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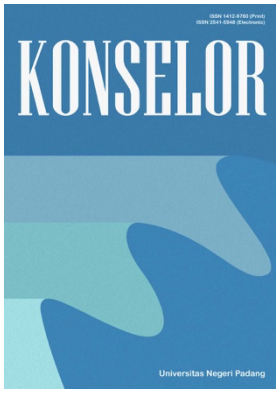

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Academic Flow: A Systematic Review of the Influencing Factors and Their Impacts on Students

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Academic Flow: A Systematic Review of the Influencing Factors and Their Impacts on Students

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Abstract: Flow is a source of mental energy because it focuses on attention and motivates the individual to perform an action. The concept of flow was developed by a psychologist named Mihaly Csikszentmihalyi. Csikszentmihalyi studied the flow phenomenon in the 1970s and found that individuals who experience flow will feel total involvement in an activity, which then leads them into an optimal experience. On the other hand, students need academic flow to successfully complete lectures, study, and work assignments. This study aims to determine and to explore factors and impacts of flow for university students. This study used a systematic literature review method based on the PRISMA flow diagram. This study used data from 13 eligible and credible articles. The results demonstrated that students can strive to achieve flow by understanding related factors and impacts. In addition, the abilities are required for educators to foster academic flow. Therefore, although flow is a condition related to students' internal conditions, this study shows that flow can also be influenced by external factors.

Key Words: Academic Flow; Flow Experience; Flow in Learning; Intrinsic Motivation; Meaningful Learning; Positive Psychology; Student Engagement

INTRODUCTION

Students are expected to develop the best conditions for learning in order to gain their understanding. Their academic achievement and performance will be influenced by optimal learning. This condition can be influenced by individual interaction and engagement in the learning process. But many things, like stress, anxiety, and depression (Budiani et al., 2021; Gatari, 2020; Kotera et al., 2022), make students lose motivation, which makes it challenging for them to do their schoolwork and take part in activities in class (Nafa Anurda & Nastiti, 2024). A survey conducted on 50 students of the Faculty of Psychology and Education at Muhammadiyah Sidoarjo showed that 21 students found it difficult to concentrate, and 11 students felt bored with the atmosphere in the classroom during learning. In addition, a study conducted at the Faculty of Psychology, Muhammadiyah University of Malang, revealed that 65% of students had low academic engagement (Fatimah et al., 2020).

Further research revealed a connection between student engagement and the flow experience during learning (Nafa Anurda & Nastiti, 2024). Flow is a deep individual condition or experience that occurs when individuals feel intrinsic pleasure or satisfaction from an activity, which leads them to engage in assignments and achieve internal motivation (Huang, 2024). The concept of flow was developed by a psychologist named Mihaly Csikszentmihalyi. Csikszentmihalyi studied the flow phenomenon in the 1970s and found that individuals who experience flow will feel total involvement in an activity which then leads them into an optimal experience (Norsworthy et al., 2023). Flow can occur

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in many areas of life, such as academics, work, or playing music and sports. Academic flow is required by students when carrying out lectures, studying, and work assignments (Yuwanto, 2013).

Csikszentmihalyi's theory (1997) states there are three essential conditions that indicate the experience of flow. First, flow tends to occur when the activities performed have a specific purpose. Second, there is a balance between perceived challenge and skill. Lastly, flow is highly dependent on direct and specific feedback. Furthermore, Bakker (2005) developed three elements of flow, including: 1) Absorption refers to a state of full concentration so that individuals are immersed in the activity being carried out; 2) enjoyment or happiness, which is the result of cognitive processes and affective evaluations obtained from flow experiences; 3) intrinsic motivation refers to the need to carry out certain activities with the aim of feeling pleasure and satisfaction after doing those activities.

Flow becomes an important aspect in supporting a learning process. The process of learning that involves flow will make it easier for individuals to concentrate and to focus on what is currently being worked on, to enjoy the process, and to not be distracted by unrelated circumstances to the learning objectives (Markamad & Khuzaemah, 2019). Furthermore, flow conditions will also help learners to receive information and material that are taught properly (Aini et al., 2019).

Rogatko (2009) revealed that positive emotional experiences, which are related to flow, will increase the learning and the exploration behaviour of individuals so that they will unleash their potential, resulting in increased ability to complete a task. Csikszentmihalyi himself explained that the concept of flow is related to challenges and skills. When the challenges faced are much higher than the skills possessed, an individual tends to feel anxious, resulting in an inability to overcome the existing challenges, which will cause a feeling of stress and dissatisfaction (Csikszentmihalyi, 2014).

Research conducted by Olcar et al. (2021) showed a relationship between flow and well-being, where individuals who experience flow will feel happiness and satisfaction in academic activities. In this case, it means that the flow experience not only has an impact on the learning process but also has a positive impact on the well-being of students. However, problems faced by them can interfere with their ability to achieve the flow conditions. As a result, students tend to find difficulties in having an optimal and satisfying learning experience.

From the explanation given, information is obtained that the importance of fostering academic flow in the educational or academic environment. Thus, this study aims to explore in detail the factors that influence flow and the impact obtained for students. Although research related to the academic flow has been widely studied, it examines the variabilty of factors that affect flow comprehensively, as well as long-term impacts that are not only related to its effectiveness in learning. This research will further provide in-depth understanding and insight for students and educators in creating a learning environment that can support academic flow.

METHOD

This study employs a systematic literature review method. This method can improve understanding of differences in research methodologies and moreover increase insight into the strengths and weaknesses of selected articles (Boland et al., 2017). This review also uses explicit, systematic methods so as to minimize bias and provide reliable findings. The technique used was the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) flow diagram. PRISMA focuses on how researchers ensure transparent and complete reporting of systematic reviews (Liberati et al., 2009). The flow diagram illustrates the flow of information through the various phases of a systematic review (PRISMA Flow Diagram, 2020).

Procedures

We used inclusion and exclusion criteria in collecting data. The inclusion criteria used in this study are Indonesian and English articles published within the last 5 years, starting from 2019-2024, using keywords related to academic flow, flow experience students, and higher education. The exclusion criteria includes articles published before 2019, in all languages except Indonesian and English, and

excludes proceedings, conference articles, theses, dissertations, books, research instruments, and subjects not in higher education.

The article search used several types of databases, including Emerald, Garuda, Google Scholars, Sage Journals, Scopus, and SpringerLink. We selected databases by considering articles that were fully accessible, of high quality, and underwent a peer-reviewed process. Articles were obtained based on keywords used in the search, among “academic flow” OR “flow akademic” OR “flow experience” AND “college student” OR “mahasiswa.”. We aimed to simplify the search for relevant articles and eliminate those that did not align with the study's subject or context. The article was also retrieved based on inclusion criteria that included the year of release, which was around 2019-2024.

Data Analysis

According to Figure 1, the total article count was 576. Following a title-based review, there were 544 irrelevant articles and three duplicate articles from several databases. After a manual screening process based on the inclusion and exclusion criteria, there were 13 articles that were eligible and credible to be used as data in this study. The chosen articles were gathered using thematic synthesis, which involved dividing the things that affect flow into internal and external factors and then looking at the good and bad effects of flow..

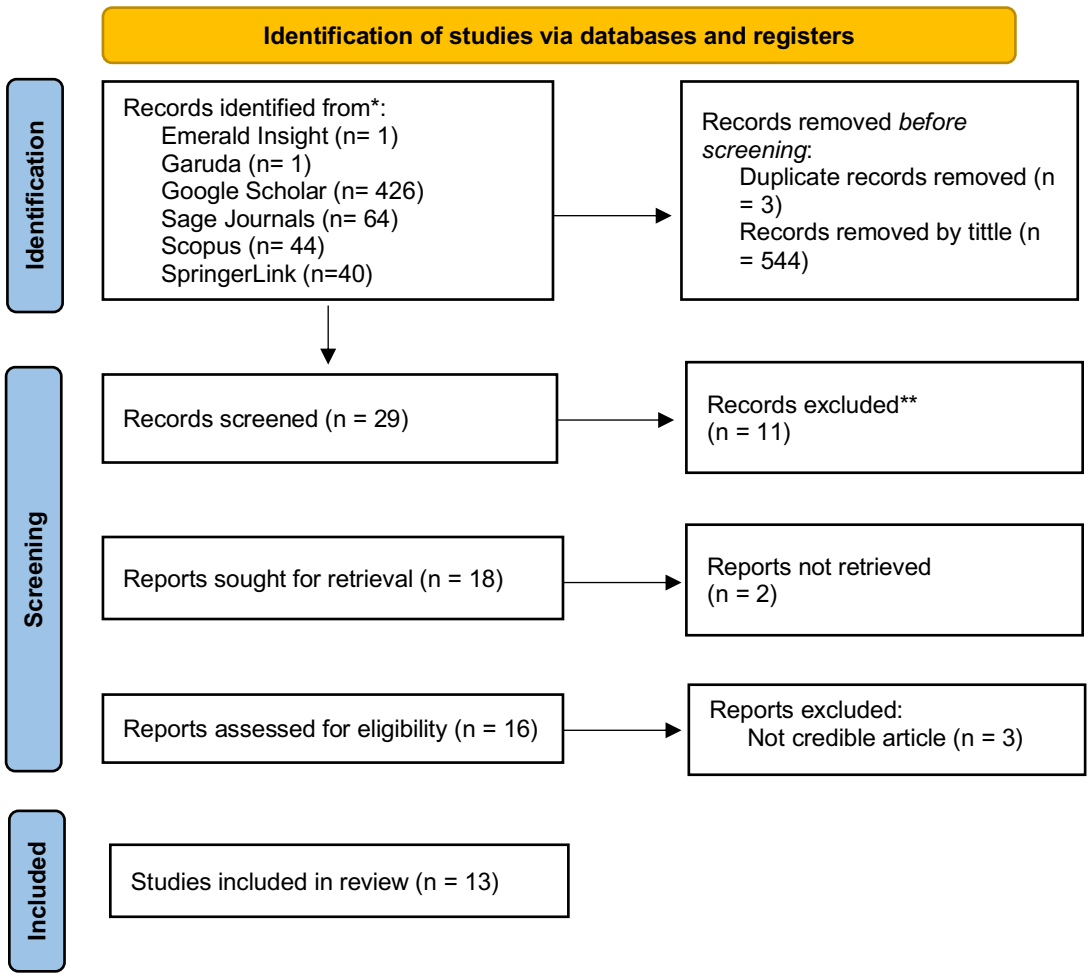

Figure 1. Article collection and screening process via PRISMA 2020 flow diagram

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Results

This study explored the various factors that influence flow and determined their impacts on university students. From the many articles that were eligible for review, we separated the factors that affect flow into two groups: external factors and internal factors. We also looked at the effects of academic flow based on what each article found, as shown in Table 1.

Table 1. Article Reviewed

Number	Author(s) (Publication Year)	Participant	Method	The result related to Academic Flow
1	Candra & Sarvica (2022)	133 students majoring Information Engineering class of 2018 University of Putra Indonesia "YPTK" Padang.	Quantitative research methods	The results showed a significant correlation between the ability self-regulated learning with flow experience
2	Gatari (2020)	174 students of the Faculty of Psychology University of Muhammadiyah Malang on seven Semester	Quantitative research methods	The result of this study showed that academic stress and academic flow have a significant relationship. However, the effective contribution of academic stress was only 12.9% and the remaining 87.1% was influenced by several other factors.
3	Ha & Im (2020)	Study 1: 45 students Study 2: 104 students	Experimental research methods	Overall, this study found that interactive online learning tools are able to improve the learning process as well as helping to achieve the flow conditions.
4	Hasmyati et al. (2022)	170 students of the Faculty of Sports UNM	Quantitative research methods	Studies show that the higher the ability of emotional autonomy owned by students, the higher the academic flow that happened. Conversely, the lower the ability of their emotional autonomy, the lower the occurrence of academic flow.
5	He et al. (2023)	205 students who have attended gamification courses	Quantitative research methods	This study verified that satisfaction in entrepreneurship courses with the gamification method can be achieved through presence, competence, autonomy, and also social relationships. These factors are a mediating effect of the flow condition. As a result, when students enter the state flow, the level of their satisfaction are higher.
6	Lesmana (2019)	108 active students of Psychology Study program, University X	Quantitative research methods	Research showed that academic self-concept and academic self-efficacy have a significant relationship against flow in students.
7	Lin (2023)	496 university students consist of 259 boys and 237 girls	Quantitative research methods	Research showed how experience of flow and participation in sports activities can play a mediating role to the relationship between trait mindfulness and well-being.
8	Liu et al. (2022)	Study 1: 162 second-year students in non-English majors (109 female and 53 male) enrolled in a three-part IELTS writing course at a Chinese University Study 2: approximately 216 second-year students in non-English majors (148 female and 68 male) enrolled in four	Experimental research methods	This study illustrated the relationship between flow and writing skills, motivation, attention control, and their performance in writing.

		course sections of the same university.		
9	Ljubin-Golub (2021)	113 undergraduate students of Mathematics Education Study Program (61% are women aged 20 years on average).	Quantitative research methods	Achievement of personal goals has an influence on various motivational strategies and also academic flow
10	Ljubin-Golub et al. (2020)	213 university students in Croatia (149 female and 63 males with age range 18 to 31 years)	Quantitative research methods	This study provided an overview that the perception of students regarding teachers who provide a lot of autonomy support has an impact on the flow experience in learning process and this condition can also reduce fatigue.
11	Nur Kusumo et al. (2022)	41 university students	Experimental research methods, post-test-only control group design, with treatment learning methods.	Based on the results of statistical tests, there are flow differences in the e-learning process in the group with lecture and discussion learning methods, compared to the group that only received lecture learning methods
12	Nurhayati et al. (2024)	54 university student athletes from Diponegoro University	Quantitative research methods	This study provided an overview which psychological well-being is an important aspect that athletes need to have, because psychological well-being has an impact on their performances. Thus the flow conditions help them to gain psychological well-being.
13	Scholten et al. (2022)	354 students of the Faculty of Psychology UNM class of 2020 during the Covid-19 pandemic	Quantitative research methods	This study showed a positive relationship between optimism and academic flow on students of the Faculty of Psychology class of 2020 during the Covid-19 pandemic

External factors include learning methods, learning media, teacher attitudes, and teacher pedagogical abilities. Research conducted by Nur Kusumo et al. (2022) showed that online learning methods that involve discussion processes and assignments are able to make university students experience flow. A learning method that solely relies on lecturing was found to be insufficient in stimulating students' sense of challenge and self-control. In addition, the application of the lecture and discussion method was able to involve lecturers or teachers actively in learning. As mentioned in Vera (2020), lecturers who are actively involved with students will produce more optimal learning. These skills can be described as the teacher's pedagogical ability, which means the ability of the teachers to convey the learning objectives to providing feedback that can increase engagement between lecturers and students in the learning process.

Csikszentmihalyi (2014) stated the importance of feedback on flow conditions, which means that students need to get information directly related to the results of their actions as an effort to improve or adjust the result of their works. According to Csikszentmihalyi (1997), the condition of flow will occur when individuals face a series of clear goals and require an immediate response or feedback. Mayangsari and Pratiwi (2019) showed that students who have experienced failure were able to improve their performance, and they know some alternatives that can be implemented when they encounter failures due to feedback they received. Thus, it is highly important for lecturers to provide feedback to their students.

The next factor is learning media. A research study from Ha and Im (2020) found that students who used interactive online learning media experienced an increase in their flow conditions more than students who used non-interactive media. Therefore, learning media is also important in facilitating learning processes to achieve the flow conditions (Ha & Im, 2020). The study was in line with several

other studies that reveal that there was a positive impact of the use of interactive learning media (Sharp & Hamil, 2018; Wang et al., 2011). However, not all universities have equal access to technology, as well as the lack of teacher readiness in integrating technologies with classroom teaching activities (Hidayatullah et al., 2023). Hence, minimal utilisation of technology can be an obstacle in increasing the quality of education, including improving flow.

In relation to teacher readiness, it is important for teachers to have good pedagogical abilities. Teachers and lecturers must assist students in creating an immersive learning experience, which requires competence, autonomy, and relatedness to experience the flow conditions (He et al., 2023). Competence is the ability of individuals to arrange the level of difficulty of the task accurately, in line with the theory presented by Csikszentmihalyi (2014) that flow conditions are closely related to the skills possessed by individuals. In addition, autonomy is described as behaviour that shows willingness or voluntariness in the SDT theory (Ryan & Deci, 2017). The individual's intrinsic motivation plays a significant role in achieving flow conditions through autonomy. When individuals do an activity because they want to, they will experience greater flow (Csikszentmihalyi, 2014). Furthermore, relatedness is associated with emotions acquired through a sense of belonging and social connection. Such a connection is able to maintain focus and to enter the flow conditions. These factors are closely related to the attitude of teachers in providing attention and the teachers supporting autonomy in increasing learning motivation, which can further lead to flow (He et al., 2023; Ljubin-Golub et al., 2020).

Inside the person, things like optimism, academic self-concept, academic self-efficacy, self-regulated learning (SRL), achievement goals, mastery-approach goals, intrinsic motivation, trait mindfulness, and academic stress can all change the flow. Optimism is one of the factors that can affect academic flow, because high optimism can provide a sense of security when establishing academic activities; the higher the optimism, the higher the academic flow (Scholten et al., 2022; Suryaningsih, 2016). Optimism becomes an important factor in the flow experience because individuals will have a positive view about an activity, and it is also related to the way individuals overcome challenges (Csikszentmihalyi, 2014). Academic self-concept is also able to help students develop their flow conditions. Academic self-concept is one of the factors that can affect academic achievement (Hanifah & Abadi, 2019; Izuchi & Onyekuru, 2017). A 2023 study by Jinmin & Qi found a significant relationship between learning flow and academic performance, suggesting that students with high flow tend to achieve better academically.

The next factors that can affect flow are academic self-efficacy and intrinsic motivation (Lesmana, 2019; Liu et al., 2022; Yuwanto, 2018), as well as self-regulated learning (SRL). High SRL will indicate a high experience of flow; therefore, individuals with this ability will be helped in achieving the experience of flow in the academic field (Candra & Sarvica, 2022). Individuals who have SRL skills will set challenging targets for themselves. They lead their own learning process and their achievements using relevant approaches that enable flow (Adesola & Li, 2018). Achievement goals also have an important role in the differences between individuals when feeling flow (Olcar et al., 2021). Furthermore, mastery-approach goals also have a positive relationship to create the flow conditions. One of the mechanisms that triggers academic flow is the mastery of self-talk, which is an individual's effort to communicate with himself as a motivation in the learning process.

Csikszentmihalyi (1997) revealed that flow can also occur when an individual's skills are able to be fully managed in overcoming existing challenges. The challenges must be able to spark interests and motivations so that when individuals are in a state of flow, they will be open to learning new skills. This means that the challenges that can be managed are able to encourage them to improve their abilities. While challenges that are too difficult to manage can trigger individuals to experience stress and frustration. Therefore, it is important to adjust the level of challenge to the ability that you have.

Gatari's (2020) research found that academic stress can affect the level of flow conditions. Further studies have shown that stress is related to emotional intelligence, where individuals with good emotional intelligence are able to cope with the demands and pressures experienced. This research was supported by a study by Hasmyati et al. (2022), which found a link between academic flow and emotional autonomy (the ability of individuals to control and manage their emotions on their own), as well as the trait of mindfulness (Lin, 2023) which is also linked to the ability to control emotions and reduce stress.

Academic flow, on the other hand, supports achievement or getting the best grades possible, learning satisfaction, self-awareness, and has a positive effect on learning (Gatari, 2020; He et al., 2023; Liu et al., 2022; Nurhayati et al., 2024). It also lessens the effects of fatigue or burnout on studying (Ljubin-Golub et al., 2020). Then, with regard to the adjustment of challenges and abilities as expressed by Csikszentmihalyi (1997), flow conditions can help individuals to undergo satisfying and productive experiences, as well as to achieve personal goals that also promote growth and development in individuals.

Yuwanto's (2018) research found that academic flow is related to the motivational process, which can prevent cyberloafing conditions, which means unproductive or time-wasting activities on the internet that result in university students ignoring their academic tasks that should be carried out. The flow conditions will help students to find meanings or values in every academic assignment given. In addition, academic flow will also have an impact on their psychological well-being, because the flow experience is considered able to improve students' personal well-being (Lin, 2023; Nurhayati et al., 2024; Olcar et al., 2021). The findings showed that it is important for university students to achieve the flow conditions.

In addition to the positive impact obtained, the research conducted by Schüler and Nakamura (2013) found the negative sides of the occurrence of the flow conditions. This study also demonstrated that while flow conditions can enhance life quality and promote mental balance, they can also potentially lead to negative consequences. It was proved by the result of the study that flow conditions have an impact on risk-taking. In line with the result that was presented by Csikszentmihalyi and Harper (1990), activities that lead to flow can be addictive. When individuals have experienced flow in certain activities, it allows them to avoid uncertainty and ambiguity in real life.

Lavoie and Main's research from 2024 also found that being in a flow state can have bad effects, one of which is limiting cognitive flexibility, which means it can make it harder to adapt to situations that need you to think and make decisions quickly. This research showed a new understanding, which is that the flow conditions are no longer believed to be optimal. Therefore, in addition to flow conditions being considered a positive experience, it can also have an impact on cognitive aspects that limit the ability to adapt to changes and new challenges. Also, Lavoie and Main's (2024) experiments showed that people who experienced flow and people who did not behave similarly when they were given a creative task were both motivated in similar ways. This was due to cognitive fatigue. This is because flow conditions require a high focus and involvement of the subjects, resulting in those who experience the flow conditions experiencing cognitive fatigue, which affects their creativity.

According to Csikszentmihalyi (2014), situational factors—internal and external—are a major focus of quantitative research on flow. This suggests that some studies examine how environment and social contexts like family, peers, and school affect flow. In addition, Csikszentmihalyi (2014) suggests that gender differences can affect individuals in experiencing flow. The likelihood of women to experience the flow conditions is greater than that of men, as well as the positive impact and perceived success. Further research also found little evidence related to socioeconomic status that can affect flow conditions, such as parents' education level, academic achievements, age, and their aspirations for the future. Thus, the flow conditions can be felt by every individual with various backgrounds.

Discussion

Flow is a source of mental energy because it focuses on attention and motivates the individual to perform an action (Csikszentmihalyi, 1997). This condition allows students to fulfil activities and tasks regardless of external interference. This can enhance students' motivation and show dedication to what they are working on. The results indicated that two main predictors, namely external and internal, influenced students' academic flow. Both have a significant role in achieving the flow conditions. The quality and competence of lecturers or teaching staff largely determine external factors, facilitating learning conditions that allow students to achieve flow. Next, we need to improve the infrastructure to help students achieve flow conditions. While internal factors are influenced by their own ability to develop themselves through attitudes and self-concept.

A previous study conducted by Csikszentmihalyi (2014) showed a positive relationship between flow and academic achievement—the impact of flow on learning. Additionally, the research shows that

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flow is influenced by multiple aspects of external students, such as interaction and social and emotional support through teaching strategies or methods that can enhance student engagement, especially in the context of education in Indonesia with diversity. Therefore, although flow is a condition related to students‘ internal conditions—intrinsic motivation (Csikzentmihalyi, 2014; Ryan & Deci, 2017), this study shows that flow can also be influenced by external factors.

Then, based on some impacts that are obtained from the achievement of flow conditions, this study can provide an overview of the importance of students being able to achieve flow, as it will help to achieve a more optimal learning experience. In addition, the flow conditions have a role in achieving psychological balance for students since they are able to reduce fatigue and prevent burnout in the academic process. In another way, the university setting can provide facilities, guidance, or a course of self-development that focuses on skills to improve flow, such as time or stress management, as a way for students to overcome academic challenges. Nevertheless, some studies revealing the negative impacts of flow; in the present study, flow has more potential positive impact on academic achievement. Schmidt (2009) explained that what ultimately matters in a flow experience seems to be one’s subjective perception of autonomy, challenge, feedback, focused attention, purpose, and skill.

Implications for Educators in Fostering Academic Flow

As a result, this study has implications that can be used in the following with Csikszentmihalyi's theory (1997) and its development by Bakker (2005) in terms of flow elements and necessary conditions. Educators need to implement learning approaches that can personalise the level of difficulty according to students' skills, such as collaboration-based learning that can facilitate students learning, engaging, and supporting each other (Amalia, 2018). Educators also ensure that students have access to the necessary resources to manage their academic demands. This could be in the forms of emotional support, access to appropriate learning materials, and recognition of their achievements.

Then, educators can provide feedback so that students can progress in an effort to improve performance (Barana et al., 2021; Cavalcanti et al., 2021). Furthermore, students who perceived the feedback as helpful showed more positive changes in their interest (Jansen et al., 2025). In addition, it is important for educators to allow students autonomy in their learning process to enhance their sense of engagement (Alley, 2019; Ma, 2021) and the relevance of the material to real-world contexts and student interests (Keller, 2016). In practice, project- or problem-based learning, experiential learning, and simulation approaches can be options. The most important is the ability to foster a positive environment, whereby students feel valued and motivated. This is accomplished by promoting an inclusive classroom that emphasises respect for diversity (Kausik & Hussain, 2021).

Limitation and Future Study

This study contributes to the field of education, especially for university students in Indonesia, as an effort to improve the quality of learning. This study explains the importance for students and lecturers in understanding the factors and impacts of academic flow. Since the challenges in achieving the flow conditions are closely related to individual motivation and the complexity of the factors that influence it. Even so, this study has limitations, especially in data sources that are limited to the Indonesian context. Therefore, further research can delve deeper into the role of lecturers or teaching staff, as well as the learning environment, in supporting students in developing external and internal factors that influence academic flow. Further research can also be done by examining demographic factors such as age, gender, socioeconomic conditions, and other characteristics that could be adapted to the context in Indonesia.

The results show that flow conditions have a positive impact as well as a possible negative influence on learning. Thus, subsequent research can examine more deeply related to the other impacts that may affect learning in the presence of the flow conditions. Csikszentmihalyi (1997) revealed that the flow conditions need to be accompanied by individuals’ responsibilities because it can allow them to focus excessively on activities that can have a destructive impact. In the context of learning, flow allows individuals to reduce the intensity of engaging with others, which can affect the flow conditions they experience. Therefore, further research is highly needed.

CONCLUSION

Academic flow is influenced by external and internal factors, with external factors being the quality and competence of educators and the provision of proper facilities and infrastructure. Internal factors are influenced by students' ability to develop themselves through attitudes and self-concept. Flow has a positive relationship with academic achievement and psychological balance, reducing fatigue and preventing burnout. Various aspects, including social and emotional interactions and support, can influence flow in the Indonesian education context. Universities can provide facilities, guidance, and self-development courses to improve flow.

With an understanding of related factors and impacts of flow, it is expected that students can strive to achieve these conditions. These conditions will aid them in overcoming the obstacles and challenges that come with college life. In addition, the involvement of educators or teaching staff is one of the important factors in the process of learning. Implications for educators in fostering academic flow include implementing learning approaches that personalise difficulties according to students' abilities, ensuring access to resources, providing feedback, giving students autonomy, and promoting inclusive classrooms. Therefore, flow is one of the efforts in order to make students feel more enthusiastic and meaningful learning.

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