The Influence of Constructive Feedback on Students' Academic Self-Efficacy

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Abstrak: In this study, the impact of constructive criticism on students' academic self-efficacy was assessed using a quantitative approach, and signs of constructive criticism that influence students' academic self-efficacy were identified. 95 students at SMA Negeri 8 Medan were involved in the correlational survey. The regression analysis results indicate that constructive feedback significantly influences academic self-efficacy, with an R Square value of 0.641, signifying that 64.1% of the variability in academic self-efficacy can be explained by constructive feedback. Among the indicators of constructive feedback, feedback specificity and communication clarity have the most significant influence on academic self-efficacy, with B values of 0.891 (p = 0.029) and 1.450 (p = 0.001), respectively. This study found that students' academic self-efficacy can be improved through clear and detailed constructive feedback. As a result, students' academic performance can be improved.

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A. INTRODUCTION

A successful learning process requires constructive criticism. Students can become more engaged in the learning process and enhance their academic performance by receiving appropriate feedback that helps them identify their areas of strength and growth (Al-Hattami, 2019)(Nidhi & Taruna, 2023). On the other hand, academic self-efficacy denotes an individual's confidence in their capacity to effectively do academic assignments that facilitate their success (Wahyuni & Dahlia, 2020). Academic self-efficacy is a primary element that fosters good learning behavior, as prior research indicates its substantial influence on students' motivation, engagement, and academic success (Quraisy & Agus, 2021).

Constructive feedback and academic self-efficacy are essential components of the learning process. Numerous studies have reported inconsistent findings concerning the relationship between feedback and academic self-efficacy. Although self-efficacy is important, other factors such as teaching methods and learning environments can also have a dominant influence on students' academic outcomes (Prahara & Budiyani, 2019). In this regard, further research is essential to analyze the complex dynamics that occur between constructive feedback and academic self-efficacy in various learning contexts. There have been many studies on the role of feedback in learning, as shown by (Putra & Mulyadi, 2021) and (ASTUTI & Baysha, 2024)). Despite the fact that various studies have been conducted on

the relationship between feedback and academic success.(Fook et al., 2016),(Brown et al., 2016), research that identifies specific indicators of constructive feedback that are most influential on students' academic self-efficacy is still limited. Addressing this gap can provide educators with a deeper understanding in formulating efficient feedback strategies. This investigation seeks to enhance comprehension of how constructive feedback influences students' academic self-efficacy. This study investigates the comprehensive impact of constructive feedback, while also identifying particular feedback indicators that significantly affect students' academic self-efficacy.

This study employs a quantitative approach to deliver robust empirical evidence regarding the relationship between the specified variables. It seeks to enhance and broaden the insights of prior research, thereby establishing a more reliable basis for developing effective learning feedback techniques. The focus of this study is to investigate the impact of constructive feedback on students' academic efficacy and to identify the indicators of constructive feedback that influence this efficacy. This research is important because it can help build better learning strategies using constructive feedback. This research can help educators, educational psychologists, and policymakers create solutions that improve student academic achievement. More broadly, this research has the potential to improve our understanding of the components that influence students' psychological well-being and academic success.

B. METHOD

This study used a quantitative correlational design to see how constructive feedback, which is the independent variable, and students' academic efficacy, which is the dependent variable, relate to each other. This investigation took place at SMA Negeri 8 Medan between October and November 2024, encompassing the entire student body of the institution. A sample of 95 students was selected, comprising 33 students from class X, 32 from class XI, and 32 from class XII. This sample was obtained through the application of the cluster random sampling method. The Constructive Feedback Scale, which is based on constructive feedback theory, was used as a research tool (Hattie & Timperley, 2007).

Indicators of constructive feedback are feedback specificity, future orientation, timeliness, clarity of communication, balance. Using a five-point Likert scale, each variable consists of twenty-five items. The Academic Self-Efficacy Scale (ASES) is used as a reference for academic grades (Chemers et al., 2001) with indicators of confidence in completing academic tasks , ability to overcome academic challenges , persistence in learning , self-regulation in learning. The research procedure includes preparation (proposal development, instruments, permission), data collection (informed consent, filling out the scale). This study used a quantitative approach. The form was administered to a sample of students from SMA Negeri 8 Medan. The data were analysed employing descriptive and inferential statistics. Pearson Product-Moment correlation analysis and Cronbach's Alpha were employed to evaluate the impact of constructive criticism on students' academic efficacy. The instrument's reliability and validity were assessed by correlation analysis and simple linear regression. ANOVA was employed at a 95% confidence level ($\alpha = 0.05$) to assess significance. Multiple

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regression analysis was employed to ascertain the extent of influence exerted by the X variable indicator on the Y variable. This study maintains ethics by ensuring data confidentiality, providing clear information, and no pressure in filling out the questionnaire. Although this study is limited to the context of SMA Negeri 8 Medan and there are extrinsic factors that cannot be controlled, the findings of this study remain relevant and can be the basis for further research with a broader methodology.

C. RESULTS AND DISCUSSION

In order to examine both variables, Descriptive statistical tests were performed for both variables examined to detail the calculations of the mean, median, mode, standard deviation, and range of values. The results are presented below.

Table 1. Descriptive Statistics

		Constructive Feedback	**Academic Self-Efficacy**
N	Valid	95	95
	Missing	0	0
Mean		85.80	91.45
Median		86.00	92.00
Mode		85	78
Std. Deviation		16,558	14,731
Variance		274,183	216,995
Range		93	74
Minimum		26	51
Sum		8151	8688

The data above illustrates that the *Constructive Feedback variable* has an average value (mean) of 85.80 with a standard deviation of 16.56, which indicates a fairly large variation in the data. The median and mode values are both 86, indicating that most respondents gave relatively high values for this variable. The range of values obtained is 93, with a minimum value of 26 and a maximum of 119. In contrast, the Academic Self-Efficacy variable has a pretty wide range, with an average value of 91.45 and a standard deviation of 14.73. Mathematical Description: With a range of 74, the median and mode values are 92 and 78, respectively; the lowest and maximum values are 51 and 125. Each variable's degree of tendency is displayed in the following table:

Table 2. Level of Constructive Feedback Tendency (X)

Class	Interval of class	Observation Frequency	Relative Frequency (%)	Category
1	101 – 125	16	16.84	Good
2	76 – 100	56	58.94	Enough
3	51 – 75	18	18.94	Not enough
4	25 – 50	5	05.28	Low
	Total	95	100.00*	

The table above shows that most respondents rated *constructive feedback* in the *sufficient category* (58.94%), followed by the *good category* (16.84%). A small number of respondents rated *feedback* in *the less* (18.94%) and *low* (5.28%) categories. This shows that the majority of students feel that *the feedback* given is quite adequate, although there is still room for improvement.

Table 3. Level of Academic Self-Efficacy Tendency (Y)

Class	Interval of class	Observation Frequency	Relative Frequency (%)	Category
1	101 – 125	26	27.36	Good
2	76 – 100	57	60.00	Enough
3	51 – 75	12	12.64	Not enough
4	25 – 50	0	00.00	Low
	Total	95	100.00*	

The table above shows that most respondents (60 percent) are in the Sufficient category, with an observation frequency of 57. The Good category comprises 26 percent (27.36 percent), the Less category accounts for 12 percent (12.64 percent), and the Low category has no respondents (0.00%). The one-sample Kolmogorov-Smirnov test was employed to assess the normality of the remaining data. It compares the observed data distribution with the normal distribution to ensure that the assumption of normality in data analysis is met.

Table 4. Results of the One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		95
Normal Parameters [a,b]	Mean	.0000000
	Std. Deviation	11.78446639
Most Extreme Differences	Absolute	.089
	Positive	.070
	Negative	-.089
Test Statistics		.089
Asymp. Sig. (2-tailed)		.061 [c]

The results of the one-sample Kolmogorov-Smirnov (KS) test indicate that the data used in this study have a distribution that is close to normal. The p-value of 0.061, which is greater than the significance level of 0.05, indicates that the data comes from a normal distribution and does not show a significant difference from the normal distribution. These results indicate that the normality assumption is acceptable and allows further parametric tests to be carried out. The objective of the next exam is to ascertain the effect of constructive feedback on academic self-efficacy and to evaluate any significant differences between the tested groups.

Table 5. Analysis of Variance (ANOVA) Table

			Sum of Squares	df	Mean Square	F	Sig.
Academic Self-Efficacy * Constructive Feedback	Between Groups	(Combined)	17146.404	48	357,217	5,054	.000
		Linearity	13079.929	1	13079.929	185,067	.000
		Deviation from Linearity	4066.474	47	86,521	1.224	.247
	Within Groups		3251.133	46	70,677		
	Total		20397.537	94			

The ANOVA analysis results indicated that constructive feedback significantly influenced students' academic self-efficacy (F = 5.054, p = 0.000). Furthermore, the linearity test revealed a significant and linear relationship between the two variables (F = 185.06, p = 0.000). Additionally, there was an insignificant linear deviation (F = 1.224, p = 0.247), suggesting that the linear model effectively represents the relationship between the variables. Below is a table presenting the results of the regression analysis aimed at assessing the impact of communication clarity on academic self-efficacy. This table also includes the significance level, t-values, and both standardised and unstandardised regression coefficients.

Table 6. Coefficients

	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	30,329	4,827		6.283	.000
	Constructive Feedback	.712	.055	.801	12,893	.000

The findings from the regression analysis indicate that constructive feedback significantly enhances students' academic self-efficacy. The regression coefficient for constructive feedback is 0.712, which means that every one unit increase in constructive feedback will increase academic self-efficacy by 0.712 points. The strong relationship between the two variables is indicated by the standardized coefficient (Beta) of 0.801. The effect of constructive feedback on academic self-efficacy is highly statistically significant, according to the t-test value of 12.893 (p = 0.000). Therefore, constructive feedback can significantly improve students' academic efficiency. In Table 7, the values of R, R Square, Adjusted R Square, and Standard Error of Estimate are shown. These values indicate how well the regression model accounts for the variation in Academic Self-Efficacy influenced by constructive feedback.

Table 7. Summary of the Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.801 [a]	.641	.637	8,870
a. Predictors: (Constant), Constructive Feedback				

The analysis reveals a strong relationship between constructive feedback and students' academic self-efficacy, as evidenced by a R value of 0.801 and an adjusted R square value of 0.637. This model offers a reasonably precise estimate of students' academic self-efficacy, featuring a standard error estimate of 8.870. Constructive feedback can account for 64.1% of the variation in academic self-efficacy, according to the coefficient of determination (R Square) of 0.641. Other factors not examined in this study contributed 35.9%. The following table shows the magnitude of each factor that influences constructive feedback. Timeliness, clarity of communication, balance of content, and feedback specifications.

Table 8. Coefficients

	Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	30,829	5.326		5,788	.000
	Feedback Specifications	.891	.402	.234	2.216	.029
	Future Orientation	.295	.540	.069	.547	.586
	Punctuality	.329	.460	.085	.715	.476
	Clarity of Communication	1,450	.431	.361	3.366	.001
	Content Balance	.572	.334	.165	1,716	.090

The analysis of regression results indicate the relative impact of each indicator. The clarity of communication is the most significant predictor of academic self-efficacy (β = 0.361, p = 0.001), with feedback specificity following as the next most important factor (β = 0.234, p = 0.029). The analysis indicates a positive yet marginal trend in content balance (β = 0.165, p = 0.090), whereas timeliness and future orientation do not exhibit statistical significance (p > 0.05). These findings underline the importance of delivery quality in constructive feedback, where clear and specific communication has a substantial impact on the formation of students' academic self-efficacy. Educators need to prioritize clarity of communication and specificity in designing feedback interventions to optimize the development of students' academic beliefs.

D. CONCLUSION AND SUGGESTIONS

This study aims to examine the effect of constructive feedback on students' academic efficacy and to reveal the most significant indicators. Constructive feedback has a significant positive effect on academic self-efficacy (β = 0.801, p = 0.001). The coefficient of determination ($R2$ = 0.641) means that constructive feedback is responsible for 64.1% of the variation in academic self-efficacy, while the remaining 35.9% is due to unexamined factors. The clarity of communication significantly contributes (β = 0.361, p = 0.001), with specificity of feedback following (β = 0.234, p = 0.029).However, timeliness and future orientation do not have a significant effect, content balance is on a positive trend but only approaches statistical significance (β = 0.165, p = 0.090). A majority of respondents assessed the constructive feedback received as adequate (58.94 percent), and similarly, they rated their self-efficacy in school as sufficient (60 percent). The linearity test results indicated a linear

relationship between the two variables (F = 185.067, p = 0.001), with an insignificant deviation from linearity (F = 1.224, p = 0.247).

This study reveals the importance of implementing a constructive feedback strategy by prioritizing clarity of communication and feedback specifications in order to improve students' academic self-efficacy. It is essential to identify implications and propose recommendations for enhancing educational practices. The results of the study support the relationship between constructive feedback and academic self-efficacy, offering empirical evidence for the significant roles of communication clarity and feedback specificity. For educational institutions, the development of training programs that focus on improving communication skills in providing feedback is a top priority. Educators are advised to improve the quality of communication by using clear and easy-to-understand language, providing specific feedback on certain aspects of student performance, and maintaining a balance between constructive criticism and appreciation. The preparation of a feedback rubric that takes into account aspects of communication clarity, specificity, and content balance is also needed to optimize the practice of providing feedback. Further study is required to investigate contextual elements that may reduce the benefits of constructive criticism, conduct longitudinal studies to assess long-term impacts, and create more complete assessment instruments. The execution of these guidelines is anticipated to enhance students' academic self-efficacy and overall learning outcomes.

REFERENCE

Al-Hattami, A. (2019). The Perception of Students and Faculty Staff on the Role of Constructive Feedback. *International Journal of Instruction*, *12*(1), 885–894. https://doi.org/10.29333/iji.2019.12157a

ASTUTI, E. R. P., & Baysha, M. H. (2024). Evaluasi Efektivitas Sistem Umpan Balik Berbasis Ai Dalam Meningkatkan Hasil Belajar Mahasiswa. *Edutech Jurnal Inovasi Pendidikan Berbantuan Teknologi*, *4*(3), 122–136. https://doi.org/10.51878/edutech.v4i3.3142

Brown, G., Peterson, E. R., & Yao, E. S. (2016). Student Conceptions of Feedback: Impact on Self-regulation, Self-efficacy, and Academic Achievement. *British Journal of Educational Psychology*, *86*(4), 606–629. https://doi.org/10.1111/bjep.12126

Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational Psychology*, *93*(1), 55.

Fook, C. Y., Singh, G. K. A. P. G., Narasuman, S., Lee, L. F., & Yap, B. W. (2016). The Relationship Between Collaboration in Learning, Quantity and Timing of Feedback, and Self-Efficacy of Students in Higher Education. *Social and Management Research Journal*, *13*(1), 59. https://doi.org/10.24191/smrj.v13i1.5121

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, *77*(1), 81–112.

Nidhi, N., & TARUNA, T. (2023). Feedback: Engaging the Students in Teaching Learning Process. *International Journal for Multidisciplinary Research*, *5*(3). https://doi.org/10.36948/ijfmr.2023.v05i03.6822

Prahara, S. A., & Budiyani, K. (2019). Pelatihan Efikasi Diri Guru: Efikasi Diri Akademik Dan Prestasi Belajar Siswa. *Insight Jurnal Ilmiah Psikologi*, *21*(1), 39. https://doi.org/10.26486/psikologi.v21i1.765

Putra, R. A. R., & Mulyadi, D. (2021). Umpan Balik Sebagai Komponen Krusial Untuk Meningkatkan Keterlibatan Siswa Dalam Pembelajaran Daring. *Pena Kreatif Jurnal*

Pendidikan, *10*(2), 66. https://doi.org/10.29406/jpk.v10i2.2998

Quraisy, A., & Agus, A. (2021). Hubungan Efikasi Diri Dan Motivasi Belajar Matematika Siswa Kelas Viii SMP Muhammadiyah Kota Makassar. *Sigma Jurnal Pendidikan Matematika*, *13*(2), 85–91. https://doi.org/10.26618/sigma.v13i2.5325

Wahyuni, S., & Dahlia, D. (2020). Hubungan Antara Efikasi Diri Akademik Dengan Prestasi Akademik Pada Siswa Sma Di Banda Aceh. *Seurune Jurnal Psikologi Unsyiah*, *3*(2), 80–100. https://doi.org/10.24815/s-jpu.v3i2.17612