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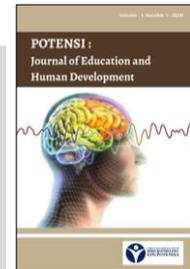
The Role of Academic Flow in Enhancing Student Engagement Among High School Students

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Article Info

ABSTRACT

Academic flow and student engagement are essential components of the learning process that influence students' focus, intrinsic motivation, and academic success. According to Csikszentmihalyi's (1990) flow theory, deep involvement in learning activities that are both challenging and aligned with students' abilities can enhance concentration and persistence in learning. Similarly, the student engagement framework proposed by Fredricks et al. (2004) emphasizes that behavioral, emotional, and cognitive engagement is shaped through positive and meaningful learning experiences. This study aims to describe the levels of academic flow and student engagement among eleventh-grade students at SMK Negeri Manonjaya and to analyze the relationship between the two variables. The study employed a quantitative correlational approach using standardized measurement scales. The results indicate that academic flow is categorized as moderate with a percentage of 89%, while student engagement is categorized as high with a percentage of 54%. Pearson correlation analysis reveals a strong and significant positive relationship between academic flow and student engagement ($r = 0.684$, $p < 0.001$), while regression analysis shows that academic flow contributes 46.7% to student engagement. These findings suggest that higher levels of flow reflected in students' focus, enjoyment, and interest in learning are associated with higher levels of academic engagement. A limitation of this study is the absence of an intervention component; therefore, the findings provide only a descriptive overview of students' conditions without examining the effectiveness of specific actions to enhance flow or engagement. The practical implications of this study highlight the importance of classical guidance services, with materials such as enjoyable learning strategies, learning responsibility, social ethics, coping with challenges, improving concentration, creativity development, wise decision-making, and learning motivation. These materials can strengthen students' self-regulation, focus, resilience, positive social interactions, and intrinsic motivation, thereby supporting the development of optimal flow conditions and academic engagement.

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Introduction

Schools function as essential social environments that shape students' academic, social, and emotional development, while also serving as spaces for building mindsets, character, and critical thinking skills through structured learning activities (Sulyani, 2022). However, despite these important roles, many educational institutions continue to face persistent challenges related to low levels of student engagement during the learning

process. Research shows that engagement tends to decline as students enter secondary school, often manifested in inattentive behavior, passive participation, low motivation, and reduced involvement in academic tasks (Wang & Eccles, 2013). This condition is further reinforced by the PISA 2018 results, which indicate that a significant number of Indonesian students experience difficulties in understanding academic materials and exhibit low engagement, ultimately reducing the effectiveness of learning (OECD, 2018). To understand this issue more deeply, student engagement is widely recognized as a multidimensional construct that includes behavioral, emotional, and cognitive components (Fredricks et al., 2004). High engagement not only supports academic achievement but also enhances socio-emotional functioning and students' ability to adapt to complex learning demands (Wang & Eccles, 2013). However, several internal and external factors—such as low intrinsic motivation, academic stress, and learning experiences that are perceived as irrelevant—have been shown to reduce student engagement (Kahu, 2013). This aligns with findings from Furrer and Skinner (2013), who collectively emphasize that psychological variables strongly shape students' involvement in learning activities. Therefore, a deeper exploration of psychological experiences that can enhance student engagement is needed.

One psychological factor with strong potential is academic flow. Flow, a concept introduced by Csikszentmihalyi (1990), refers to an optimal psychological state in which individuals become deeply immersed in an activity, experiencing intense focus, intrinsic enjoyment, and sustained engagement. In the educational context, academic flow emerges when learning challenges are aligned with students' abilities, resulting in meaningful, enjoyable, and self-motivating learning experiences. Prior studies have demonstrated that flow enhances intrinsic motivation, improves concentration, strengthens interest in learning, and contributes to greater satisfaction with the learning process (Shernoff et al., 2014). These findings suggest that flow may play a critical role in shaping student engagement across learning environments. In vocational education, including at SMKN Manonjaya, the role of flow becomes even more significant. Vocational high schools emphasize competency-based learning, hands-on practice, and industry-oriented tasks that require sustained focus and active engagement. However, classroom observations and teacher reports at SMKN Manonjaya indicate that several students still demonstrate low focus during lessons, minimal participation in discussions, and reluctance to complete tasks independently. This pattern suggests a misalignment between learning demands and students perceived competencies, indicating that the experience of academic flow may not yet be optimal. Moreover, existing studies on flow and engagement have predominantly been conducted in general academic settings, while research in vocational school contexts remains limited, revealing a clear research gap. Considering these theoretical and empirical foundations, it is necessary to investigate how academic flow contributes to student engagement within vocational learning environments. Such an investigation is especially important, given that engagement serves as a key indicator of learning success and influences the development of employability skills required in vocational education. Therefore, this study aims to examine the levels of academic flow and student engagement among 11th-grade students at SMKN Manonjaya and to analyze the relationship between these two variables. The results of this study are expected to provide not only theoretical insight into the psychological mechanisms underlying engagement but also practical contributions to improving instructional strategies and guidance and counseling services in vocational schools.

Method

This study employed a quantitative correlational design to analyze the relationship between academic flow and student engagement among 11th-grade students at SMKN Manonjaya. This design was selected because the aim of the study was not to provide intervention or manipulate variables, but to empirically examine the degree and direction of association between two naturally occurring psychological constructs. A correlational design is therefore appropriate as it allows researchers to statistically determine whether increases in academic flow are associated with increases in student engagement (Creswell & Poth, 2016). The population of this study consisted of all 11th-grade students enrolled at SMKN Manonjaya in the 2025/2026 academic year, totaling 506 students. The sample size of 223 students was determined using the Slovin formula with a margin of error of 5%, resulting in a representative and statistically reliable sample. To ensure proportional representation across majors and class groups, the study applied proportionate stratified random sampling. In this technique, the population is divided into strata based on existing classifications in this case, students' vocational majors and the number of participants selected from each stratum is determined proportionally according to its population size. Random selection is then carried out within each stratum to ensure equal chances of selection for all students. Operationally, academic flow in this study is defined as a psychological state experienced by students when they are fully immersed in academic activities, characterized by high concentration, enjoyment, and intrinsic motivation without external distractions. Meanwhile, student engagement refers to students' positive attitudes toward school, reflected in their active participation in academic activities, healthy social interactions, and sustained mental effort in learning. Student engagement in this

research encompasses three dimensions: behavioral, emotional, and cognitive involvement in the school environment.

Results and Discussions

The data collected from 223 students of SMK Manonjaya showed that the level of academic flow was categorized into three groups—low, moderate, and high—based on a mean score of 62.64 and a standard deviation of 3.75.

Table 1. Overview of Academic Flow

Score Range	Category	Frequency	%
23-46	High	25	11%
47-69	Moderate	198	89%
70-92	Low	0	o%
Total		223 students	100%

Based on the score range classification, the majority of students are in the moderate category, with 198 students (89%). Meanwhile, 25 students (11%) are classified in the high category, and no students fall into the low category (0%). These results indicate that most students experience a moderate level of academic flow, suggesting that they are able to maintain concentration and involvement in learning activities, although the experience has not yet reached an optimal level for all students.

The data describing the general overview of academic flow consists of three aspects: Concentration, Enjoyment, and Interest. The following section presents the description of each aspect of academic flow among the students of SMKN Manonjaya.

Table 2. Overview of Students Academic Flow Based on Each Aspect

Aspect	Low		Moderate		High	
	F	%	F	%	F	%
Concentration	30	13%	167	75%	26	12%
Enjoyment	24	8%	194	7%	5	18%
Interest	18	8%	165	74%	40	18%

Based on the table above, which illustrates the general overview of each aspect of academic flow, the first aspect—concentration—falls into the low category at 13% with a frequency of 30 students, the medium category at 75% with 167 students, and the high category at 12% with 26 students. For the second aspect, enjoyment, 8% of students (24 students) are in the low category, 87% (194 students) are in the medium category, and 2% (5 students) are in the high category. Meanwhile, for the third aspect, interest, 8% of students (18 students) fall into the low category, 74% (165 students) into the medium category, and 18% (40 students) into the high category.

The data collected from 223 students of SMK Manonjaya indicate that the level of student engagement is categorized into three groups—low, medium, and high—based on a mean score of 192.51 and a standard deviation of 18.05.

Table 3. Overview of Students Engagement

Score Range	Category	Frequency	%
64-128	High	120	54%
129-192	Moderate	0	0%
193-120	Low	103	46%
Total		223 students	100%

Based on the score range classification, student engagement among the students is predominantly in the high category, with 120 students (54%). Meanwhile, 103 students (46%) are classified in the low category, and no students fall into the moderate category (0%). These findings indicate a polarized pattern of student engagement, where more than half of the students demonstrate high levels of involvement in learning activities, while a substantial proportion still experience low engagement.

Table 4. Overview of Students Engagement Based on Each Aspect

Aspect	Low		Moderate		High	
	F	%	F	%	F	%
Behavior Engagement	27	12%	149	67%	47	21%
Emotional Engagement	31	14%	153	69%	39	27%
Cognitive Engagement	23	10%	181	81%	19	9%

Based on the table above describing the overall overview of each engagement aspect, it is shown that in the behavioral engagement aspect, 27 students (12%) fall into the low category, 149 students (67%) are in the medium category, and 47 students (21%) are in the high category. This distribution indicates that most students are in the medium category. In the emotional engagement aspect, 31 students (14%) are in the low category, 153 students (69%) are in the medium category, and 39 students (17%) are in the high category. This aspect shows a higher proportion of students in the high category compared to behavioral engagement. In the cognitive engagement aspect, 23 students (10%) fall into the low category, 181 students (81%) are in the medium category, and 19 students (9%) are in the high category. This aspect is dominated by the medium category, which has the highest proportion among the three engagement aspects.

Table 5. Correlation Results

Scale	r_{xy}	Sig.	R Square (r^2)
Academic Flow	0,650	0.000	0,423
Student Engagement			

Based on the results of the regression analysis conducted on students of SMK Manonjaya, a correlational coefficient of r = 0.650 was obtained with a significance value of 0.000. These findings indicate a strong relationship between Academic Flow and Student Engagement, and the relationship is statistically significant since the significance value is lower than 0.05. This result suggests that Academic Flow plays an important role in enhancing students' learning engagement. Furthermore, the R Square (R^2) value of 0.423 shows that Academic Flow contributes 42.3% to Student Engagement. This means that Academic Flow is able to explain 42.3% of the variance in Student Engagement among students at SMK Manonjaya, while the remaining 57.7% is influenced by other factors not examined in this study. Thus, it can be understood that the higher the level of Academic Flow experienced by students—such as optimal concentration, comfort during the learning process, and a sense of immersion in academic activities—the higher their level of engagement will be, whether behaviorally, emotionally, or cognitively.

Based on these analytical results, it can be concluded that there is a positive and significant influence of Academic Flow on Student Engagement among students of SMK Manonjaya, and therefore the research hypothesis stating that Academic Flow affects Student Engagement is accepted.

Discussions

The findings of this study indicate that the level of academic flow among eleventh-grade students at SMK Manonjaya is predominantly categorized as moderate. This suggests that students are generally able to maintain focus, comfort, and involvement in learning activities; however, their learning experiences have not yet reached an optimal and sustained flow state. According to flow theory, optimal flow occurs when learning challenges are well balanced with students' skills and supported by clear goals and immediate feedback (Csikszentmihalyi,

1990). When these conditions are only partially fulfilled, students tend to experience moderate rather than high levels of flow, a pattern that has also been reported in previous studies (Shernoff et al.,).

When examined across the three dimensions of academic flow—concentration, enjoyment, and interest—the results reveal a similar pattern, with most students falling into the moderate category. The dominance of the moderate category in concentration indicates that students are generally able to focus during learning activities but may struggle to sustain attention over longer periods, which is strongly influenced by task quality and classroom context (Reevet al., 2011). The enjoyment dimension being largely moderate suggests that students experience a reasonable level of comfort and pleasure in learning, yet not the deep intrinsic enjoyment that characterizes optimal flow (Csikszentmihalyi, 2014). Meanwhile, the interest dimension shows a relatively higher proportion of students in the high category, indicating that students' curiosity and attraction toward learning content are present, although this interest is not always fully translated into sustained concentration and enjoyment (Hidi & Renninger, 2006).

In contrast to academic flow, the results related to student engagement demonstrate a polarized distribution. Although student engagement is generally categorized as high, a substantial proportion of students fall into the low category, with none classified as moderate. This polarized pattern suggests considerable differences in engagement levels among students. Student engagement is widely recognized as a dynamic and multidimensional construct influenced by individual motivation, instructional practices, and the learning environment (Fredricks et al., 2004). Prior research has shown that variations in teacher support, classroom climate, and students' motivational beliefs can lead to uneven engagement within the same school context (Skinner et al., 2009). Further analysis of engagement dimensions—behavioral, emotional, and cognitive—reveals that all three aspects are predominantly in the moderate category. Moderate behavioral engagement indicates that students generally participate in learning activities but do not consistently demonstrate proactive involvement, which is often shaped by instructional methods and task demands (Finn & Zimmer, 2012). Emotional engagement shows a relatively higher proportion of students in the high category, suggesting the presence of positive emotions, interest, and a sense of belonging in learning activities. Positive academic emotions have been shown to play a crucial role in sustaining motivation and engagement (Pekrun et al., 2011). Cognitive engagement, which is also dominated by the moderate category, indicates that students employ basic learning strategies but have not yet fully developed advanced self-regulation and deep cognitive processing skills (Greene, 2015).

The correlational and regression analyses further demonstrate a strong and statistically significant relationship between academic flow and student engagement. The correlation coefficient (r = 0.650) indicates that higher levels of academic flow are associated with higher levels of engagement. The coefficient of determination (R^2 = 0.423) shows that academic flow explains a substantial proportion of the variance in student engagement. These findings are consistent with previous research demonstrating that flow experiences significantly enhance behavioral, emotional, and cognitive engagement in learning activities (Shernoff et al., 2014). When students experience deep concentration, enjoyment, and immersion, they are more likely to participate actively, persist in learning tasks, and invest greater cognitive effort. Overall, the findings reinforce both theoretical and empirical perspectives that academic flow is a key psychological factor in fostering student engagement. In vocational high school contexts, where learning emphasizes practical competence and real-world relevance, creating learning conditions that support academic flow is particularly important. Learning activities that balance challenge and skill, provide clear goals, and offer meaningful feedback have been shown to promote sustained engagement (Csikszentmihalyi, 1990). Therefore, strengthening academic flow through instructional strategies, guidance and counseling services, and a supportive school environment represents a strategic approach to enhancing student engagement among vocational high school students.

Implication

The findings of this study demonstrate that academic flow makes a significant contribution to student engagement, highlighting its critical role in shaping effective learning environments. This result suggests that efforts to improve student engagement should prioritize the creation of learning conditions that foster deep concentration, intrinsic enjoyment, and meaningful involvement in academic activities. From an instructional perspective, because academic flow strongly predicts engagement, teachers are encouraged to design learning experiences that intentionally support immersive learning. Learning tasks should be aligned with students' skill levels and provide appropriate challenges, accompanied by clear goals and constructive feedback. The integration of interactive instructional strategies—such as problem-based learning, collaborative or project-based tasks, and the use of digital media—can enhance students' focus, enjoyment, and intrinsic motivation, thereby strengthening behavioral, emotional, and cognitive engagement (Csikszentmihalyi et al., 2014). Beyond

classroom instruction, the findings also emphasize the strategic role of guidance and counseling teachers in enhancing student engagement through the development of academic flow. Guidance and counseling services, particularly classical guidance programs, have been shown to effectively improve students' learning motivation and self-regulation skills (Harumbina et all., 2022). Previous studies further indicate that classical guidance contributes to the improvement of self-control related to academic responsibility (Mukhtar et all., 2016) and enhances academic responsibility through case-method-based interventions (Arini & Hariyadi, 2025). In this context, guidance and counseling teachers can design structured guidance sessions focusing on themes such as academic stress management, intrinsic motivation, study discipline, academic responsibility, concentration skills, time management, and study planning. Through group discussions, case analyses, and reflective activities, guidance services can help students overcome internal barriers to flow, such as distraction, boredom, and low motivation, while complementing instructional efforts in the classroom.

At the institutional level, this study underscores the importance of fostering a positive and supportive school climate as a foundation for sustained student engagement. A school environment characterized by positive teacher–student and peer relationships, consistent expectations, meaningful learning tasks, and strong social support has been found to significantly influence students' academic engagement and motivation (Wang et al., 2013). In vocational high school settings, where learning emphasizes practical competence and real-world relevance, such a supportive climate is particularly conducive to the emergence of academic flow. Policies that promote active, contextual, and hands-on learning, as well as collaboration between subject teachers and guidance and counseling teachers, can further strengthen students' engagement and learning experiences. Overall, the findings of this study suggest that enhancing academic flow should be considered a central strategy in efforts to improve student engagement. A coordinated approach that integrates high-quality instructional practices, targeted guidance and counseling services, and a supportive school environment offers the most effective pathway to strengthening students' behavioral, emotional, and cognitive engagement. By implementing these strategies, schools can foster deeper learning immersion, higher motivation, and improved academic and vocational outcomes.

Conclusions

This study concludes that academic flow and student engagement among eleventh-grade students at SMKN Manonjaya are generally characterized by moderate to high levels, although variations across students remain evident. The majority of students experience academic flow at a moderate level, indicating that they are able to maintain concentration, enjoyment, and interest in learning activities, yet have not consistently reached an optimal flow state. In contrast, student engagement displays a more polarized pattern, with a substantial proportion of students demonstrating high engagement while others remain at a low level. This finding highlights disparities in students' involvement in learning and underscores the need for targeted efforts to support engagement among less involved students. The results further demonstrate a strong and statistically significant positive relationship between academic flow and student engagement. The correlation and regression analyses indicate that academic flow accounts for a meaningful proportion of variance in student engagement, confirming that students who experience higher levels of concentration, enjoyment, and immersion in learning are more likely to be behaviorally, emotionally, and cognitively engaged. These findings reinforce flow theory and engagement models, suggesting that optimal psychological learning experiences play a critical role in fostering sustained student involvement.

Overall, this study affirms that academic flow is a key psychological factor influencing student engagement in vocational high school contexts. Enhancing learning conditions that balance challenge and skill, provide clear goals and feedback, and support intrinsic motivation can contribute to deeper engagement. Therefore, efforts to improve student engagement should prioritize strategies that strengthen academic flow through effective instructional practices, guidance and counseling services, and a supportive school environment. Although this study is limited by its correlational design and lack of intervention, the findings provide a strong empirical foundation for future research and practical initiatives aimed at promoting optimal learning experiences and improving academic outcomes in vocational education.

References

Arini, R. D., & Hariyadi, S. (2025). The effectiveness of case-method–based classical guidance in enhancing students' academic responsibility. *Jurnal Bimbingan dan Konseling*, 10(1), 45–56.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Thousand Oaks, CA: Sage Publications.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper & Row.

Csikszentmihalyi, M. (2014). *Flow and the foundations of positive psychology: The collected works of Mihaly Csikszentmihalyi*. Dordrecht: Springer. https://doi.org/10.1007/978-94-017-9088-8

Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In S. L. Christenson et al. (Eds.), *Handbook of research on student engagement* (pp. 97–131). Springer.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Furrer, C. J., & Skinner, E. A. (2013). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, 95(1), 148–162. https://doi.org/10.1037/0022-0663.95.1.148

Greene, J. A. (2015). Self-regulation in education. *Educational Psychologist, 50*(4), 267–273. https://doi.org/10.1080/00461520.2015.1075408

Harumbina, S., Khoirunnisa, A., & Maryam, S. (2022). Effectiveness of classical guidance services in improving students' learning motivation and self-regulation. *Jurnal Bimbingan Konseling Indonesia*, 7(2), 85–93.

Skinner

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in Higher Education*, 38(5), 758–773. https://doi.org/10.1080/03075079.2011.598505

Mukhtar, M., Yusuf, S., & Budiamin, A. (2016). The effectiveness of classical guidance services in improving students' self-control related to academic responsibility. *Jurnal Bimbingan dan Konseling*, 5(2), 134–142.

OECD. (2018). *PISA 2018 results: What students know and can do* (Volume I). Paris: OECD Publishing. https://doi.org/10.1787/5f07c754-en

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance. *Educational Psychology Review, 23*(1), 1–28. https://doi.org/10.1007/s10648-010-9153-5

Reeve, J. (2012). A self-determination theory perspective on student engagement. *Handbook of research on student engagement* (pp. 149–172). Springer.

Shernoff, D. J., Csikszentmihalyi, M., Schneider, B., & Shernoff, E. S. (2014). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly*, 29(2), 158–171. https://doi.org/10.1037/spq0000053

Skinner, E. A., Furrer, C. J., Marchand, G., & Kindermann, T. (2009). Engagement and disaffection in the classroom. *Journal of Educational Psychology*, 101(1), 143–162. https://doi.org/10.1037/a0012840

Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement. *Educational and Psychological Measurement, 69*(3), 493–525. https://doi.org/10.1177/0013164408323233

Sulyani, S. (2022). Peran sekolah dalam pengembangan karakter dan keterampilan berpikir kritis siswa. *Jurnal Pendidikan Nasional*, 14(2), 101–112.

Wang, M. T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement. *American Educational Research Journal, 50*(1), 12–42. https://doi.org/10.3102/0002831212445585

Wang, M. T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction*, 28, 12–23. https://doi.org/10.1016/j.learninstruc.2013.04.002