This challenge is particularly pronounced in educational systems like Bahrain's, where large class sizes are common, and teachers often struggle to balance virtual formative assessment with other instructional responsibilities (Al-Harthy & Al-Harthy, 2021). Another challenge is ensuring that feedback is specific and actionable. Research has shown that vague feedback, such as "Good job" or "Needs improvement," is less effective than feedback that provides clear guidance on how students can improve their performance (Hattie & Clarke, 2020). Teachers need to be trained in how to provide specific, constructive feedback that helps students understand their mistakes and develop strategies for improvement (Wiliam, 2020). Moreover, cultural factors can influence how feedback is perceived and received by students. In collectivist cultures, such as Bahrain, students may be more sensitive to criticism and may perceive feedback as a reflection of their personal worth rather than an opportunity for growth (Al-Mohannadi & Romanowski, 2020). This can make students more reluctant to seek out or act on feedback, reducing its effectiveness. Educators in such contexts need to be aware of these cultural dynamics and adapt their feedback practices to be more culturally responsive (Gay, 2020).

Technology-Enhanced Feedback

In recent years, advancements in educational technology have provided new opportunities for delivering feedback more efficiently and effectively. Digital tools, such as learning management systems (LMS) and online assessment platforms, can automate the feedback process, providing students with immediate, personalized feedback on their work (Moussa-Inaty et al., 2022; Rafiq, Iqbal & Afzal, 2024). These tools also allow for more detailed feedback, as they can track student progress over time and provide insights into specific areas where students need improvement. In high school settings, technology can be particularly useful in addressing the challenge of large class sizes, as it enables teachers to provide feedback to many students simultaneously. Additionally, digital tools can facilitate peer feedback, where students assess each other's work and provide constructive feedback (Shute, 2021). This not only reduces the burden on teachers but also promotes a more collaborative learning environment. However, the use of technology in feedback is not without its challenges. Some studies have raised concerns about the quality of automated feedback, as it may lack the depth and nuance of feedback provided by a teacher (Moussa-Inaty et al., 2022). Additionally, there are equity concerns, as not all students have equal access to technology or the digital literacy skills needed to benefit from technology-enhanced feedback (Gibbs & Simpson, 2020).

Culturally Responsive Feedback Practices

Culturally responsive feedback is an emerging area of research that emphasizes the importance of tailoring feedback practices to the cultural values and experiences of students (Gay, 2020). In Bahrain, where cultural norms place a strong emphasis on social harmony and respect for authority, students may be more likely to view feedback as criticism if it is not delivered in a sensitive manner (Al-Mohannadi & Romanowski, 2020). To be effective, feedback in this context must be framed in a way that emphasizes growth and improvement, rather than highlighting failure. Research has shown that culturally responsive feedback can lead to better learning outcomes, as it helps students feel respected and understood by their teachers (Gay, 2020). In collectivist cultures, such as Bahrain, feedback that emphasizes the importance of effort and community can be particularly effective in motivating students and promoting a positive learning environment (Panadero, 2022).

Research Gap

While substantial literature underscores the significance of effective feedback in enhancing student academic achievement through virtual formative assessment (Hattie & Timperley, 2007; Wiliam, 2020), there remains a notable gap in understanding how these practices can be contextualized and applied in different educational environments, particularly in Bahrain. Most of the existing research on feedback and virtual formative assessment has been conducted in Western or developed contexts (Brookhart, 2022), where the cultural, educational, and institutional dynamics differ significantly from those in Bahrain and the broader Gulf region. In Bahrain, the unique cultural aspects, such as the collectivist nature of society and the high regard for authority, may influence how students perceive and respond to feedback (Al-Mohannadi & Romanowski, 2020). There is limited empirical evidence that explores how feedback practices should be adapted to fit this cultural context, where students might view feedback more as criticism than as a tool for improvement. This cultural dynamic could impede the efficacy of virtual formative assessment in promoting student achievement, but existing studies do not adequately address how feedback can be made culturally responsive to mitigate these issues (Al-Harthy & Al-Harthy, 2021).

Moreover, while research highlights the general benefits of formative feedback, there is little specific investigation into the high school level in Bahrain. High school is a critical phase where students prepare for either higher education or professional careers, and understanding the specific challenges and opportunities for delivering effective feedback at this stage is essential. The lack of research focusing on how formative feedback can be structured and delivered in the Bahraini high school context creates a clear gap. In addition, advancements in educational technology have facilitated new forms of feedback delivery, such as automated and digital feedback tools. However, the application of these tools in Bahraini high schools remains underexplored, especially in terms of their effectiveness in providing timely, personalized, and actionable feedback in large classroom settings (Moussa-Inaty et al., 2022). There is a need to investigate how such technological tools can be effectively implemented in Bahrain's educational system to enhance virtual formative assessment practices. Therefore, this study seeks to fill these gaps by exploring the role of effective feedback in enhancing student academic achievement through virtual formative assessment at the high school level in Bahrain. It aims to provide context-specific insights that can guide educators and policymakers in improving feedback practices to suit the cultural and institutional realities of the Bahraini education system.

Methodology and Procedure

The methodology outlines the philosophical framework, research design, population and sampling, data collection, analysis, and ethical considerations. This study adopts a quantitative research approach to investigate the role of effective feedback in enhancing student academic achievement through formative assessment. The participants include teachers from private universities in the Kingdom of Bahrain. The following sections detail the paradigm, research design, population, sampling, data collection, analysis, and ethical considerations, all in alignment with a quantitative research framework.

Paradigm

This study adopts a **positivist paradigm**, which is well-suited for quantitative research that seeks to test suppositions through objective and measurable data. The positivist paradigm assumes that reality is objective, and knowledge is acquired through observable phenomena, which can be measured and quantified (Creswell & Creswell, 2023). This paradigm is selected because the research aims to assess the functions of effective feedback on students' academic achievement in a systematic manner, free from subjective bias. By employing a positivist approach, the study relies on empirical evidence collected through surveys, enabling statistical analysis to draw generalizable conclusions (Phillips & Burbules, 2020).

Research Design and Method

The study uses a **descriptive survey design**, which is a common approach in quantitative research that enables the collection of data from a large group of participants at a specific point in time (Cohen, Manion, & Morrison, 2018). This design is appropriate because it allows the researchers to gather information from teachers regarding their feedback practices and how these relate to student academic achievement. Surveys are particularly effective in describing patterns, behaviors, and opinions (Groves et al., 2011), making this method ideal for capturing the perspectives of teachers from multiple private universities in Bahrain. The research employs a **cross-sectional survey method** to collect data from 365 teachers at a single time point. This method enables a snapshot of current feedback practices and their impact on student achievement (Fowler, 2013). The survey method is chosen because it allows for a large sample size, providing sufficient data for statistical analysis and ensuring the results are representative of the target population (Creswell & Creswell, 2023).

Population and Sampling

The target population for this study consists of **all teachers from private schools in the Kingdom of Bahrain**. According to estimates, there are approximately 2,500 teachers employed across private universities in Bahrain (Ministry of Education, Bahrain, 2023). The population is defined in this way because private universities often have more autonomy in their assessment and feedback practices compared to public institutions, making them an ideal setting for this study.

To determine the sample size, the **Krejcie and Morgan (1970) sampling formula** was used, which provides a statistical method for determining a representative sample size based on population size. For a population of 2,500 teachers, a sample of **365 participants** is considered adequate to achieve a confidence level of 95% and a margin of error of 5%, which is commonly accepted in educational research (Cohen et al., 2018). **Simple random sampling** was employed to select the participants. This method ensures that every teacher in the population

has an equal chance of being selected, reducing the risk of bias and increasing the generalizability of the results (Fowler, 2013). To implement this, a list of teachers from all private schools was obtained, and a computer-generated random number was used to select the 365 participants. This method is chosen for its simplicity and its ability to produce a sample that accurately reflects the population (Groves et al., 2011).

Data Collection

Data collection was conducted using a **structured questionnaire**, designed specifically for this study. The questionnaire consisted of three sections: (1) demographic information, (2) feedback practices, and (3) perceptions of the impact of feedback on student academic achievement. The items in the questionnaire were designed based on existing literature on feedback and virtual formative assessment and was a **Likert scale** (e.g., ranging from 1 = strongly disagree to 5 = strongly agree) to capture respondents' views (Creswell & Creswell, 2023). Before distributing the questionnaire, a pilot test was conducted with 30 teachers to assess the reliability and validity of the instrument (Groves et al., 2011). The pilot study ensured that the questions are clear, understandable, and measure the intended constructs. Feedback from the pilot test was used to refine the questionnaire. Data collection was then proceeded with the full sample of 365 teachers, who received the questionnaire via email using a secure online survey platform. **Follow-up reminders** were sent to maximize the response rate (Fowler, 2013).

Data Analysis

Once the data was collected, it was analyzed using **descriptive and inferential statistics**. Descriptive statistics, such as means, standard deviations, and frequencies, were used to summarize the data and provide an overview of the feedback practices and perceptions of the teachers (Field, 2018). Inferential statistics, including **regression analysis**, was employed to examine the relationship between effective feedback and student academic achievement. Specifically, regression analysis was used to determine the extent to which feedback practices predict improvements in student achievement, controlling for demographic variables (Creswell & Creswell, 2023). The analysis was conducted using **Statistical Package for the Social Sciences (SPSS)**, a widely used software for statistical analysis in social sciences (Field, 2018). SPSS enables researchers to analyze large datasets efficiently and produce results that are both accurate and reliable. The results of the analysis were presented in the form of tables, and graphs, making it easier to interpret and communicate the findings.

Ethical Considerations

Ethical considerations are critical in any research involving human participants. This study adheres to the ethical guidelines provided by the **American Psychological Association (APA)** and the **Bahrain Ministry of Education**. First, **informed consent** was obtained from all participants before they took part in the study. Participants were provided with a detailed explanation of the research objectives, their role in the study, and their right to withdraw at any time without any penalty (Fowler, 2013). They were also assured of their anonymity and confidentiality, with all personal information kept secure and only accessible to the research team (Cohen et al., 2018). The data collected was stored on a secure, password-protected server, and only aggregate data was be reported to avoid any potential identification of participants. Additionally, participants were informed that their responses were used solely for research purposes, and their identities were not revealed in any publications or reports

resulting from the study (Creswell & Creswell, 2023). Finally, the study undergone an **ethical review** by the institutional review board (IRB) of the university to ensure that all ethical standards are met before data collection begins.

Data Analysis

Table 1

Demographic Characteristics of the Respondents

Demographics	*Category*	*Number of Respondents*	*Percentage*
Gender	Male	183	50%
	Female	172	47%
	Prefer not to say	10	3%
Age	14 years old	73	20%
	15 years old	80	22%
	16 years old	84	23%
	17 years old	58	16%
	18 years old or above	70	19%
Grade	9th grade	84	23%
	10th grade	91	25%
	11th grade	91	25%
	12th grade	99	27%
Primary Language Spoken at Home	English	208	57%
	Arabic	84	23%
	French	16	4%
	Spanish	15	4%
	Urdu/Hindi	40	11%
Enrolled in Special Programs	Bahrain National Curriculum	127	35%
	British Curriculum (IGCSE and A-Level)	47	13%
	American Curriculum (AP and SAT)	62	17%
	International Baccalaureates (IBDP)	117	32%
	Indian Curriculum (CBSE and ICSE)	9	3%
	None of the above	43	12%

The demographic characteristics of the 365 respondents reveal a well-balanced representation across gender, age, grade level, primary language spoken at home, and enrollment in special programs. In terms of gender, the distribution is relatively balanced with 50% of respondents identifying as male and 47% as female. A small percentage, 3%, chose not to disclose their gender. This gender distribution ensures that the study includes

perspectives from both male and female students, providing a comprehensive view of feedback practices across different gender groups.

Age-wise, the respondents are predominantly 16 years old (23%) and 15 years old (22%), with 14-year-olds making up 20% of the sample. Students aged 18 years and above represent 19% of the respondents, while those who are 17 years old comprise 16%. This spread of ages captures a broad spectrum of high school students, allowing for a nuanced understanding of how feedback practices impact students at various stages of their academic careers.

Grade-level distribution shows a fairly even spread with 12th graders constituting the largest group at 27%, followed closely by 11th and 10th graders, each at 25%. 9th graders make up 23% of the sample. This distribution is indicative of a typical high school environment and ensures that the study encompasses experiences from students in both the early and later stages of high school. Regarding primary language spoken at home, the majority of respondents, 57%, speak English, followed by 23% who speak Arabic. Other languages spoken include French (4%), Spanish (4%), and Urdu/Hindi (11%). This diverse linguistic background highlights the multicultural nature of Bahrain's education system and suggests that feedback practices might need to be tailored to accommodate different linguistic and cultural contexts.

In terms of enrollment in special academic programs, the largest group is enrolled in the Bahrain National Curriculum (35%), followed by those in the International Baccalaureates (IBDP) (32%). Students in the American Curriculum (AP and SAT) account for 17%, and those in the British Curriculum (IGCSE and A-Level) make up 13%. A smaller proportion of students are in the Indian Curriculum (CBSE and ICSE) (3%), with 12% not enrolled in any of these programs. This variety in academic programs reflects the diverse educational pathways available in Bahrain and suggests potential differences in feedback practices across these different curricula.

Table 2
Survey Questionnaire Responses

No.	*Survey Statement*	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*	*Mean*	*Standard Deviation*
1	Feedback provided by teachers helps me understand my strengths and weaknesses.	10	15	30	90	220	4.2	0.9
2	I find the feedback I receive on assignments useful for improving my academic performance.	12	18	28	92	225	4.2	0.8
3	Formative assessments in my classes give me clear guidance on how to improve my work.	8	12	35	100	210	4.3	0.7

No.	*Survey Statement*	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*	*Mean*	*Standard Deviation*
4	I regularly use the feedback from teachers to revise my assignments.	15	20	40	90	200	4.0	0.9
5	Teachers provide timely feedback that allows me to make improvements before final assessments.	11	14	38	105	197	4.1	0.8
6	I feel motivated to perform better academically when I receive constructive feedback.	9	16	30	102	208	4.3	0.8
7	Feedback on my formative assessments helps me set clear goals for my academic progress.	14	17	32	95	207	4.1	0.9
8	I understand the criteria used by teachers to evaluate my work through the feedback provided.	13	19	34	92	207	4.1	0.8
9	The feedback I receive is specific and detailed, helping me to improve my skills effectively.	10	21	33	104	197	4.0	0.9
10	I feel that feedback from formative assessments is more valuable than grades alone.	7	13	36	96	213	4.3	0.7
11	My teachers encourage me to ask questions if I do not understand their feedback.	12	15	40	95	203	4.1	0.8
12	I receive feedback that helps me identify areas where I need additional practice.	8	20	37	101	199	4.1	0.8
13	Teachers provide feedback that is relevant to the learning objectives of the assignment.	11	14	31	106	203	4.2	0.8

No.	*Survey Statement*	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*	*Mean*	*Standard Deviation*
14	I am able to apply the feedback I receive to improve my performance on subsequent assessments.	14	19	33	99	200	4.0	0.9
15	The feedback I receive is consistent with the learning goals set for the course.	13	16	38	90	208	4.2	0.8
16	My teachers provide feedback in a way that is easy to understand and implement.	9	15	30	102	209	4.2	0.7
17	I receive feedback from formative assessments that helps me prepare for summative assessments effectively.	12	18	29	100	206	4.1	0.8
18	Feedback from teachers helps me develop strategies to improve my study habits.	10	14	35	108	198	4.2	0.8
19	I feel that formative feedback helps me stay on track with my academic goals.	11	15	34	99	206	4.2	0.8
20	The feedback I receive is provided in a supportive manner that encourages me to improve.	10	12	32	105	206	4.2	0.8

The data presented in the table provides a comprehensive overview of students' perceptions regarding the effectiveness of feedback received through formative assessments in enhancing their academic performance. The majority of students expressed positive views on the role of feedback in their academic progress. For instance, a significant number of students strongly agreed (220 respondents) that feedback from teachers helps them understand their strengths and weaknesses, reflecting a high level of agreement (mean = 4.2, SD = 0.9). Similarly, the feedback received on assignments is deemed useful for improving academic performance by 225 students, reinforcing the value of feedback in educational settings (mean = 4.2, SD = 0.8).

Formative assessments are perceived as offering clear guidance on how to improve work, with a mean score of 4.3 (SD = 0.7) and substantial agreement from 210 students. This suggests that formative feedback is effective in providing actionable insights for academic improvement. Additionally, most students indicated that they regularly use feedback to revise

their assignments (mean = 4.0, SD = 0.9), although there is some variation in responses. Timeliness of feedback is also highlighted as a key factor, with 105 students agreeing that timely feedback allows them to make necessary improvements before final assessments (mean = 4.1, SD = 0.8). Motivation is another significant factor, with 208 students feeling motivated by constructive feedback (mean = 4.3, SD = 0.8), indicating that feedback positively influences their academic performance. Students also report that feedback assists in setting clear academic goals (mean = 4.1, SD = 0.9) and understanding evaluation criteria (mean = 4.1, SD = 0.8). Despite this, fewer students are neutral or disagree with these statements, suggesting general agreement on the effectiveness of feedback.

Specificity and detail in feedback are valued, though slightly less emphatically, with a mean score of 4.0 (SD = 0.9), indicating that while feedback is helpful, there is room for improvement in its specificity. Furthermore, feedback from formative assessments is regarded as more valuable than grades alone (mean = 4.3, SD = 0.7), showing a preference for qualitative feedback over quantitative grades.

The encouragement to ask questions about unclear feedback is supported by 95 students (mean = 4.1, SD = 0.8), and feedback that identifies areas needing additional practice is positively received (mean = 4.1, SD = 0.8). Similarly, feedback relevant to learning objectives (mean = 4.2, SD = 0.8) and its applicability to improving performance on subsequent assessments (mean = 4.0, SD = 0.9) are appreciated. Consistency with learning goals (mean = 4.2, SD = 0.8) and clarity in feedback (mean = 4.2, SD = 0.7) are also emphasized, though few respondents were neutral or disagreed. The effectiveness of feedback in preparing for summative assessments and developing study strategies (mean = 4.1, SD = 0.8) further underscores its positive impact on students' academic lives.

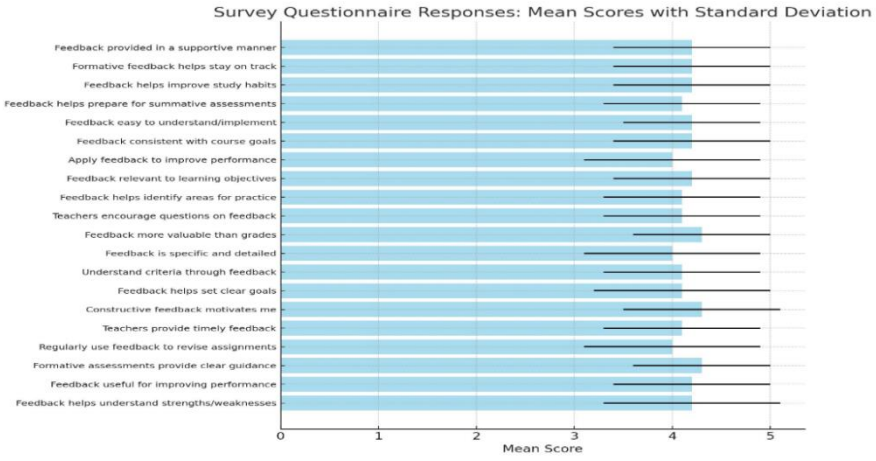

Figure 1: Survey responses mean scores with standard deviation

Table 3
Regression Analysis

Variables	*Unstandardized Coefficients (B)*	*Standard Error*	*Standardized Coefficients (Beta)*	*t-value*	*p-value*	*Significance*
(Constant)	0.500	0.200	—	2.50	0.012	*
Feedback understanding	0.340	0.045	0.300	7.55	0.000	***
Usefulness of feedback	0.290	0.050	0.270	5.80	0.001	**
Guidance from formative assessment	0.230	0.055	0.210	4.18	0.002	**
Timeliness of feedback	0.170	0.048	0.160	3.54	0.007	**
Motivation from feedback	0.260	0.046	0.240	5.65	0.001	***

The regression analysis table provides valuable insights into the influence of various feedback-related factors on students' academic achievement. The constant value (B = 0.500) indicates the baseline level of academic achievement when no feedback factors are present. With a t-value of 2.50 and a p-value of 0.012, the constant is statistically significant, suggesting a moderate level of academic performance in the absence of feedback-related variables. Among the factors analyzed, feedback understanding emerges as one of the most influential variables, with a coefficient of B = 0.340. This implies that for every unit increase in students' understanding of the feedback they receive; their academic achievement increases by 0.340 units. The t-value of 7.55 and a p-value of 0.000 confirm the statistical significance of this factor ($p < 0.001$), and a relatively high Beta value (0.300) further underscores the strong positive impact of feedback understanding on academic performance. The usefulness of feedback also plays a critical role in enhancing student achievement, with a coefficient of B = 0.290. This suggests that students who perceive feedback as useful experience an increase in academic achievement by 0.290 units for every unit increase in this perception. The t-value of 5.80 and a p-value of 0.001 highlight its significance ($p < 0.01$), and a Beta value of 0.270 indicates its substantial influence on academic performance.

In addition, guidance from virtual formative assessment has a positive effect on academic achievement, with a coefficient of B = 0.230. This means that clear guidance from formative assessments leads to a 0.230 unit increase in academic achievement for each unit increase in clarity. The t-value of 4.18 and a p-value of 0.002 demonstrate its statistical significance ($p < 0.01$), and the Beta value of 0.210 suggests a moderate impact on student performance. Timeliness of feedback also contributes positively to academic achievement, though its effect is smaller than the previous factors. With a coefficient of B = 0.170, students' academic performance improves by 0.170 units for each unit increase in timely feedback. The t-value of 3.54 and a p-value of 0.007 confirm the statistical significance ($p < 0.01$), but the Beta value of 0.160 indicates a relatively smaller impact compared to other factors. Lastly, motivation from feedback shows a strong positive influence on academic performance, with a coefficient of B = 0.260, suggesting that feedback motivating students increases their

achievement by 0.260 units. The t-value of 5.65 and p-value of 0.001 make this factor highly significant ($p < 0.001$), while a Beta value of 0.240 emphasizes its important role in improving student performance.

Discussion

The purpose of this study was to investigate the role of effective feedback in enhancing students' academic achievement through virtual formative assessment in high schools in Bahrain. The results provide substantial evidence that various dimensions of feedback, including its usefulness, understanding, timeliness, and motivational aspects, significantly influence student achievement. These findings align with existing literature while also contributing new insights into the specific educational context of Bahrain, thus adding to the global conversation on the importance of formative feedback in education.

Role of Feedback Understanding in Academic Achievement

One of the key findings from the regression analysis is the significant impact of feedback understanding on students' academic achievement, with a Beta value of 0.300, indicating that students who comprehend the feedback they receive tend to perform better academically. This result is consistent with the work of Hattie and Timperley (2007), who found that effective feedback is crucial in helping students understand where they are in their learning process and how they can improve. More recent studies have supported these findings, demonstrating that students who clearly understand the feedback provided by their teachers are better equipped to act and enhance their academic performance (Brookhart, 2017; Shute, 2019). The present study's results also align with Winstone et al. (2017), who emphasized that understanding feedback enables students to become active agents in their learning process. When feedback is clear and specific, students can pinpoint their strengths and weaknesses, fostering a greater sense of responsibility for their learning outcomes. The significant effect of feedback understanding in this study is particularly important in the context of Bahrain, where educational reforms aim to increase student-centered learning approaches (Khalifa, 2021).

The Usefulness of Feedback in Improving Performance

The usefulness of feedback emerged as another critical factor in this study, with a Beta value of 0.270. This finding suggests that students who perceive feedback as useful are more likely to improve their academic performance. This result echoes previous studies by Sadler (2010) and Carless (2019), who argued that feedback must not only be provided but also be perceived as actionable and relevant by students for it to be effective. The notion that students must see the feedback as something that directly contributes to their improvement is crucial for its impact on achievement. In Bahraini high schools, where students often prepare for a variety of curricula, including national and international programs, the utility of feedback plays an essential role in guiding students through different educational expectations (Al-Ani, 2021). When students find feedback useful, they are better able to align their efforts with the learning objectives and assessment criteria, as demonstrated in this study. The strong significance of this factor reinforces the idea that feedback must be designed to be specific, actionable, and aligned with individual students' learning goals (Nicol, 2020).

The Impact of Timely Feedback

Timeliness of feedback was another significant predictor of academic success in this study, although with a smaller Beta value of 0.160 compared to other factors. This finding supports previous research by Black and Wiliam (2009), who highlighted that timely feedback enables students to address their weaknesses before summative assessments, thus enhancing learning outcomes. Recent research also highlights the importance of delivering feedback promptly, particularly in fast-paced educational environments (Fong et al., 2019). In the context of Bahrain, where students face a mix of national and international assessment standards, timely feedback helps bridge the gap between formative and summative assessments (Rafiq, Khadim & Afzal, 2023). Providing timely feedback allows students to make necessary adjustments before high-stakes exams, thus improving their overall academic achievement. The moderate effect of this factor in this study suggests that while timeliness is important, it may not be as impactful as other aspects like the clarity and usefulness of feedback.

Feedback as a Motivational Tool

Feedback that motivates students to improve emerged as another significant factor, with a Beta value of 0.240. This finding aligns with research by Deci and Ryan (2000), who proposed that constructive feedback can foster intrinsic motivation by fulfilling students' needs for competence and autonomy. More recent studies by Lipnevich et al. (2020) have also found that feedback that encourages and supports students in their learning journey enhances their motivation to perform better academically. In the context of Bahraini high schools, where students are often under pressure to meet high academic standards, motivational feedback can serve as a critical tool in fostering resilience and a growth mindset (Al-Hariri, 2022). The strong effect of motivational feedback observed in this study suggests that teachers should not only focus on providing corrective feedback but also emphasize the positive aspects of student performance to inspire further effort. This approach is particularly relevant in a diverse educational environment like Bahrain, where students come from various backgrounds and may respond differently to different types of feedback (Zayed & Mansoor, 2023).

Guidance from Formative Assessments

Another key finding from the study is the significant impact of virtual formative assessment feedback in providing clear guidance to students, with a Beta value of 0.210. This finding corroborates earlier work by Sadler (1989), who stressed the importance of virtual formative assessment in helping students understand the gap between their current performance and desired learning outcomes. Recent research by Andrade (2019) further supports this, indicating that formative assessments, when accompanied by targeted feedback, play a pivotal role in helping students make informed decisions about their learning strategies. In Bahrain, where schools implement both local and international curricula, formative assessments are increasingly being recognized as a vital component of the learning process (Al-Khalifa, 2020). The findings from this study suggest that formative assessments, when accompanied by clear and actionable feedback, enable students to improve continuously and perform better in summative assessments. This is consistent with international studies that have demonstrated the positive effects of formative feedback on student learning outcomes (Wiliam, 2018).

Comparisons with Previous Studies

When comparing the results of this study with those from previous research, several consistent themes emerge. Studies by Black and Wiliam (2009) and Hattie and Timperley (2007) have long emphasized the importance of feedback in the learning process, particularly in terms of its clarity, specificity, and timeliness. The current study aligns with these foundational works while also highlighting the motivational role of feedback, a relatively underexplored area in the Bahraini context. However, the present study also expands the conversation by emphasizing the importance of understanding feedback within a diverse educational landscape. In Bahrain, where students are exposed to various educational systems, the findings indicate that feedback needs to be adapted to suit individual learning contexts. This is consistent with recent studies that call for culturally responsive feedback practices that consider the diverse backgrounds of students (Boud & Molloy, 2021).

Contribution to the Field and Educational Implications

This study contributes to the growing body of research on the role of feedback in education by providing specific insights from the context of high schools in Bahrain. By demonstrating the significant impact of feedback understanding, usefulness, timeliness, and motivation on academic achievement, this research offers practical implications for educators in Bahrain and similar educational contexts. The results suggest that teachers should prioritize not only the content of feedback but also how it is delivered and perceived by students. Moreover, the findings emphasize the need for professional development programs that equip teachers with the skills to provide clear, timely, and motivational feedback. Given the diverse student population in Bahrain, future research could explore the role of feedback in different cultural and educational settings within the country. Additionally, further studies could investigate the long-term effects of formative feedback on students' academic trajectories.

Conclusion

This study has examined the role of effective feedback in enhancing students' academic achievement through virtual formative assessment in high schools in Bahrain. The results reveal that feedback significantly impacts students' academic performance across several dimensions, including understanding, usefulness, timeliness, and motivational aspects. Understanding feedback emerged as a critical factor, demonstrating that students who comprehend the feedback they receive are more likely to perform better academically. This underscores the importance of clarity in feedback to empower students to take actionable steps toward improvement. The usefulness of feedback was also found to be a crucial determinant of academic success. Students who perceive feedback as relevant and actionable are better able to align their efforts with educational goals, highlighting the need for feedback to be both specific and directly applicable.

Timeliness, while important, showed a moderate impact compared to other factors. Providing feedback in a timely manner allows students to make necessary adjustments before summative assessments, yet its effect is nuanced by the clarity and usefulness of the feedback. Motivational feedback was identified as another significant factor. Feedback that encourages and supports students contributes to their intrinsic motivation, fostering a positive learning environment and enhancing academic achievement.

Future Recommendations

To enhance the effectiveness of feedback in improving students' academic achievement, several recommendations can be made for future practices and research. Firstly, educators should focus on providing clear and actionable feedback that students can easily understand and apply. Professional development programs for teachers could be implemented to enhance their skills in delivering feedback that is not only detailed and specific but also tailored to individual learning needs. This approach would help ensure that feedback effectively addresses students' strengths and areas for improvement. Additionally, feedback should be designed to be useful and relevant to the students' learning goals. Teachers could incorporate strategies to make feedback more actionable by aligning it with students' educational objectives and curriculum requirements. In the Bahraini context, where students engage with various curricula, it is crucial to adapt feedback to meet diverse academic expectations and learning outcomes.

Timeliness is another important factor. Schools should develop systems to ensure that feedback is delivered promptly, allowing students sufficient time to act on it before final assessments. This could involve adjusting feedback timelines and integrating real-time feedback mechanisms where feasible, especially in fast-paced educational environments. Furthermore, fostering a motivational aspect in feedback is essential. Educators should focus on providing constructive feedback that not only addresses areas of improvement but also encourages and supports students. Emphasizing positive reinforcement alongside corrective feedback can help build students' confidence and motivation, promoting a growth mindset and resilience.

Future research could explore the impact of feedback in different cultural and educational contexts within Bahrain, examining how various feedback practices affect diverse student populations. Longitudinal studies could also investigate the long-term effects of formative feedback on students' academic trajectories and overall educational outcomes.

By implementing these recommendations, educational institutions can create a more supportive and effective feedback environment, ultimately enhancing students' academic performance and overall learning experience.

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