

The Effect of Achievement Motivation on Academic Flow: A Simple Regression Analysis of Vocational High School Students in Central Java

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ABSTRACT

Purpose – The problem of low achievement motivation among vocational high school students has implications for low learning engagement and academic flow. Therefore, this study aims to examine the effect of achievement motivation on the academic flow of students at Vocational School X.

Methods – The population in this study consisted of 182 students in grade XI at Vocational School X. Data analysis used simple linear regression analysis. The data collection method used was an achievement motivation questionnaire, and the academic flow variable was measured using the Flow Inventory for Students scale. The research results were processed using the JASP program.

Findings – Based on the descriptive statistics, 135 students were at a moderate level of achievement motivation, 113 students were at a moderate level of academic flow, and 37 students were at a high level of academic flow. Furthermore, based on the regression analysis results, a p-value of 0.001 and $R^2 = 0.099$ were obtained. This means that if the p-value is < 0.05 , it can be concluded that achievement motivation has an effect on students' academic flow. However, the contribution of achievement motivation is only 9.9%, with the remainder explained by other factors not examined in this study.

Research Implications – The findings imply that efforts to enhance students' academic flow should not focus solely on achievement motivation, as academic flow is influenced by multiple factors. Future studies are encouraged to examine additional predictors, such as self-efficacy, social support, and learning environment, to develop a more comprehensive understanding of academic flow among vocational high school students.

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Introduction

Education is the primary foundation for developing human character. A good education determines the development of competent, innovative, and globally competitive human resources. Through education, students are able to develop their potential through active learning from teachers. Through education, students are expected to develop spiritual strength, personality, noble morals, self-control, and the skills needed for themselves, the nation, and the state. This educational goal is articulated at all levels of education.

At the Vocational High School level, the primary goal is to prepare students for the workforce, possessing specific skills, and a professional and independent attitude. Vocational High Schools are expected to produce graduates who are relevant to industry needs and capable of adapting to changing times. This can be achieved through a competency-based curriculum, collaboration with the business/industry world, and strengthening character and an entrepreneurial spirit (Hidayati, 2023).

However, this does not mean that vocational high school students are without challenges. Vocational high school students also face various challenges in maintaining a passion for learning and achieving in order to prepare themselves for the world of work. Based on the author's interview with the guidance counselor at SMK X, it was found that many students still lack motivation to achieve. This is evident in students who are still lazy in studying, talking during class explanations, and lacking enthusiasm for participating in competitions. The guidance counselor stated that SMK X students' achievement motivation falls into the low to moderate category. Therefore, the drive to achieve maximum performance is still very low. Previous research also indicates that moderate achievement motivation leads to students being inactive, lacking participation, having a low desire to achieve, and giving up easily when faced with challenges (Narwoto & Soeharto, 2013; Setiawati & Sudira, 2015)

Empirical data in Indonesia shows a significant relationship between low learning motivation and academic flow among vocational high school students. Procrastination among vocational high school students in Bandung is categorized as high at 81%, with indicators including frequently postponing assignments, procrastinating during exams, and delaying attendance at face-to-face meetings. This condition indicates that students' learning motivation and academic flow are still low (Ramadhan & Winata, 2016). Research conducted by Irfan (2017) also showed that the learning interest and motivation of automotive engineering students at SMK Negeri 7 Baleendah were relatively low. Students lacked the will, enjoyment, and motivation to learn. However, the community environment was the dominant influence in this study. Subsequent research conducted by Dewi and Suhaili (2025) at SMK N 2 Padang showed that physical, psychological, family, school, and community conditions were factors contributing to students' lack of

achievement motivation. Several of these research findings indicate that many vocational high school students experience internal and external barriers to active in learning.

Research shows that achievement motivation has a significant positive influence on student academic outcomes. Students with high achievement motivation tend to achieve better academic grades, are more active in learning, and are able to overcome academic challenges. Research conducted by Alannasir and Ismail (2020) found that achievement motivation has been proven to improve the academic achievement of vocational high school students. This means that the higher the achievement motivation, the higher the academic results achieved. External factors such as social support, a conducive environment, and innovative learning methods can strengthen the influence of achievement motivation on student academic outcomes (Nurrawi et al., 2023). Furthermore, internal factors within students also have a significant influence on strengthening achievement motivation, one of which is academic flow.

Academic flow is a state of high focus, enjoyment of the learning process, and an inner drive to complete academic tasks to the best of one's ability. Academic tasks encompass all stages of classroom learning and teaching, including completing assignments as a responsibility (Paryontri et al., 2021). Academic flow is also defined as a state in which students experience happiness and enthusiasm during learning activities (Paryontri et al., 2021; Salanova & Llorens Gumbau, 2006). Therefore, academic flow is a state in which students are immersed in learning, focused, enjoy tasks, and feel capable of completing them.

Research conducted by Prihandrijani (2016) indicates that academic flow has a significant influence on student achievement motivation and social support. Egbert, (2003) expressed similar sentiments, stating that students experiencing flow are more active in learning activities and more enthusiastic, even when given challenging assignments. Students experiencing flow tend to have better levels of focus, higher moods, and higher achievement motivation than students who do not experience flow. Achievement motivation is considered the primary motivating factor for students to be actively involved, concentrate on learning, and exhibit high enthusiasm for learning.

The psychological mechanism that contributes to student achievement motivation and academic flow is the drive to succeed. Students who are driven to achieve tend to be more diligent in completing assignments, are more willing to face challenges, and strive to complete them to the best of their ability (Jamilah & Raharjo, 2023). This behavior aligns with the characteristics of academic flow, such as high concentration, full engagement, and optimal effort. The second psychological mechanism is intrinsic motivation and enjoyment of learning. Intrinsic motivation makes learning enjoyable and meaningful, facilitating the emergence of flow experiences (Kristanti & Sari, 2021). Therefore, it can be said that achievement motivation is fundamental to creating academic flow. Students with

high motivation tend to be more focused, diligent in learning, and enjoy the learning process (Julyanti et al., 2021). Mihaly Csikszentmihalyi (in Beard, 2015) states that academic flow is an optimal psychological state in which a person is highly engaged, focused, and enjoying learning activities. In this state, students experience full concentration, total involvement, and intrinsic satisfaction in the learning process, not solely due to external rewards or outcomes.

However, previous research has shown inconsistencies in learning enthusiasm and achievement motivation. This gap is the focus of this study. Previous research indicates that academic motivation often has a significant positive impact on learning outcomes or academic achievement. Studies have found that academic motivation contributes 36.8% to 55.9% to students' academic flow (Halim & Rahma, 2020; Sutardi & Sugiharsono, 2016). Meanwhile, research conducted by Setyawati dan Subowo (2018) showed different results, namely that the learning environment and family had a significant impact on student learning achievement or discipline, amounting to 54.9%. Research on postgraduate students also found the opposite, namely that intrinsic motivation had a negative impact on student learning enthusiasm. Conversely, the learning environment and family support had a positive influence on student enthusiasm for learning (Kurniawan et al., 2023).

In general, previous research findings indicate that academic motivation tends to act as a positive predictor of various learning outcome indicators, including academic achievement and academic flow, with a relatively moderate to strong contribution. However, these results are not entirely consistent, as some studies indicate that contextual factors such as the learning environment and family support have a more dominant influence than individual motivation. In fact, in certain contexts, intrinsic motivation has been found to have a negative relationship with learning enthusiasm. This pattern indicates that the relationship between motivation and academic flow is not linear and universal, but is influenced by variations in the educational context, subject characteristics, and the type of motivation studied. In other words, there is a tendency for internal factors (motivation) and external factors (environment and social support) to interact in determining students' academic engagement.

More deeply, there appears to be very little research on academic flow in the context of vocational high school students, who tend to focus more on vocational skills. Furthermore, no research in Vocational High School X has specifically examined the relationship between achievement motivation and academic flow. Previous research has only examined academic motivation, not specifically achievement motivation. Therefore, the hypothesis in this study is that achievement motivation influences academic flow in Vocational High School X.

The strength of this study lies in its focus on the context of vocational high schools, with student characteristics that differ from those of high schools in general. Furthermore, this study uses a quantitative approach that directly measures this influence. Furthermore, this study is expected to provide practical implications for the development of guidance and counseling for vocational high school students. Ultimately, this study aims to determine the effect of achievement motivation on academic flow in Vocational High School X students. Therefore, the hypothesis of this study is that there is a relationship between achievement motivation and academic flow. The independent variable in this study is achievement motivation, while the dependent variable is academic flow.

This research will provide both theoretical and practical benefits. Theoretically, this research is expected to contribute to the development of psychology studies in the field of education. Furthermore, this research is expected to serve as a reference for evaluation and intervention materials for guidance and counseling teachers and schools.

Methods

This study employed a quantitative approach to examine the effect of achievement motivation on the academic flow of students at Vocational High School X. The research method employed simple regression analysis using the JASP application. First, a linearity test was conducted to determine whether the correlation between the variables in this study was linear. Data were considered linear if they met the requirement of $p > 0.05$. Next, the researcher conducted a normality test to determine whether the distribution of the data collected from the questionnaire followed a normal distribution. The data distribution was considered normal if $p > 0.05$ using the Kolmogorov-Smirnov technique. Furthermore, the data analysis technique used in this study was a simple regression analysis to determine the resulting regression equation. Quantitative data were processed statistically, including assumption and hypothesis testing using the JASP program.

In this study, two variables were used: the independent variable and the dependent variable. There are variables "X" and "Y," where variable X is the independent variable and variable Y is the dependent variable. The independent variable in this study is achievement motivation, while the dependent variable is academic flow.

The subjects in this study were 11th-grade students from all majors at SMK X, selected by the researcher. The total number of subjects was 182 students, both male and female. The sample was drawn using total sampling. Total sampling is a sampling technique in which all members of the population are sampled, so that the number of samples is the same as the number of populations (Perisuna, 2021). The researcher conducted this research with the permission of the school principal. This research was conducted while the researcher was providing motivational training to SMK X.

The researcher collected data in August 2025 during a workshop on increasing motivation at the school. The principal then requested that the researcher conduct research on the level of student motivation at the school. Therefore, the school granted permission, even to those who requested it. For student permission, before completing the questionnaire, students were asked to read the guidelines and were given the option to continue participating as subjects. The questionnaire was distributed online after the workshop was completed.

The instruments used in this study were an achievement motivation measurement tool and an academic flow measurement tool. The achievement motivation questionnaire adopted a scale developed by Prihandrijani (2016). Prihandrijani (2016) created an achievement motivation scale based on the Achievement Motivation theory proposed by McClelland (1987). The achievement motivation scale contains 23 items with 5 indicators. The Cronbach's alpha reliability test value for the achievement motivation scale was 0.847. Furthermore, Yuwanto (2018) developed an academic flow scale based on the flow theory proposed by Csikszentmihalyi (1990), namely The Inventory for Students. This academic flow scale uses three indicators. The Cronbach's Alpha Reliability test value for the Academic Flow scale is 0.798. Because the researcher adopted these two scales from other researchers' scales, the researcher has ensured that these two scales have passed expert validation tests and obtained appropriate items for the researcher to use.

Result

The respondents in this study were 182 students, both male and female, residing in Central Java. The results of this study will explain the research hypothesis and the descriptive statistics, as described in the table below.

Table 1. Frequency of Respondent Gender

	Achievement Motivation		Academic Flow	
	Male	Female	Male	Female
Valid	152	29	152	29
Missing	0	0	0	0
Median	61.00	62.00	27.00	27.00
Mean	61.15	62.00	28.99	29.69
Std. Deviation	3.228	3.515	4.808	5.224
Minimum	53.00	55.00	18.00	23.00
Maximum	70.00	69.00	40.00	40.00

Based on Table 1 descriptive statistics, the average achievement motivation of male students ($M = 61.15$; $SD = 3.23$) was slightly lower than that of female students ($M = 62.00$; $SD = 3.52$). Similarly, the average academic flow of male students ($M = 28.99$; $SD = 4.81$) was slightly lower than that of female students ($M = 29.69$; $SD = 5.22$). However, these

differences are only descriptive because this study did not conduct inferential tests to examine differences based on gender.

Table 2. Categorization of Achievement Motivation dimensions

	Achievement Motivation	
	Low	Medium
Valid	47	135
Missing	0	0
Median	58.00	62.00
Mean	57.32	62.65
Std. Deviation	1.603	2.493
Minimum	53.00	55.00
Maximum	59.00	70.00

Based on Table 2, the achievement motivation level of students at SMK X ranges from low to moderate. A total of 135 students are categorized as having moderate achievement motivation. Furthermore, 47 students are categorized as having low achievement motivation.

Table 3. Academic Flow Dimension Categorization

	Achievement Motivation			
	Low	Very High	Medium	High
Valid	2	30	113	37
Missing	0	0	0	0
Median	19.50	38.00	26.00	31.00
Mean	19.50	37.80	26.06	31.65
Std. Deviation	2.121	1.808	1.739	2.085
Minimum	18.00	35.00	20.00	29.00
Maximum	21.00	40.00	34.00	37.00

Based on Table 3, the academic flow levels of SMK X students vary quite a bit, ranging from low, medium, high, and very high. Two students are at the low level of academic flow. Furthermore, 30 students are at the very high level of academic flow. In addition, 113 students were at a moderate level in academic flow. Finally, 37 students were at a high level in academic flow. Ultimately, it can be concluded that the academic flow level of SMK X students is mostly at a moderate level.

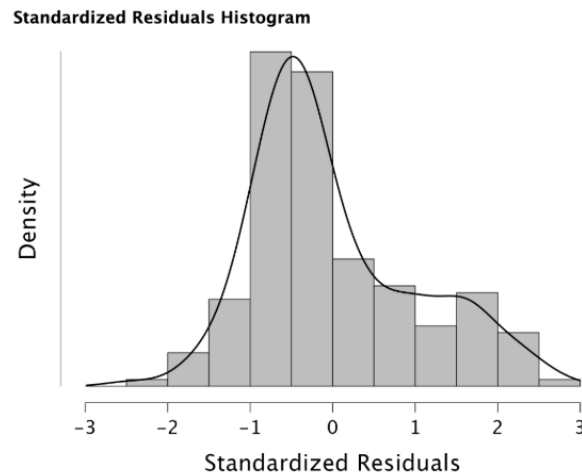


Figure 1. Normality Test Results

Based on Figure 1, the results of the normality test appear to form a nearly bell-shaped pattern. The results of the Standardized Residuals Histogram indicate that the data distribution is normal. This can be seen as close to normal because many are close to the mean, and the further to the right or left, the fewer. The results of the normality test can also be confirmed by the Q-Q Plot Normality Test in Figure 2 below. The Q-Q Plot analysis results indicate that the residuals are close to 0. Therefore, the assumption of data normality has been met.

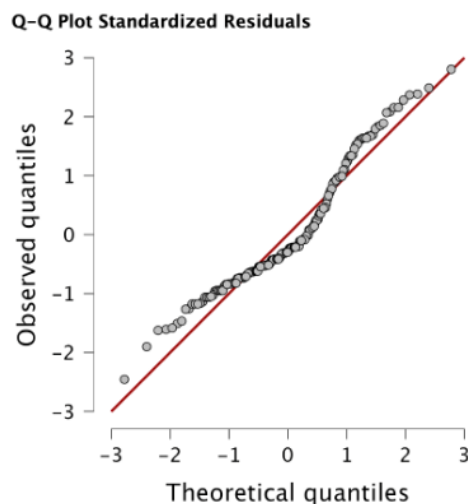


Figure 2. Results of the Q-Q Plot Normality Test

Figure 2 shows the results of the linearity test. The figure below shows that the data distribution follows the center line. If the data distribution follows the center line, it means the assumptions of the linearity test have been met.

Table 4. Model Summary Flow Academic

Model	R	R2	Adjusted R2	RMSE	R2Change	df1	df2
Mo	0.000	0.000	0.000	4.892	0.000	0	181
M1	0.315	0.099	0.094	4.657	0.099	1	180

Note. M1 includes Achievement Motivation

The data from Table 4 shows a model summary of the r^2 value of 0.099. R^2 represents the effective contribution of the achievement motivation variable to academic flow. This means that achievement motivation explains 9.9% of the variance in academic flow. The remainder is explained by other factors not discussed here.

Table 5. ANOVA

Model		Sum of Squares	Mean Square	F	p
M1	Regression	429.2	429.15	19.79	<.001
	Residual	3,903.2	21.68		
	Total	4,332.3			

Based on Table 5, the p-value is <0.001. If the p-value <0.05 then it means significant. So, achievement motivation can predict the academic flow of SMK X students. Furthermore, based on table 5 the resulting regression equation is significant, $F(1,180) = 19.79$, $p < 0.001$. Furthermore, based on table 6, the resulting regression equation is $y = 0.258 + 0.470x$. Achievement motivation significantly predicted academic flow ($\beta = 0.315$, $p < 0.001$, 95% CI [0.262, 0.679]). This indicates that higher achievement motivation is associated with higher academic flow. Then, 95% confidence interval did not include zero, indicating that the effect of achievement motivation on academic flow is statistically significant and consistently positive.

Tabel 6. Coefficients regression

Model		Unstandardized	Standard Error	Standardized	t	p	95% CI	
							Lower	Upper
M1	(Intercept)	29.060	0.363		80.134	<.001	28.345	29.776
	(Intercept)	0.258	6.484		0.040	.968	-12.536	13.051
	Achievement Motivation	0.470	0.106	0.315	4.449	<.001	0.262	0.679

The results of this study indicate that achievement motivation in SMK X students is only able to provide an influence of 9.9% on academic flow. This result is significant, meaning that achievement motivation can influence the academic flow of SMK X students, but only by 9.9%. This is evidenced in table 6 that 57.2% of the average achievement motivation in SMK X students falls into the low category. Therefore, it is very reasonable if the influence is only 9.9%. However, the mean academic flow of SMK X students is 37.8% in the very high category and 31.65% is in the high category. The results of this descriptive

study further confirm that there are other, stronger factors that are able to influence the academic flow of SMK students.

Discussion

The results of this study indicate that achievement motivation has a significant effect on students' academic flow. However, the magnitude of the effect is relatively small, with a contribution of 9.9%. This finding confirms that achievement motivation plays a role in shaping academic flow, although it is not the primary determinant.

Compared to previous studies, the effect size found in this study is considerably lower. For instance, Jamilah and Raharjo (2023) reported that achievement motivation contributed 40.5% to academic flow, while Ningtyas and Nastiti (2022) found a contribution of 19.5%. This discrepancy suggests that the strength of the relationship between achievement motivation and academic flow may vary depending on the research context and sample characteristics.

Several factors may explain the relatively small effect size (9.9%) found in this study. First, the vocational high school context may influence how achievement motivation operates. Students in vocational settings tend to be more oriented toward practical skills, which may reduce the direct role of achievement motivation in generating academic flow. Second, the descriptive data indicate that students' achievement motivation levels range from low to moderate, which may limit variability and consequently weaken the statistical contribution. Third, differences in measurement instruments may also affect the strength of the relationship between variables.

Despite its small magnitude, the effect of achievement motivation remains meaningful. A contribution of 9.9% indicates that academic flow is a multidetermined construct influenced by multiple factors beyond achievement motivation alone. In educational research, small effect sizes are still important, as they highlight that no single variable fully explains complex psychological phenomena such as academic flow.

Theoretically, academic flow is influenced by both internal and external factors, as suggested by Aini and Fahriza (2020). Internal factors may include self-efficacy, self-regulated learning, and achievement motivation, while external factors include social support and learning environment. However, it is important to emphasize that variables such as self-efficacy, self-awareness, and social support were not examined in this study. Therefore, their roles should be understood as theoretical assumptions rather than empirical findings.

Previous studies suggest that self-efficacy may play an important role in academic flow. For example, Yunalis and Latifa (2021) found that self-efficacy is one of the dominant predictors of academic flow. Similarly, a cross-national study by Mesurado et al., (2016) showed that self-efficacy consistently contributes to academic flow across different

cultural contexts. In addition, self-awareness has also been theoretically linked to flow, as it enables individuals to fully engage and focus on ongoing activities. Meanwhile, social support has been identified as an external factor that can enhance students' engagement, comfort, and enjoyment in learning activities.

Nevertheless, these factors should not be interpreted as definitive explanations for the current findings, since they were not directly tested in this research model. They are better positioned as hypotheses for future research to explore. Overall, this study highlights that achievement motivation has a significant yet limited role in explaining academic flow among vocational high school students. Therefore, future research is recommended to incorporate additional variables, such as self-efficacy, social support, and learning environment, in order to obtain a more comprehensive understanding of the factors influencing academic flow.

Conclusion

This study aimed to examine the influence of achievement motivation on students' academic flow at Vocational High School X. The results indicate that achievement motivation has a significant effect on academic flow. However, the magnitude of the effect is relatively small, with a contribution of 9.9%, indicating that achievement motivation is not the sole determinant of academic flow.

This study contributes to the literature by providing empirical evidence on academic flow within the context of vocational high school students. Compared to general high school or university contexts, vocational students have distinct characteristics, particularly their orientation toward practical and skill-based learning. Therefore, this study highlights the importance of considering educational context when examining psychological constructs such as academic flow.

In practical terms, the findings imply that Guidance and Counseling (BK) programs can play a strategic role in enhancing students' academic flow. For example, schools can implement structured interventions such as achievement motivation training, goal-setting programs, or classroom guidance sessions. These efforts are expected to help students become more engaged, focused, and able to experience optimal learning conditions.

However, this study has several limitations that should be considered. The sample was limited to one vocational high school, which restricts the generalizability of the findings to other contexts. In addition, other relevant variables such as self-efficacy, social support, and personal interest were not included in the model, suggesting the need for future research to explore these factors more comprehensively.

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