IMPROVING THE QUALITY OF CADETS THROUGH SELF-EFFICACY: A STUDY ON THE INFLUENCE ON LEARNING OUTCOMES

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ABSTRACT
This study aims to examine the impact of self-efficacy on the learning outcomes of cadets at the Surabaya Aviation Polytechnic, as an effort to improve the quality of human resources in the aviation sector. Self-efficacy is considered an important non-technical psychological ability in shaping the preparation, adaptability, and professionalism of cadets in facing the demands of the aviation sector. This study uses a quantitative approach with a survey method, namely through the completion of questionnaires by 120 cadets, and the data obtained was then analyzed using linear regression. The results showed that self-efficacy had a positive and significant impact, both individually and collectively, on learning outcomes, with a contribution of 86.1%. These findings indicate that strengthening psychological aspects, especially self-efficacy, is an important part of supporting cadets' academic success. Therefore, learning and coaching programs that focus on strengthening self-confidence, the ability to face challenges, and independent learning are needed so that cadets are better prepared to face the professional world of the aviation industry.

Keywords: *self-efficacy, learning outcomes, vocational education, cadets, aviation.*

1. INTRODUCTION

The following literature review outlines the main concepts relevant to this study, namely self-efficacy, self-esteem, motivation, and supporting factors such as emotional intelligence and feedback, as well as reviewing previous research in the context of vocational education.

1.1. Self-Efficacy

Self-efficacy is an individual's belief in his or her ability to complete tasks and achieve certain goals. Bandura states that individuals with high self-efficacy tend to be more risk-averse, persistent in the face of challenges, and more resilient to failure, all of which support improved skills and learning outcomes [8]. In the context of vocational education, self-efficacy has been shown to be a predictor of job readiness. For example, a study by Nabilah & Ulya found that self-efficacy significantly affected work readiness among vocational school students with an R^2 of 0.598 [10].

Another study by Yulanto, Iskandar & Atika on vocational students also showed a strong positive relationship between self-efficacy and work readiness (correlation coefficient 0.591, contribution of 34.9%). In addition, Kumalasari et al. developed a special self-efficacy scale for vocational students that validates three dimensions, namely Magnitude, Generailty, and Strength, and shows that self-efficacy in vocational students is a valid and reliable multidimensional construct [11].

In a practical vocational context, measuring *occupational self-efficacy* in culinary students found that aspects of self-efficacy were closely related to professional cooking performance, with indicators such as enactive experience, modeling, social persuasion, and emotional state. Furthermore, in project-based vocational education, Martanto, Sudira, Mutohhari, and colleagues examined the influence of self-efficacy and emotional intelligence on the quality of learning product outcomes (project-based learning), and found that these two variables significantly affected the quality of learning product outcomes [12].

1.2. Self-Esteem

Self-esteem refers to the appreciation or value that individuals give to themselves. According to Rosenberg, individuals with high self-esteem tend to have better interpersonal relationships and effective communication skills [11]. (Note: although Rosenberg is a classic figure, in the literature vocational research is often associated with measurements of self-esteem in general.) Research by Mamentu, Nelwan, and Sendow shows that self-esteem contributes to job readiness and learning outcomes, confirming that self-esteem is an important psychological factor in vocational education [2].

1.3. Motivation

Motivation, both intrinsic and extrinsic, is an important driver in learning. According to Maslow, motivation is the main driver of human behavior and encourages individuals to actualize their potential [13] (adapted in a vocational context). Research by Taufan, Jayanti, Susita, & Frannita showed that self-efficacy and motivation simultaneously had a significant effect on the work readiness of vocational students (work readiness), explaining 62% of the variance in job readiness [14]. In addition, research in the Journal of Building Engineering Education (Rosyadi et al.) found that self-esteem and self-efficacy together affect students' motivation in completing vocational academic tasks [15].

1.4. Emotional Intelligence

Emotional intelligence includes the ability to recognize, understand, and manage one's own emotions and those of others [16]. Goleman emphasizes that emotional intelligence is essential to interpersonal and professional success [17] [18]. In addition, Salovey & Mayer showed that emotional intelligence correlates with interpersonal competence and professional performance [19]. In vocational education, Martanto et al. found that the emotional intelligence of vocational students significantly affects the quality of project-based learning outcomes along with self-efficacy [12].

1.5. Growth Mindset

According to Dweck, the *growth mindset*—the belief that abilities can be improved through effort and strategy—influences how individuals face academic challenges and develop learning outcomes [20]. Individuals with a growth mindset tend to be more open to continuous learning, more resilient to failure, and more creative in problem-solving.

1.6. Feedback

John Hattie and Helen Timperley show that constructive feedback is one of the most influential factors in learning [19]. Effective feedback can increase students' self-efficacy and motivation, which in turn reinforces learning outcomes [11]. In a vocational context, the application of feedback from an instructor or mentor can be an important strategy for building self-confidence and non-technical skills.

2. METHODS

This research uses a quantitative approach with a survey method to analyze the effect of self-efficacy on the learning outcomes of cadets of the Surabaya Aviation Polytechnic. This approach was chosen because it is able to explain the relationship between variables empirically through numerical measurements, as well as allowing statistical testing of hypotheses.

2.1. Population and Research Sample

The research population is all cadets who are on campus at the Surabaya Aviation Polytechnic, with a total population of 172 cadets. The selection of the population is carried out specifically because cadets are students who are prepared to meet very strict academic, professional, and character standards for the needs of the aviation industry.

The sample determination technique is carried out using proportional random sampling to ensure the distribution of representative samples according to the level of cadets education. The number of samples was calculated using the Slovin formula with an error tolerance rate of 5%, so that a sample of 120 respondents was obtained, which was considered sufficiently representative for generalization.

2.2. Data Collection Techniques

The data collection instrument was a structured questionnaire with a Likert scale of 1–5 (strongly disagree to strongly agree). The instrument consisted of a Self Efficacy questionnaire and a Cumulative Achievement Index Value as Learning Outcomes.

3. RESULTS AND DISCUSSION

This section presents the key findings from the data analysis, interprets their meaning, and discusses

them in the context of relevant theories as well as previous research. The analysis was carried out using SPSS version 26 with a sample of 120 respondents.

In the Results of the Instrument Validity and Reliability Test, before conducting a regression analysis, the research instrument was tested for validity and reliability. The validity test is performed by comparing the Corrected Item-Total Correlation value with the R table. With N=120, then N-2=118, so the R_{table} is 0.179. An item is declared valid if R_{count} > R_{table}. The results of the validity test showed that all items in the Self-Efficacy (X1) variable had a R_{count} value greater than 0.179, so that all questionnaire items were declared valid. Details of the validity test results can be seen in Table 1

Tabel 1 Item Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
X1.1	29.04	19.570	.573	.887
X1.2	29.07	18.490	.744	.870
X1.3	29.06	18.660	.678	.877
X1.4	29.03	19.394	.681	.877
X1.5	28.92	19.825	.588	.885
X1.6	29.06	18.492	.746	.870
X1.7	29.08	18.968	.653	.879
X1.8	29.02	19.327	.684	.877

Next, a reliability test was performed using Cronbach's Alpha, where an alpha value of > 0.60 indicates a reliable instrument. The results of the reliability test showed that the instrument for the *Self-Efficacy* (X1) variable had a Cronbach's Alpha of 0.891 which was well above 0.60, indicating that the instrument used had excellent internal consistency and was reliable for measuring these variables. Details of the reliability test results can be seen in Table 2.

Tabel 2 Realiability Statistics

Cronbach's Alpha	N of Items
.891	8

In the Correlation Test Results, correlation analysis is used to measure the strength and weakness of the relationship between the variables X1 and Y. Based on the value

Pearson Correlation (R), the level of correlation can be categorized as follows: 0.00-0.25 (very weak), 0.25-0.50 (moderate), 0.50-0.75 (strong), and 0.75-1.00 (very strong). The hypotheses tested are:

1. H0: There is no real correlation between X1 and Y.
2. H1: There is a real correlation between X1 and Y.

The basis for decision-making is that if the significance value (sig) < 0.05, then H0 is rejected, and H1 is accepted.

Tabel 3 Correlations

		SE X1	SE Y
SE X1	Pearson Correlation	1	.928**
	Sig. (2-tailed)		.000
	N	120	120
SE Y	Pearson Correlation	.928**	1
	Sig. (2-tailed)	.000	
	N	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

From the correlation table, the Pearson Correlation (R) value between Self Efficacy and Learning Outcomes is 0.928. This value shows a very strong correlation. The significance value (sig) is 0.000, which is smaller than 0.05. Therefore, H0 is rejected, which means that there is a real positive correlation between X1 and Y. The sign (**) in the value of R indicates that the correlation is significant at the real level of 0.01.

In the Interpretation of the Multiple Linear Regression Results, the value of R square = 0.861 from the above table shows that 86.1 % of the Y variance can be explained by a change in the variable X1. The remaining 13.9% was explained by factors other than the model.

Tabel 4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.928[a]	.861	.860	.21179

a. Predictors: (Constant), SE X1

The t-test was carried out to test whether the independent variable Self Efficacy (X1) had a significant influence on the dependent variable (Y). The hypotheses tested are:

1. H0: Independent variables have no significant effect on dependent variables.
2. H1: Independent variables have a significant effect on dependent variables.

The basis for decision-making is that if the significance value (sig) < 0.05, then H0 is rejected.

Tabel 5 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.630	.131		4.791	.000
	SE X1	.846	.031	.928	27.003	.000

a. Dependent Variable: SE Y

Based on the coefficient table, the significance value for the variable X1 is 0.000, which is less than 0.05. This shows that H0 is rejected, which means that the variable X1 partially has a positive and significant effect on the variable Y. The higher the value of X1, the higher the value of Y, and vice versa. The estimated equations of multiple linear regression obtained are:

$$Y=0.630+0.846*X1+e.$$

1. The coefficient of X1 (0.846) indicates that if X1 rises by one unit and then Y rises by 0.846 units.
2. The constant (0.630) indicates the value of Y when the value of X1 is zero.

4. CONCLUSION

4.1. Conclusion

Based on the results of data analysis and discussion, it can be concluded that self-efficacy has a positive and significant influence on the learning outcomes of cadets at the Surabaya Aviation Polytechnic. The results of the statistical test showed that self-efficacy was able to explain the variability of learning outcomes by 86.1%, while the remaining 13.9% was influenced by other variables outside this study. Thus, these findings answer the formulation of the research problem and affirm that the higher the cadets' confidence in their ability to complete academic and practical tasks, the higher the achievement of learning outcomes obtained.

These results reinforce the view that psychological competence, especially self-efficacy, is one of the fundamental factors in improving the quality of learning outcomes in aviation vocational education which strongly emphasizes professionalism, mental readiness, responsibility, and mastery of critical skills.

4.2. Suggestions

This study has limitations because it only focuses on one independent variable, namely self-efficacy. Therefore, it is recommended that further research could:

1. adding other psychological variables such as *self-esteem*, *learning motivation*, *disciplinary attitude*, *academic resilience*, or *emotional intelligence*;
2. using more complex model analysis such as SEM (Structural Equation Modeling) or path analysis to describe the relationships between variables in more depth; and
3. expand the research population at other aviation vocational institutions to strengthen the generalization of research results.

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