



## The Mediating Role of Motivation and Students' Engagement in the Relationship Between Perceived Feedback and Academic Success

*Research paper*

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### Abstract

*The aim of this study was to investigate the mediating role of motivation and students' engagement in relationship between perceived feedback and academic success. Using the survey method, data were collected through physical means. The final sample comprised 327 students learning in middle schools. Structural equation modeling (SEM) analysis, utilizing IBM Amos version 23, was employed to assess the hypothesized model. Results shows that perceived feedback shows a marginal positive impact with academic success, but this relationship lacks statistical significance. Perceived feedback significantly influences motivation and positively impacts students' engagement. Motivation strongly predicts academic success. Although there's a negative relationship between student engagement and academic success, it's not statistically significant. Motivation positively affects students' engagement. Sequential pathways from perceived feedback to academic success through motivation and student engagement are significant. Additionally, perceived feedback influences academic success through motivation and student engagement. The results highlight how crucial customized feedback techniques are in learning environments. Teachers should place a high priority on giving students timely, relevant, and customized feedback since it can improve motivation, engagement, and eventually academic success.*

**Keywords:** *Perceived Feedback, Motivation, Academic Success, Student Engagement*

Scholarly study on the impact of feedback on academic success in education has attracted a lot of attention. Numerous studies have explored various aspects of perceived feedback and its impact on factors

such as self-efficacy, interest, perceived learning, and motivation (Koka & Hein, 2005; Cheah & Li, 2020; Suhoyo et al., 2017; Liu & Gumah, 2020). Despite this extensive exploration, there remains a gap in

understanding the underlying mechanisms that determine the efficacy of feedback in enhancing academic success (Wang & Zhang, 2020).

Perceived feedback, defined as the information shared by teachers with students about their performance or understanding (Dempsey et al., 1993), is frequently taken for granted that it will easily fit into students' learning processes. But research indicates that it's more complicated than previously believed for pupils to integrate feedback into their cognitive and motivational frameworks (Harks et al., 2014). Although most students want feedback, using it effectively is still difficult, which affects their participation and performance in class (Pokorny & Pickford, 2010).

On the other hand, students' motivation is a critical factor in determining their level of engagement and academic success (Schunk et al., 2014). Understanding motivation as a dynamic process that guides individuals towards goal attainment (Glynn et al., 2011), it becomes imperative to explore its interplay with feedback and academic outcomes. Although other studies have emphasized the significance of motivation in improving student engagement and learning results (Nayir, 2017; Turner & Patrick, 2004), further investigation is still required to fully understand how motivation affects the relationship between academic success and feedback.

Moreover, academic performance, as measured by students' GPA, serves as a tangible indicator of learning outcomes. However, the intricate dynamics between perceived feedback, motivation, students' engagement, and academic performance warrant further investigation (Wang & Zhang, 2020). This study aims to fill the gap by examining not only the direct link between perceived feedback and academic success but also the mediating role of motivation and students' engagement.

The main theoretical framework directing how the variables interact in this study is the goal-oriented theory which states that people are motivated by specific, challenging goals (Elliott & Dweck, 1988). Studies examining goal-oriented theories and academic success have consistently shown that an achievement-oriented goal orientation correlates with greater performance, effort,

and persistence, as well as lower levels of anxiety and despair (Sideridis, 2005). According to the Goal-Oriented Theory framework, students' pursuit of academic goals is critically dependent on motivation. Engagement, a fundamental component of the educational paradigm, is directly linked to both motivation and feedback. Effective feedback not only sparks students' interest but also makes the learning process more relevant and meaningful. Motivation, stemming from well-defined academic goals, further enhances engagement by fostering passion and commitment to the learning process. The Goal-Oriented Theory framework presents the relationship between motivation, engagement, academic performance, and feedback as a cyclical process. Motivated students actively seek out and implement feedback to improve their understanding and academic success, while engagement drives the pursuit of learning goals and helps refine them (Elliott & Dweck, 1988; Kaplan & Maehr, 2007). This cyclical dependence highlights the reciprocal nature of the interactions between these variables and emphasizes their collective influence on goal attainment. This article makes a substantial contribution to the existing literature by thoroughly examining the mediating role of motivation and student engagement in the relationship between perceived feedback and academic success. It fills key gaps in prior research, particularly in understanding how feedback translates into academic outcomes. By emphasizing the role of feedback in boosting both motivation and engagement, the study provides actionable insights that educators can use to refine their feedback techniques and improve student performance. The application of structural equation modeling (SEM) lends robust empirical support to these findings, enhancing their relevance for real-world educational settings. Future researchers can extend this work by exploring its broader implications or testing its applicability in various educational environments and learner demographics. Additionally, the article offers a solid framework for developing professional development programs that empower educators to deliver more effective, personalized feedback, thereby addressing critical challenges in modern education.

## Literature review

### ***Perceived Feedback and Academic Success***

A complex interaction between these variables has been shown by the literature's considerable exploration of the relationship between perceived feedback and academic success. A substantial feedback effect on academic performance was noted by Adams et al. (2020), underscoring the significance of prompt and pertinent feedback in improving student outcomes. Conversely, Mulliner & Trucker (2017) discovered discrepancies in the feedback choices made by students and teachers, emphasizing the need to align feedback delivery with student expectations. Selvaraj et al., (2021) pointed out the drawbacks of written feedback but underlined its benefits for students' academic advancement, arguing that teachers' tailored remarks enhance students' growth and learning. Brown et al., (2016) noted a favorable relationship between students' self-regulated learning, self-efficacy, and their perceptions of feedback, emphasizing the role of feedback in shaping students' beliefs and behaviors towards learning. Furthermore, research by Indudewi & Subadi (2017) and Whitelock (2015) shown the various ways that feedback might support academic success. While Whitelock (2015) highlighted how automated formative feedback systems can help students receive individualized support, Indudewi & Subadi (2017) underscored the value of mentors' constructive criticism in facilitating student growth. Gonfa (2020) underlined the significance of timely and relevant feedback in promoting academic performance once more, putting out the argument that the timeliness and relevance of feedback determines its impact. Student perceptions of feedback in higher education impact academic success. Detailed, personal, and varied feedback modes are valued (Glizzard & Stones, 2019). All of these results highlight how complex perceived feedback is and how much of an influence it has on academic success.

***H1: Perceived feedback has a positive effect on Academic Success.***

### ***Perceived Feedback and Motivation***

Considerable knowledge on the relationship between motivation and feedback, as well as how they affect academic success, has come from research on these topics. According to Busse's

(2013) research, students' motivation is influenced by the quality and specificity of their feedback, with inadequate feedback leading to lower motivation levels. Similarly, academically successful students are more likely to actively seek out feedback, as de Jong et al. (2017) discovered, underscoring the mutually reinforcing nature of motivation and performance.

Furthermore, research by Zong et al. (2021) and Murtagh (2014) has highlighted the beneficial effect that perceived feedback has on students' motivation. While Zong et al. (2021) revealed many incentives driving feedback delivery, driven by course structure, Murtagh (2014) highlighted the significance of feedback interpretation in influencing student motivation. Tricomi & DePasque (2016) emphasized the importance that positive feedback plays in activating brain regions linked to reinforcement learning and reward value, underscoring its significance as a predictor of motivation and performance. Furthermore, Baadte & Schnotz (2014) discovered that the effect of feedback on performance, effort, and mood is influenced by the learner's self-concept. Zedan (2021) also offered proof of the beneficial impacts of teacher evaluations, which include feedback, on student motivation and academic results. According to Kaymaz (2011), social links can be strengthened and insecurities clarified through performance feedback, which will have a direct effect on motivation. Students' perception of feedback quality improved post-intervention, impacting writing motivation positively (Siekmann et al., 2023). Perceived feedback and teaching presence predict student motivation in online courses (Cole et al., 2017).

We put out the following hypothesis in light of these researchers' findings and the nature of the link between these variables:

***H2: Perceived feedback has a positive impact on Motivation.***

### ***Perceived Feedback and Student's Engagement***

Several research have investigated the connection between student engagement and perceived feedback. Mayordomo et al. (2022) discovered evidence of a noteworthy correlation between students' engagement and perceived feedback, underscoring the significance of feedback in promoting proactive student involvement in the learning process. Winstone et al. (2021) have

noted certain obstacles related to students' interaction with feedback, especially in learning management systems where grades may not always be directly linked to feedback. However, it is acknowledged that technology has the ability to overcome these issues, offering chances to improve student interaction with feedback (Price et al., 2011).

In order to improve student engagement with feedback, Esterhazy & Damşa (2019) suggested a conceptualization of feedback that places an emphasis on the co-construction of meaning from feedback remarks. In a similar vein, Carvalho et al. (2015) discovered a strong correlation between students' identification with their school and their level of participation overall and their impression of feedback. Perceived feedback directly influences online learning engagement (Cao & Han, 2024). Constructive feedback positively impacts students' learning cycle, enhancing engagement (Dorji & Wangchuk, 2022). Furthermore, according to Ali et al. (2018), there may be differences in students' attitudes and feedback-taking behavior throughout their academic careers, and the academic year is a significant predictor of these things. We put the following hypothesis based on the results of these studies:

***H3: Perceived Feedback has a positive impact on Students' Engagement Motivation, Student's Engagement, and Academic Success***

Numerous research works have elucidated the critical role that motivation and engagement play in academic success, emphasizing the complex interplay among these variables. In addition to providing strong evidence for the influence of motivational elements on academic performance, Sedaghat et al. (2011) underlined the crucial role that motivation plays in supporting student success. A strong correlation exists between academic motivation and engagement, with studies showing that higher motivation leads to increased engagement in academic activities (Muhammad et al., 2023). Engagement is further influenced by the learning environment, with smaller study groups fostering better motivation and engagement, particularly in online settings (Davidovitch & Yavich, 2023).

Self-regulated learning, characterized by motivation and emotional regulation,

significantly predicts academic success, with better self-regulated learners demonstrating higher engagement and improved outcomes (Han et al., 2022). Positive motivation and engagement levels are crucial for academic success, particularly in language learning contexts, where they directly affect students' GPAs (Alzaanin, 2023). Gupta & Mili (2017) discovered a positive correlation between academic success and motivation, suggesting that motivated students are more likely to be high achievers. Haider et al. (2015) offered proof of the advantages of both intrinsic and extrinsic motivation for academic success in a similar manner.

According to Berkovits (2014), academic success can be improved by prescribed learning goals, especially when paired with internal performance goals for mastery and success acknowledgment. Furthermore, in order to incorporate different ideas and elements related to motivation and engagement and highlight their significance for educational results, a multidimensional framework known as the "motivation and engagement wheel" has been proposed (Collie & Martin, 2019). The intricate structure of student motivation in connection to participation was highlighted by Nagabhushan (2012). Moreover, a number of variables, such as student enthusiasm and engagement, influence academic success, according to recurrent research findings (Doğan, 2015).

Drawing on this body of literature, we posit the following:

***H4: Motivation exerts a direct and positive influence on Academic success***

***H5: Student's Engagement positively effects Academic success***

***H6: Motivation has a positive direct effect on Engagement***

***The relationship between Perceived Feedback, Motivation, Academic Success***

The relationship between perceived feedback, motivation, and academic success is multifaceted, influenced by factors such as autonomy support, intrinsic motivation, and the quality of feedback received. Studies have consistently shown that students' motivation plays a crucial influence in their academic success by acting as a mediator between several variables. Research conducted separately by Chik & Abdullah (2018) and Ning & Downing (2012) revealed that motivation plays a mediating role in

the link between academic success and learning experience. Additionally, motivation is important because it acts as a major mediator in the complex relationship between academic success and perceived feedback. (Ning & Downing, 2012; Honicke et al., 2020;). As many academics in the subject have noted, this emphasizes the significance of motivation as a key element determining the relationship between the perception of feedback and the realization of academic success. Research indicates that perceived autonomy support from teachers enhances students' motivation and self-regulation, leading to better academic performance (Jeno & Diseth, 2014). Positive feedback can boost intrinsic motivation, particularly in males, while negative feedback tends to diminish motivation across genders (Deci, 1973). However, the correlation between academic motivation and success is not always strong, as seen in studies where motivation and learning approaches explained only a small portion of academic success (Cetin, 2015). Furthermore, students emphasize the need for timely and specific feedback to enhance their learning experience (Murphy & Cornell, 2010). Based on characteristics of these variables, we put the following hypothesis:

***H7: Motivation plays a mediating role in the relationship between perceived feedback and academic success.***

***The relationship between perceived feedback, students' Engagement, Academic Success***

Several research have shown that student engagement has a major impact on the relationship between perceived feedback and academic success (Adams et al., 2020; Wang & Zhang, 2020; Gerber, 2013). The role of academic self-efficacy as a mediating element in the relationship between academic success and feedback is particularly highlighted in Adams et al.'s (2020) study. In a similar vein, Wang and Zhang (2020) draw attention to the way that learning efficacy mediates the link between academic accomplishment and perceived instructor feedback. Furthermore, it is demonstrated by Gerber et al. (2013) that student involvement moderates the relationship between academic success and engagement. Feedback is essential for students to understand their academic performance and areas for improvement (Bevan et al., 2008). Students who perceive feedback as

constructive are more likely to engage actively in their learning process, fostering a sense of ownership over their academic journey (Ansari & Usmani, 2018).

Academic engagement, influenced by feedback, significantly correlates with academic success. A study found that motivational factors and self-efficacy mediate this relationship (Ashkzari et al., 2018). Positive student-teacher relationships, bolstered by effective feedback, enhance engagement and contribute to better academic outcomes (Amerstorfer & Münster-Kistner, 2021).

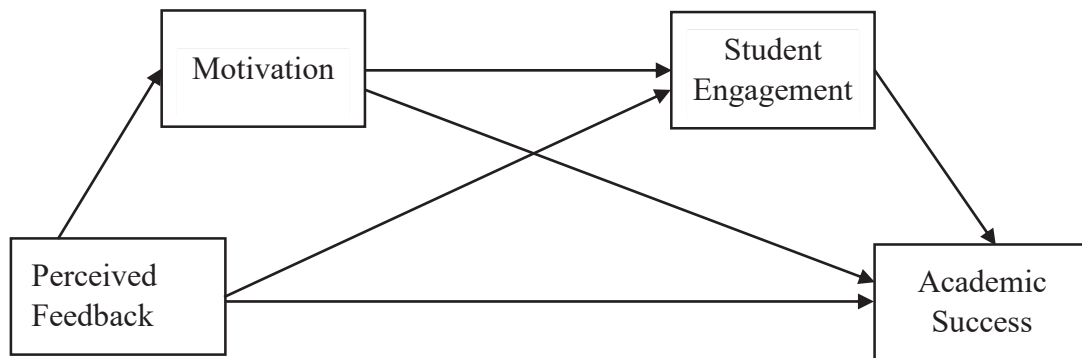
We hypothesis:

***H8: Student's engagement serves as a mediator in the connection between perceived feedback and academic success***  
***Perceived Feedback, Motivation, Student's Engagement, Academic Success***

Perceived feedback has a significant impact on academic success; this relationship is mediated by learner engagement (Wang & Zhang, 2020). Interpersonal motivation has been found to be a favorable predictor of engagement in terms of motivation, which in turn leads to better academic success (Ito & Umamoto, 2022). Academic outcomes are strongly correlated with feedback orientation—the process by which students assimilate and utilize feedback—and extrinsic motivation. Additionally, a key mediator of the link between academic performance and feedback perception is academic self-efficacy (Adams et al., 2020; Dogan, 2015; Stock et al., 2019). Self-determined motivations, such as identified and introjected regulation, directly influence self-regulated learning abilities, which are essential for academic success (Kim, 2019). Achievement goals, particularly mastery goals, correlate positively with academic self-efficacy, further enhancing engagement and academic performance (Samareh & Moghadam, 2016). Additionally, academic engagement serves as a mediator between emotional intelligence, resilience, and academic success, highlighting its importance in educational contexts (García-Martínez et al., 2021). A positive motivational climate in classrooms fosters higher levels of school engagement, which in turn leads to improved academic outcomes (Gutiérrez et al., 2017). We make the following hypothesis in light of the research findings and the characteristics of these variables:

***H9: Motivation and student's engagement have a mediating effect on the relationship between perceived feedback and academic success.***

**Figure 1.**  
*Conceptual Model*



## Methodology

### ***Data collection***

The study population encompassed middle school students in Kosovo. Due to practical limitations in reaching the entire student population, this study employed the convenient sampling method. Data collection was carried out physically. In the initial phase, 330 questionnaires were distributed to students across secondary schools in the Prizren region, involving direct communication with them to solicit their participation. Written permit was secured from the Municipal Directorate of Education, authorizing the survey's administration to students. Out of the Consequently, the study sample consisted of 327 students. From these students 121 (37.0%) were in grade 6<sup>th</sup>, 113 (34.6%) were in 7<sup>th</sup> grade, 42 students of 12.8% students were in grade 8<sup>th</sup> and 51 students or 15.6% were in grade 9<sup>th</sup>. From the respondents 150 (45.87%) were male, while 177 were female (54.13%) as presented in Table 1.

### ***Measures***

***Perceived Feedback:*** Perceived feedback was evaluated using the questions developed by Wang and Zhang (2020), employing a 5-point Likert scale where “1 = Strongly Disagree” and “5 = Strongly Agree.” The scale demonstrated good

reliability ( $\alpha = 0.836$ ).

***Motivation:*** Motivation was assessed using twenty-five items adapted from the scale developed by Glynn et al (2011). The reliability of this scale was high ( $\alpha = 0.917$ ). Responses were recorded on a 5-point Likert scale where “1 = Strongly Disagree” and “5 = Strongly Agree.”

***Student Engagement:*** Student engagement was measured utilizing the scale developed by Doğan (2014), which exhibited a reliability coefficient of ( $\alpha = 0.865$ ). Responses were collected using a scale where “1 = Never” and “5 = Always” and was used only the first two dimensions of the questionnaire,

***Students' GPA:*** Academic success was assessed by students' GPA in academic subjects.

### ***Measurement model estimation***

To conduct the statistical analyses, IBM SPSS v.26 and AMOS v.23 were employed. The Structural Equation Model (SEM) was conducted.

### ***Common method variance (CMV)***

Podsakoff et al. (2012) provided guidelines on how to reduce the possibility of common method variance (CMV) in cross-sectional data collected at a single moment in time. Firstly, the study's voluntary and anonymous nature was emphasized in the instruction letter. Finally, all of the items

were subjected to an exploratory factor analysis (EFA) with a maximum of one component. Less than 0.50 percent of the

explained variance could be attributed to a single factor, indicating that CMV was not a problem.

**Table 1.**  
*Demographic Data*

Demographic	Frequency	Percentage
	<i>n</i>	%
<i>Gender</i>		
Female	150	45.87
Male	177	54.13
<i>Class</i>		
6	121	37.0
7	113	34.6
8	42	12.8
9	51	15.6

**Table 2.**  
*Descriptive Statistics and Correlations Between Latent Variables*

	Mean	SD	Per Feed.	Motiv.	StdEng.	AcadSucc.
1. PerFeed.	4.124	0.493	1			
2. Motiv.	4.154	0.575	0.588**	1		
3. StdEng.	4.496	0.505	0.608**	0.606**	1	
4. AcadSucc	6.047	0.836	0.438**	0.436**	0.661**	1

*PerFeed-Perceived Feedback, Motiv – Motivation, StdEng – Student Engagement, AcadSucc– Academic Success*

\*\**p* < 0.01 \**p* < 0.05.

## Results

**Table 3.**  
*Results of the Mediation Analysis*

H:	Hypotheses Test	Std. Estimate	Lower Bound	Upper Bound	P-value
H1:	PerFeed. → AcadSucc.	0.054	-0.101	0.211	0.590
H2:	PerFeed. → Motiv.	0.522	0.418	0.609	0.000
H3:	PerFeed. → StdEng.	0.278	0.154	0.418	0.000
H4:	Motiv. → AcadSucc.	0.530	0.407	0.650	0.000
H5:	StdEng. → AcadSucc.	-0.266	-0.540	-0.027	0.066
H6:	Motiv. → StdEng.	0.657	0.512	0.769	0.000
H7:	PerFeed. → Motiv. → AcadSucc.	0.283	0.190	0.407	0.000
H8:	PerFeed. → StdEng. → AcadSucc.	0.310	0.108	0.793	0.031
H9:	PerFeed. → Motiv → StdEng → AcadSucc.	0.203	0.070	0.323	0.018

*PerFeed-Perceived Feedback, Motiv – Motivation, StdEng – Student Engagement, AcadSucc– Academic Success*

Numerous links between perceived feedback, academic success, motivation, students' engagement are revealed by the analysis. The study's initial findings, indicated by a normalized coefficient of 0.054, indicate a somewhat positive association between perceived feedback and academic success but not statistically significant ( $p=0.590$ ), rejecting Hypothesis 1 (H1). The standardized coefficient of 0.522 indicates that motivation is highly impacted by perceived feedback, on the other hand. Significantly, this relationship achieves statistical significance ( $p < 0.05$ ), offering strong proof of the link between motivation and perceived feedback, confirming Hypothesis 2 (H2). Moreover, perceived feedback positively influences students' engagement, with a standardized coefficient of 0.278 ( $p < 0.05$ ), lending strong support to Hypothesis 3 (H3). Motivation emerges as a crucial factor influencing academic success, with a substantial standardized coefficient of 0.530. The relationship is statistically significant ( $p < 0.05$ ), supporting Hypothesis 4 (H4). However, a negative relationship exists between student engagement and academic success, indicated by a standardized coefficient of -0.266. Yet, this relationship does not reach statistical significance ( $p = 0.066$ ), thereby rejecting Hypothesis 5 (H5). Furthermore, motivation positively influences student engagement, evident from standardized coefficient of 0.657 ( $p < 0.05$ ), supporting Hypothesis 6 (H6). The sequential pathway from perceived feedback to motivation to academic success emerges as significant, with each step contributing positively to academic success. This is supported by a standardized coefficient of 0.283 ( $p < 0.05$ ), thus affirming Hypothesis 7 (H7). Similarly, a significant sequential relationship is observed from perceived feedback to students' engagement to academic success, highlighting a positive impact on academic success. This pathway is characterized by a standardized coefficient of 0.310 ( $p < 0.05$ ), supporting Hypothesis 8 (H8). Additionally, perceived feedback influences academic success through motivation and student engagement. This demonstrates a positive effect on academic success, with a standardized coefficient of 0.203 ( $p < 0.05$ ) thereby supporting Hypothesis 9 (H9).

## Discussions

The aim of this study was to explore the mediating role of motivation and students' engagement in relationship between perceived feedback and academic success. The study's findings regarding the relationship between perceived feedback and academic success align with the broader literature, which acknowledges the multifaceted nature of feedback's impact on academic success. Although our results show a weakly positive relationship between academic success and perceived feedback, the absence of statistical significance raises the possibility that academic success cannot be reliably predicted by perceived feedback alone, which is consistent with the findings of other studies (Adams et al., 2020; Mulliner & Tucker, 2017; Selvaraj et al., 2021). It seems that other criteria, such feedback's timeliness, relevance, and consistency with students' expectations, may have an impact on how beneficial it is at improving academic success (Gonfa, 2020). Our results support previous studies that show the important influence of perceived feedback on motivation. The idea that students' motivation levels are elevated when they receive constructive feedback is supported by the significant statistical significance found in our study (Murtagh, 2014; Zong et al., 2021). This positive relationship provides empirical support for the theoretical framework put forth by goal-oriented theory by highlighting the critical role that feedback plays in promoting students' inner drive to interact with learning materials and pursue academic goals (Tricomi & DePasque, 2016). The findings of our research support the idea that students' engagement is positively impacted by perceived feedback. The results suggest that effective feedback contributes to heightened student engagement (Mayordomo et al., 2022; Carvalho et al., 2015). However, it is essential to acknowledge the challenges associated with student engagement with feedback, particularly in digital learning environments, as identified in previous literature (Winstone et al., 2021). Our findings on the impact of engagement and motivation on academic success are consistent with prior research highlighting the crucial roles these variables play in determining educational outcomes. The substantial result observed is for motivation



which direct positive impact on academic success (Sedaghat et al., 2011; Gupta & Mili, 2017). These results underscore the importance of fostering students' intrinsic motivation in promoting academic success, consistent with the tenets of Goal-Oriented Theory (Elliott & Dweck, 1988). The mediation analyses conducted in our study provide further insights into the underlying mechanisms linking perceived feedback, motivation, engagement, and academic success. Consistent with theoretical frameworks proposed in the literature (Ning & Downing, 2012; Gerber et al., 2013), our findings support the mediating role of motivation and engagement in the relationship between perceived feedback and academic success. These results underscore the interconnectedness of these variables and highlight the need for holistic approaches to feedback implementation that consider its impact on motivation, engagement, and ultimately, academic success.

### **Implications And Conclusions**

The results highlight how crucial customized feedback techniques are in learning environments. Teachers should place a high priority on giving students timely, relevant, and customized feedback since it can improve motivation, engagement, and eventually academic success. Teachers can increase the efficacy of feedback interventions by coordinating feedback procedures with learning objectives and student expectations. Our findings demonstrate the necessity of continuous professional development programs for teachers to improve their ability to provide feedback. The main goal of training programs should be to give teachers the information and abilities they need to give constructive criticism that encourages enthusiasm and involvement from their students. Institutions can foster a culture of efficient feedback practices that enhances student learning outcomes by allocating resources toward instructor development. The results highlight how crucial it is to incorporate feedback systems into curriculum design. Curriculum designers ought to view feedback as a crucial part of the learning process and create curricula that make it easier for students to provide and use feedback. Students can be empowered to actively engage with

feedback and increase their motivation and engagement by incorporating opportunities for formative feedback and self-assessment. Student support services that encourage motivation, engagement, and academic performance should be given top priority by institutions. Counseling services can give students the skills they need to handle criticism well, overcome obstacles to motivation, and improve their participation in class activities. Institutions can foster an environment that supports the success of their students by providing extensive support services. Using educational technology to its full potential can improve how feedback is delivered and made available to students. Academic institutions want to investigate the utilization of digital platforms and learning management systems as a means of optimizing feedback procedures, expediting the delivery of feedback on time, and fostering student involvement. Technology-enabled feedback mechanisms can support a culture of continual improvement in education and accommodate a variety of learning preferences. Legislators ought to give top priority to creating regulations that facilitate efficient feedback procedures in learning environments. Policies ought to support the application of research-based techniques for providing feedback, provide funding for the professional development and training of educators, and provide incentives for educational institutions to make feedback a top priority. Through the integration of feedback-oriented policies into educational frameworks, policymakers may ensure that all students have fair access to high-quality education.

### **Limitations**

Because of the cross-sectional form of the study, it was more difficult to determine the causes of the variables. Although associations between academic success, motivation, engagement, and perceived feedback have been identified, longitudinal studies are necessary to understand the temporal dynamics of these relationships and track how they have changed over time. Moreover, the sample size of the study, which consists of respondents, can restrict the applicability of the results to larger groups. Larger and more varied sample sizes should be the aim of

future research projects in order to support the findings' external validity and guarantee their applicability to a range of educational settings and demographic types. The reliability and consistency of these measures may vary, even if standardized questionnaires were used to assess motivation, engagement, and perceived feedback. It is necessary to do additional validation research to confirm the psychometric qualities of the instruments used and validate the correctness of the collected data. Because the study was conducted in a particular educational environment, its findings may not be fully applicable in other contexts. Diverse populations and educational environments may experience differing effects on the relationships between motivation, engagement, perceived feedback, and academic success due to cultural, institutional, and contextual factors. Although motivation and engagement were found to have mediating roles in the relationship between perceived feedback and academic success, a thorough examination of various mediation models and confounding variables was not carried out. Subsequent investigations ought to involve more extensive analyses of other mediators and moderators in order to provide a more thorough comprehension of the complex mechanisms underlying these associations.

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