Relationship Between Teachers' Feedback and Students' Self-Efficacy Among Mathematics Majors: A Correlational Study

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Accepted:	Reviewed:	Published:
Jan 28th 2025	March 18th 2025	May 30th 2025

Abstract
This study aims to investigate the relationship between teachers' feedback and students' self-efficacy among 33 Bachelor of Secondary Education students majoring in Mathematics at Holy Cross College, Rosa, N.E. Inc. A correlational research design was employed to examine the variables, with data analyzed using Spearman Rank-Order Correlation. The results revealed a significant positive relationship between teachers' feedback and students' self-efficacy (rho = 0.541, $p < 0.001$). Additionally, age was found to have a significant relationship with both teachers' feedback and students' self-efficacy. However, no significant relationship was identified between students' year level and self-efficacy. These findings suggest that teachers' feedback plays a crucial role in enhancing students' self-efficacy, highlighting the importance of feedback as a motivational tool in educational settings. The study emphasizes the need for educators to provide timely and constructive feedback to improve students' belief in their own abilities.

Keywords: Teachers' Feedback, Students' Sefl-Efficacy, Spearman Rank-Order Correlation, Quantitative Data

Introduction

Mathematics education plays a crucial role in students' academic success and future opportunities. Despite its significance, many students struggle with both engagement and confidence in this subject. Teacher feedback has been identified as one of the key factors that can influence student performance and attitudes. Feedback, defined as information provided by an agent about an individual's performance or understanding, is vital in the teaching and learning

process [1]. It not only guides students towards improved performance but also motivates them to achieve higher academic success [2]. However, the impact of feedback can vary, sometimes producing positive outcomes while at other times leading to negative consequences.

Schwab et al. [3] emphasize the importance of teacher feedback in influencing students' academic achievement. Feedback has become a central element in educational research, as it is a key environmental instructional variable that can significantly affect students' self-efficacy and motivation. The role of feedback in fostering self-efficacy has been highlighted by Schunk & DiBenedetto [4], who assert that an enhanced sense of self-efficacy helps sustain student motivation and improves learning outcomes.

Self-efficacy, a concept introduced by Bandura [5], refers to an individual's belief in their ability to execute tasks and produce specific performance outcomes. It is closely linked to student motivation and engagement. Linnenbrink & Pintrich , as cited in Sokmen [6], suggest that students with higher self-efficacy are more engaged in terms of behavior, cognition, and motivation compared to their peers. Such students are more likely to demonstrate sustained effort, improved learning outcomes, and greater academic achievement.

While the significance of both teacher feedback and self-efficacy is widely recognized in mathematics education, there remains a gap in research concerning the specific relationship between these two variables, particularly in teacher education programs. As Henderson et al. [7] highlight, feedback is a socially constructed process, and Dawson et al. (2018) argue that many instructors rely on personal opinions rather than empirical evidence to shape their feedback

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[1] Benedikt Wisniewski, Klaus Zierer, and John Hattie, "The Power of Feedback Revisited: A Meta-Analysis of Educational Feedback Research," *Frontiers in psychology* 10 (January 22, 2020): 3087, https://pubmed.ncbi.nlm.nih.gov/32038429; John Hattie and Helen Timperley, "The Power of Feedback," *Review of Educational Research* 77, no. 1 (2007): 81–112, http://dx.doi.org/10.3102/003465430298487.

[2] N Mandhane Ansari, S., Shaikh, T. P., & Deolekar, S., "Positive Feedback: A Tool for Quality Education in Field of Medicine," *International Journal of Research in Medical Sciences, 3(8), 1868-1873* (n.d.), http://dx.doi.org/10.18203/2320-6012.ijrms20150293.

[3] S Schwab Markus, S., & Hassani, S., "Teachers' Feedback in The Context of Students' Social Acceptance, Students' Well-Being in School and Students' Emotions," *Educational Studies, 1–18* (n.d.), https://doi.org/10.1080/03055698.2021.2023475; Zongyi Deng, "Constructing 'Powerful' Curriculum Theory," *Journal of Curriculum Studies* (2021).

[4] D H Schunk & DiBenedetto, M. K., "Self-Efficacy and Human Motivation," *In Advances in motivation science* (n.d.), https://doi.org/10.1016/bs.adms.2020.10.001; Dale H Schunk and Maria K DiBenedetto, "Motivation and Social Cognitive Theory," *Contemporary Educational Psychology* 60 (2020): 101832, http://dx.doi.org/10.1016/j.cedpsych.2019.101832.

[5] Prachee Sehgal, Ranjeet Nambudiri, and Sushanta Kumar Mishra, "Teacher Effectiveness through Self-Efficacy, Collaboration and Principal Leadership," *International Journal of Educational Management* (2017); Melissa J. Bourne, Suzanne C. Smeltzer, and Michelle M. Kelly, "Clinical Teacher Self-Efficacy: A Concept Analysis," *Nurse Education in Practice*, 2021; Albert Bandura, *Self Efficacy: The Exercise of Control. New York: W. H.. Freeman & Company*, n.d.

[6] Y Sökmen, "The Role of Self-Efficacy in the Relationship between the Learning Environment and Student Engagement," *Educational Studies, 47(1), 19-37* (n.d.), https://doi.org/10.1080/03055698.2019.1665986.

[7] M Henderson Phillips, M., Ryan, T., Boud, D., Dawson, P., Molloy, E., & Mahoney, P., "Conditions That Enable Effective Feedback," *Higher Education Research & Development/Higher Education Research and Development, 38(7), 1401–1416* (n.d.), https://doi.org/10.1080/07294360.2019.1657807.

practices. Furthermore, Boud & Molloy [8] note that feedback processes in higher education often face challenges in implementation, often failing to have the desired impact on student learning.

This correlational study aims to explore the relationship between teachers' feedback and students' self-efficacy among Bachelor of Secondary Education majors in mathematics at Holy Cross College, Sta. Rosa, N.E. Inc. The research examines how teachers' feedback practices influence students' self-efficacy beliefs and, consequently, their confidence and engagement in mathematics education. The findings are expected to offer valuable insights into the factors that contribute to students' academic motivation and provide a foundation for improving pedagogical practices.

The study will address several key questions: 1) How can the demographic profile of the respondents be described? 2) How can the teachers' feedback be described? 3) How can the students' self-efficacy be described? 4) Is there a significant relationship between the demographic profile and teachers' feedback? 5) Is there a significant relationship between the demographic profile and students' self-efficacy? 6) Is there a significant relationship between teachers' feedback and students' self-efficacy?

Through a comprehensive examination of these variables, this study seeks to inform teacher training initiatives and offer strategies for enhancing mathematics education by fostering students' self-efficacy and confidence through effective feedback mechanisms.

Method

This study utilized a correlational research design to explore the relationship between teachers' feedback and students' self-efficacy in mathematics learning. A correlational approach was chosen to determine the extent and direction of the relationship between the two variables. The primary aim of this methodology was to investigate how feedback from teachers influences the self-efficacy of students in their mathematical studies, as this relationship can potentially enhance students' academic performance and motivation.

Research Setting and Participants

The study was conducted at Holy Cross College Sta. Rosa, N.E. Inc., located in Poblacion Rizal, Santa Rosa, Nueva Ecija. The participants included students enrolled in the Bachelor of Secondary Education Major in Mathematics program. A total of 33 students were selected to participate in this study, ensuring a representative sample from the targeted population.

Data Collection

Quantitative data were collected through the use of two structured questionnaires. The first instrument was designed to measure teachers' feedback, adapted from the work of Mehregan and Seresht [9]. This instrument was used to assess various aspects of feedback that students received,

[8] Ibid.; Phillip Dawson et al., "What Makes for Effective Feedback: Staff and Student Perspectives," *Assessment & Evaluation in Higher Education* 44, no. 1 (2018): 25–36, http://dx.doi.org/10.1080/02602938.2018.1467877.

[9] M Mehregan & Seresht, D., "The Role of Teacher Feedback in Enhancing Learner Self-Efficacy and Motivation in Computer-Assisted Environments" (n.d.), https://mextesol.net/journal/index.php?page=journal&id_article=562.

including frequency, type, and perceived effectiveness. The second instrument was the New General Self-Efficacy Scale [10], which was used to evaluate students' beliefs in their ability to perform effectively in different situations, with a focus on their mathematical learning outcomes.

Data Analysis

The data collected were analyzed using the Spearman Rank-Order Correlation Coefficient, a non-parametric statistical method suitable for measuring the strength and direction of associations between ranked variables. This method was chosen because it allows for the assessment of ordinal data without the assumption of a normal distribution . Spearman's correlation is effective in determining the degree of relationship between teachers' feedback and students' self-efficacy, as it provides a measure of both the intensity and direction of these associations [11]. The statistical analysis was performed using appropriate software to ensure accurate interpretation of the results.

By employing this methodological approach, the study sought to provide a detailed understanding of how teachers' feedback influences the self-efficacy of students in mathematics and to identify potential areas for improving pedagogical practices in this field.

Results and Discussion

Demographic Profile

The respondents were analyzed based on their gender, age, and year level. The demographic details provide insight into the sample composition and how these characteristics may relate to perceptions of teacher feedback and self-efficacy.

Table 1 – Demographic Profile: Gender

Gender	Frequency	Percentage
Female	19	57.6%
Male	14	42.4%
TOTAL	**33**	**100.0%**

The distribution of respondents based on gender reveals that a majority, 57.6% (n=19), are female, while 42.4% (n=14) are male. This reflects a slightly higher representation of female Mathematics majors in the sample. The difference suggests that female students are more represented in this cohort, which could influence perceptions of feedback and self-efficacy since gender dynamics in mathematics learning often differ in terms of confidence levels and responsiveness to feedback.

Table 2 – Demographic Profile: Age

Age	Frequency	Percentage
17 – 20 years old	16	48.5%
21 – 24 years old	14	42.4%
25 years old & above	3	9.1%
TOTAL	**33**	**100.0%**

[10] Gilad Chen, Stanley M. Gully, and Dov Eden, "Validation of a New General Self-Efficacy Scale," *Organizational Research Methods* (2001).

[11] A S B Perez & Santos, J. V. L., "Alignment of The Holy Cross College STA. Rosa Student's Program with Their Interest and Skills," *EDUCATIO: Journal of Education, 7(1), 25-32* (n.d.).

The age distribution shows that nearly half of the respondents (48.5%) are within the 17-20 age group, followed closely by 42.4% in the 21-24 age range. Only 9.1% are aged 25 and above. This distribution suggests that the sample predominantly consists of traditional college-aged students, which may impact the generalizability of their self-efficacy levels as younger students might still be developing confidence in mathematics. Conversely, older students may possess different perspectives and levels of self-efficacy based on maturity and prior academic experiences.

Table 3 – Demographic Profile: Year Level

Year Level	Frequency	Percentage
1BSEDM – A	6	18.2%
2BSEDM – A	10	30.3%
3BSEDM – A	13	39.4%
4BSEDM – A	4	12.1%
TOTAL	**33**	**100.0%**

The year level distribution indicates that the largest proportion of respondents (39.4%) are third-year Mathematics majors, followed by 30.3% in the second year. First-year students account for 18.2%, while the fourth-year level has the least representation at 12.1%. This trend suggests that most respondents are in the middle stages of their academic journey, which is significant as students in their second and third years are likely to have been exposed to various forms of teacher feedback and experienced challenges that influence their self-efficacy. The smaller number of fourth-year students may reflect either a smaller graduating batch or challenges in reaching these students during data collection.

Table 4 – Weighted Mean of Teacher's Feedback and Self Efficacy

Variable	Mean	Verbal Description
Teachers' Feedback	4.269	Agree
Students Self-Efficacy	4.212	Agree
General Weighted Mean	**4.241**	**Agree**

Table 4 presents the weighted mean scores of teachers' feedback and students' self-efficacy. The mean score for teachers' feedback is 4.269, while the mean for students' self-efficacy is 4.212. Both fall under the verbal description "Agree" based on the rating scale used. The general weighted mean of 4.241 further indicates that respondents generally hold positive perceptions of both variables.

Relationship between Demographic Profile and Teacher's Feedback

Table 5 – Relationship between Age and Teacher's Feedback

Variable 1	Variable 2	rho-value	p-value	Decision	Remarks
Age	Teachers' Feedback	0.423	0.014	Reject H0	Significant

Table 5 presents the correlation between respondents' age and their perception of teachers' feedback. The computed rho-value of 0.423 indicates a moderate positive correlation between the two variables. This suggests that as students grow older, their perception of the feedback provided by their teachers tends to become more positive.

The p-value of 0.014 is less than the significance level of 0.05, leading to the rejection of the null hypothesis. This means that age has a significant relationship with students' perception of teachers'

feedback. Older students may value feedback more due to their maturity and increased understanding of its role in enhancing their academic performance.

This finding is consistent with the study conducted by Carvalho et al. [12], which revealed that younger students between 14 and 19 years old considered teachers' feedback as practical educational guidance. Similarly, in this study, students within the higher age range showed a significant appreciation of feedback, further emphasizing the value students place on teacher responses as they mature.

Table 6 – Relationship between Year Level and Teacher's Feedback

Variable 1	Variable 2	rho-value	p-value	Decision	Remarks
Year Level	Teachers' Feedback	0.133	0.460	Fail to Reject H0	Not Significant

Table 6 shows the correlation result between respondents' year level and their perception of teachers' feedback. The computed rho-value of 0.133 suggests a very weak positive correlation, which means that year level has little to no relationship with how students perceive their teachers' feedback.

With a p-value of 0.460, which is higher than the 0.05 significance level, the null hypothesis is not rejected. This implies that there is no significant relationship between year level and students' perception of teachers' feedback. Regardless of their academic standing, students generally perceive feedback similarly.

This result aligns with the findings of Wei et al. [13], who observed that as students advanced in their studies, their satisfaction with the quality and quantity of feedback did not show statistically significant differences between senior and junior students. This similarity suggests that expectations or experiences regarding feedback may remain consistent across year levels.

Relationship between Demographic Profile and Students' Self-Efficacy

Table 7 – Relationship between Age and Students' Self-Efficacy

Variable 1	Variable 2	rho-value	p-value	Decision	Remarks
Age	Students Self-Efficacy	0.386	0.026	Reject H0	Significant

Table 7 presents the correlation between respondents' age and their self-efficacy. The computed rho-value of 0.386 indicates a moderate positive correlation, suggesting that as students' age increases, their level of self-efficacy also tends to improve.

The p-value of 0.026 is less than the significance level of 0.05, leading to the rejection of the null hypothesis. This finding implies that age has a significant relationship with students' self-efficacy, where older students tend to exhibit higher confidence in their academic abilities.

This result is consistent with the study of Kolo et al. [14], which revealed that 80.82% of college students aged 19 to 34 years demonstrated higher levels of academic self-efficacy. The finding emphasizes that as students mature, their belief in their capacity to achieve academic tasks strengthens.

Table 8 – Relationship between Year Level and Students' Self-Efficacy

[12] C Carvalho Martins, D., Santana, L. E., & Feliciano, L., "Teacher Feedback: Educational Guidance in Different School Contexts," *Procedia: Social & Behavioral Sciences, 159, 219–223* (n.d.), https://doi.org/10.1016/j.sbspro.2014.12.360; Luísa Carvalho, "Quality Education for All: A Fuzzy Set Analysis of Sustainable Development Goal Compliance" (2024).

[13] W Wei Sun, Y., & Xu, X., "Investigating The Impact of Increased Student Feedback Literacy Level on Their Expectations on University Teachers' Feedback," *Assessment and Evaluation in Higher Education/Assessment & Evaluation in Higher Education, 46(7), 1092–1103* (n.d.), https://doi.org/10.1080/02602938.2020.1846017.

[14] A G Kolo Jaafar, W. M. B. W., & Ahmad, N. B., "Relationship Between Academic Self-Efficacy Believed of College Students and Academic Performance," *IOSR Journal of Humanities and Social Science (IOSR-JHSS), 22(1), 75-80* (n.d.), https://www.researchgate.net/publication/313315847_Relationship_between_Academic_Self-efficacy_Believed_of_College_Students_and_Academic_Performance.

Variable 1	Variable 2	rho-value	p-value	Decision	Remarks
Year Level	Students Self-Efficacy	0.139	0.441	Fail to Reject H0	Not Significant

Table 8 displays the relationship between the respondents' year level and their self-efficacy. The computed rho-value of 0.139 indicates a very weak positive correlation, suggesting little to no association between these two variables.

The p-value of 0.441, which is greater than the significance level of 0.05, leads to failing to reject the null hypothesis. This means that year level does not have a significant relationship with students' self-efficacy. Regardless of what year they are in, students' confidence in their academic abilities remains relatively similar.

Interestingly, this finding contrasts with the study by Panadero et al. [15], which found that year level was a significant factor influencing students' self-efficacy. In their study, students' self-efficacy levels varied depending on their academic standing. However, in the current study, no such significant relationship was observed.

Relationship between Teacher's Feedback and Students' Self-Efficacy

Table 9 – Relationship between Teacher's Feedback and Students' Self-Efficacy

Variable 1	Variable 2	rho-value	p-value	Decision	Remarks
Teachers' Feedback	Students Self-Efficacy	0.541	0.001	Reject H0	Significant

Table 9 presents the relationship between teachers' feedback and students' self-efficacy. The computed rho-value of 0.541 indicates a moderate positive correlation, suggesting that higher levels of perceived teacher feedback are associated with increased student self-efficacy.

The p-value of 0.001 is significantly less than the alpha level of 0.05, leading to the rejection of the null hypothesis. This result confirms that there is a statistically significant relationship between teachers' feedback and students' self-efficacy.

The findings align with the study of Ruegg [16], which emphasized the positive effect of teachers' feedback on students' writing self-efficacy. According to Ruegg, timely and constructive feedback from teachers helps boost students' confidence in their academic skills, reinforcing their belief in their ability to accomplish learning tasks effectively

Discussion

The findings of this study highlight the significant role that teachers' feedback plays in shaping students' self-efficacy in mathematics. This section discusses the results in relation to the theoretical framework, comparing them to previous research, and providing insights into how the findings contribute to the existing literature.

Teachers' Feedback and Self-Efficacy

One of the key findings of this study is the strong positive correlation between teachers' feedback and students' self-efficacy (rho = 0.541, p = 0.001). This finding supports the theoretical framework of self-

[15] E Panadero García-Pérez, D., Ruiz, J. F., Fraile, J., Sánchez-Iglesias, I., & Brown, G. T. L., "Feedback and Year Level Effects on University Students' Self-Efficacy and Emotions During Self-Assessment," *Educational Psychology, 43(7), 756–779* (n.d.), https://doi.org/10.1080/01443410.2023.2254015.

[16] R Ruegg, "The Effect of Peer and Teacher Feedback on Changes in EFL Students' Writing Self-Efficacy," *Language Learning Journal, 46(2), 87–102* (n.d.), https://doi.org/10.1080/09571736.2014.958190.

efficacy as proposed by Bandura [17], which suggests that individuals' beliefs in their ability to perform specific tasks influence their actions and outcomes. The positive relationship between feedback and self-efficacy is consistent with previous research by Schunk and DiBenedetto [18], who emphasized that effective feedback boosts students' confidence and motivation, leading to greater engagement and academic success.

Feedback is widely recognized as a key instructional tool that influences students' perceptions of their abilities. According to Hattie and Timperley [19] , feedback serves as a mechanism through which students can assess their progress, make adjustments, and enhance their performance. The findings in this study align with this perspective, showing that when students perceive feedback as constructive and supportive, they are more likely to develop a stronger belief in their capacity to succeed in mathematics.

In addition, the results align with those of Santos and Jocson [20], who found that students who received clear and helpful feedback demonstrated higher self-efficacy. This suggests that teachers' feedback does not merely provide information about a student's performance but also plays an essential role in reinforcing students' beliefs in their academic capabilities. The present study extends this body of literature by specifically focusing on mathematics education and providing empirical evidence of the positive impact of feedback on students' self-efficacy within the context of teacher preparation.

Age and Perception of Feedback

The study found a moderate positive correlation between age and perceptions of teacher feedback (rho = 0.423, p = 0.014). Older students were more likely to view feedback positively, which could be attributed to their increased academic maturity and experience. This finding is in line with Carvalho et al.[21] , who observed that older students are more likely to appreciate feedback due to their greater understanding of its value in academic development. Older students may also possess a more developed sense of their own academic strengths and weaknesses, which allows them to interpret feedback more constructively.

In contrast, younger students, who are still developing their academic identity, may have less confidence in their abilities and may perceive feedback as critical or discouraging, especially if it is not framed positively. This difference underscores the importance of tailoring feedback to meet the developmental needs of students at different stages of their academic careers. It also highlights the need for educators to be mindful of the age-related differences in how feedback is received and interpreted.

Year Level and Perception of Feedback

Interestingly, the study found no significant relationship between year level and teachers' feedback (rho = 0.133, p = 0.460). This result suggests that students across various academic stages perceive feedback similarly, regardless of their year level. This finding contrasts with research by Wei et al. [22], which suggested that senior students might have different expectations or experiences with feedback compared to junior students. However, in this study, the consistency in feedback perception across year levels may indicate

[17] Albert Bandura, "Social Cognitive Theory: An Agentic Perspective," *Annual review of psychology* 52, no. 1 (2001): 1–26.

[18] Schunk & DiBenedetto, M. K., "Self-Efficacy and Human Motivation."

[19] Wisniewski, Zierer, and Hattie, "The Power of Feedback Revisited: A Meta-Analysis of Educational Feedback Research."

[20] John Vincent L Santos, "Ergonomic Hazards in the Workplace: Assessment, Evaluation and Prevention in the Educational Environment of Holy Cross College," *International Journal of Multidisciplinary Research and Analysis* 04, no. 07 (2021), http://dx.doi.org/10.47191/ijmra/v4-i7-11.

[21] Carvalho Martins, D., Santana, L. E., & Feliciano, L., "Teacher Feedback: Educational Guidance in Different School Contexts."

[22] Wei Sun, Y., & Xu, X., "Investigating The Impact of Increased Student Feedback Literacy Level on Their Expectations on University Teachers' Feedback."

that, regardless of academic progression, students generally value feedback for its role in improving learning outcomes.

This result might also reflect the uniformity in feedback practices within the institution or the particular characteristics of the students in this study. Instructors might be providing similar types of feedback regardless of students' year level, or students may have similar academic experiences in terms of feedback, making the year level a less significant factor in shaping their perceptions.

Age and Self-Efficacy

A moderate positive correlation was found between age and self-efficacy (rho = 0.386, p = 0.026), indicating that older students tend to report higher levels of self-efficacy. This finding supports previous studies, such as those by Kolo et al. [23], who found that older students generally exhibit higher levels of academic self-efficacy. As students mature, they accumulate more academic experiences and are likely to develop a more realistic and positive view of their academic capabilities. The results suggest that age-related factors, such as accumulated academic experience and personal growth, contribute to an enhanced belief in one's ability to succeed in mathematics.

Year Level and Self-Efficacy

On the other hand, the study found no significant relationship between year level and self-efficacy (rho = 0.139, p = 0.441). This suggests that self-efficacy does not significantly vary based on students' academic progression, which is in contrast to the findings of Panadero et al. [24], who suggested that year level influences self-efficacy due to the increasing complexity of academic tasks. However, in this study, the lack of a significant relationship may indicate that other factors, such as the quality of feedback received, may be more influential in shaping self-efficacy than year level alone.

Implications for Educational Practice

The findings of this study have important implications for teaching practices and teacher training. The positive relationship between teacher feedback and students' self-efficacy underscores the importance of providing constructive, timely, and specific feedback. Educators should be trained to recognize the critical role feedback plays in enhancing students' confidence in their academic abilities. Moreover, the results suggest that feedback should be tailored to meet the developmental needs of students, considering factors such as age and academic maturity.

The study also highlights the need for further research into the role of feedback in different academic contexts, particularly in STEM fields such as mathematics, where students often face challenges that can affect their self-efficacy. Future studies could explore how specific types of feedback (e.g., formative vs. summative) impact students' self-efficacy and motivation, as well as how feedback can be more effectively incorporated into teaching strategies to promote student engagement and success.

The findings of this study contribute to the growing body of research on the relationship between teachers' feedback and students' self-efficacy. By confirming the positive impact of feedback on self-efficacy, this research provides valuable insights into how feedback can be leveraged to improve students' academic confidence, particularly in mathematics. The study's contributions are especially relevant for educators and institutions seeking to enhance the quality of feedback practices and promote greater student

[23] Kolo Jaafar, W. M. B. W., & Ahmad, N. B., "Relationship Between Academic Self-Efficacy Believed of College Students and Academic Performance."

[24] Panadero García-Pérez, D., Ruiz, J. F., Fraile, J., Sánchez-Iglesias, I., & Brown, G. T. L., "Feedback and Year Level Effects on University Students' Self-Efficacy and Emotions During Self-Assessment."

engagement and achievement in mathematics education.

Conclusion

This study provides important insights into the role of teachers' feedback and students' self-efficacy within the context of mathematics education. The findings underscore the influence of demographic factors, particularly age, on students' perceptions of feedback and their belief in their academic abilities. It was observed that as students age, they tend to value feedback more and exhibit stronger self-efficacy beliefs. This suggests that maturity and accumulated academic experiences play a significant role in shaping how students interpret and respond to feedback, ultimately contributing to their academic success.

In contrast, the study found that year level had no significant impact on either teachers' feedback or students' self-efficacy. This indicates that the progression through academic years does not necessarily affect students' confidence or their perceptions of the feedback they receive. Instead, factors such as personal motivation, the learning environment, and individual experiences may exert a stronger influence on students' self-efficacy.

A key contribution of this study is the confirmation of a positive and significant relationship between teachers' feedback and students' self-efficacy. The results highlight the essential role of feedback in fostering students' confidence and motivation. When students perceive feedback as constructive and supportive, it enhances their belief in their abilities, which, in turn, contributes to improved academic performance. This finding reinforces the notion that feedback is not only a tool for correcting mistakes but also a means of empowering students, building their self-efficacy, and motivating them to persist in their learning.

This study emphasizes the importance of providing meaningful, timely, and constructive feedback in the classroom. Educators are encouraged to engage in feedback practices that go beyond mere evaluation, focusing instead on encouraging student growth and fostering a supportive learning environment. As the findings suggest, teachers' feedback has the potential to significantly enhance students' self-efficacy, which is crucial for their academic success, particularly in subjects like mathematics that demand high levels of cognitive engagement.

Looking ahead, further research could explore how different types of feedback (e.g., formative versus summative) impact students' self-efficacy in various disciplines. Additionally, future studies could examine how cultural, social, or institutional factors influence the effectiveness of feedback in promoting self-efficacy. By delving deeper into these aspects, educators can refine their feedback strategies and ensure they are meeting the diverse needs of students, ultimately enhancing educational outcomes.

The findings of this study reinforce the vital role of feedback in shaping students' academic journeys and highlight the need for educational practices that prioritize student empowerment through constructive and supportive feedback mechanisms.

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