

# Moodle Integration Intervention in EFL Virtual Classroom and Academic Flow on University Students' Achievement in Writing

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**Abstract**—Teachers of English as a foreign language (EFL) now have more opportunities to use a learning management system (LMS) like Moodle to enhance EFL learners learning. This study aimed to examine the effect of Moodle as a learning management system based on academic flow on EFL learners' writing skills. The quasi-experimental research was designed to assess the impact of Moodle-based on academic flow on EFL learners' writing skills. This study recruited 69 second-year English Education Department as the sample population. They were divided into experimental and control groups. This study used an easy writing test and Study Work-Related Flow Inventory (WOLF-S) as the instruments. The study applied analysis of covariance (ANCOVA) to compare both control and experimental groups' findings. The findings revealed that EFL students' writing skills were improved by using Moodle in an EFL virtual classroom rather than using conventional methods. Academic flow becomes a covariate of influence between the independent and dependent variables. These findings consistently favored the experimental groups. Moodle helped EFL university students to improve their writing skills.

**Index Terms**—academic flow, moodle, virtual classroom

## I. INTRODUCTION

The traditional college education model has given way to an online one due to advancements in technology and access to knowledge. The rise of computer technological advances has affected the development of a new educational paradigm. Increasing diversity in learning methodologies and practices reflects the changing paradigm. In this digital age, electronic learning is fast expanding technologically due to the globalization of computer networks via the internet and the growth of mobile devices (Esichaikul et al., 2011). Changing traditional learning procedures is the impact of online education (Alturise, 2020). Higher education courses progressively integrate online technologies (Padayachee et al., 2018). Due to global information technology, online learning is increasingly integrated into the educational process. (IT). Researchers found that online education enhanced learners' critical thinking and creativity (Chootongchai & Songkram, 2018). The Learning Management System is an example of modern educational technology advancement (LMS). LMS is widely utilized in e-learning (Alturise, 2020; Zanjani et al., 2017). Using an LMS should help students learn more quickly and efficiently. A well-known LMS is Moodle, a web-based platform for providing educational services to individuals and institutions.

Moodle is an LMS platform that may be used for teaching and learning. Interactivity, multimedia content, collaboration, following guidelines, providing and receiving feedback, and strengthening previous learning materials have made Moodle a successful learning platform (Aikina & Bolsunovskaya, 2020). Moodle has been shown to improve students' language learning skills, develop metacognitive awareness, and promote learners' autonomy (Amandu et al., 2013). Other research indicates that Moodle can improve students' metacognitive awareness and independence in university English learning (Khoza & Mpungose, 2018). Students can use Moodle-based learning to learn languages outside of class, and they can choose internet resources that meet their needs (Aikina & Bolsunovskaya, 2020). Moodle has also been shown to help people actualize themselves and meet societal needs (Khoza & Mpungose, 2018). Using Moodle as a learning tool, students are satisfied with an encouraging, optimistic, and positive approach and attitude (Meray & Alkan, 2015). In other words, as mentioned earlier in Moodle, the application is expected to overcome low student engagement in learning.

The student's lack of academic engagement due to a lack of academic flow during the learning process makes the problems. Flow is an optimal state of focus on an organically driven task (Buil et al., 2017; Csikszentmihalyi, 2014). Flow can be defined as a feeling of total immersion, joy, and internal drive (Bakker, 2008; Bakker et al., 2017). Enjoyment is expressed as the individual's comfort while executing the work. In contrast, intrinsic motivation becomes a driving factor, more commonly called internal drive. Academic flow affects the academic achievement of students (Özhan & Kocadere, 2020). Flow positively correlates with students' learning, satisfaction, and perseverance (Kim &

Seo, 2013; Lee, 2005; Park et al., 2020). Thus it can be known that flow becomes one of the factors related to academic achievement.

This study aims to determine how Moodle and academic flow affect university students' writing. Some researchers have previously focused on Moodle as a teaching moment and its impact on student motivation and learning attitudes. While the use of Moodle to improve writing skills is primarily understudied, academic flow is a mediator variable that has not been studied concerning Moodle use. This current study also analyses how the role of academic flow in improving students' writing skills.

#### Research Questions

This study aims to determine to what extent Moodle integration Intervention in EFL Virtual Classroom and Academic Flow influences university students' writing achievement. It is expected from this study that the intervention of Moodle integration based on academic flow can be identified as an effective strategy for improving university students' achievement in English Writing. The following research questions are:

1. Are the university students taught by Moodle integration intervention significantly better in university students' achievement in Writing than those providing other teaching methods?
2. To what extent does Moodle integration intervention based on the academic flow significantly affect students' achievement in Writing?

## II. LITERATURE REVIEW

### A. Moodle E-learning Platform at Higher Education

Moodle is a dynamic online learning platform that empowers students to take an active role in their education (Gulbinskienė et al., 2017). Moodle is part of the most popular LMS that can focus on learners-centred learning (Gulbinskienė et al., 2017). Lately, popular Moodle has been used in education (Gulbinskienė et al., 2017). Moodle is a web-based learning management system that enables educators to create learning resources with various functionalities, including hosting files, quizzes, assignments, chats, discussion forums, glossaries, and surveys (Schettini et al., 2020).

As an online education platform, Moodle was created to set up an LMS to manage a learning system (Costa et al., 2012). Moodle is a software platform that provides a systematic structure for participants to access numerous online learning resources that allow them to communicate using different communication methods (Schettini et al., 2020). Thus, it can be said that Moodle is an e-learning platform that is part of LMS. Moodle is a web learning media application program that serves as a medium of text and multimedia content, and this application provides facilities to access learning materials in virtual classrooms. This is because Moodle is interactive multimedia and provides students with a wide range of chances to participate, receive feedback, and reinforce their prior learning resources. The results also show that Moodle is currently one of the most effective LMS (Aikina & Bolsunovskaya, 2020).

From an educational perspective, Moodle is flexible to the learning community. Through this, lecturers with LMS can manage the student learning system when giving assignments, delivering materials, quizzes, etc. Likewise, Moodle will help students be more disciplined in doing tasks, answering exams, collaborating, and working with friends and others. As a tool for knowledge exchange and online instruction, Moodle is widely used. Moodle provides easily accessible communication suggestions such as forums, messages, chats, and comments (Amandu et al., 2013; Schettini et al., 2020). It allows both lecturers and students to communicate even outside the classroom. Moodle also has the function of creating collaboration and cooperation between groups. We can also upload and share sources of supporting materials, articles, videos, images, and anything else that participants may need to complete exercises and tasks. Moodle also does not limit the submission of tasks and the evaluation process. Moodle can schedule task submission and assessment. It can also be accessed via mobile phone (Papadakis et al., 2018). Moodle as a learning platform can be viewed as a means of collaboration in educational technology that can motivate students to learn independently actively and encourage them to think creatively and innovatively.

### B. Moodle and Writing Instruction

Encouraging students to write better can be done with Moodle-based learning systems. The Moodle program can offer a variety of writing teaching materials. The learning system is unlimited in space and time (Zelinskiy, 2020). A lecturer can provide materials, exams, questions, and quiz materials not bound by place and time, and a student can follow him from anywhere. PowerPoint presentations, Flash animations, and audio and video files can be used as instructional resources. These are some of the learning activities that Moodle enables: Assignment, Chat, Forum, Quiz, Survey, Lesson, and Scorm (Zelinskiy, 2020). The assignment is a facility used to distribute homework to students through the internet. They can obtain task materials and collect task outcomes by providing work results files. While Chat is a facility of Moodle that provides chat process facilities. Lecturers and students can conduct text dialogue online. Moodle also allows lecturers to create quizzes using multiple-choice, true-false, and short answer questions. These questions will be saved in a database that will be used to categorize reuse opportunities. Moodle also provides online discussion forums to discuss material on learning topics in a discussion forum. Another facility is the survey. The use of this feature is made possible through online polls. As well as lesson capabilities, Moodle provides the ability to design activities that are both entertaining and versatile in their content. Lessons consist of several pages, and at the end of

each page, there are generally questions accompanied by an answer key. Moodle is also equipped with Scorm (Ueda et al., 2018).

Storm supports the distribution of learning packages in Scorm format. Scorm is a standard distribution for electronic learning packages that supports text, animation, audio, video, and other learning materials. It is a standard distribution that the international standards organization developed. Using the Scorm format, writing learning materials can be used anywhere in other e-learning applications. Therefore, lecturers can exchange e-learning materials in writing learning that support each other's electronic learning materials. Lecturers create an e-learning material, store it in files in Scorm format, and provide the learning material anytime and anywhere.

### *C. Moodle and EFL Writing Skills*

A rising number of scholars are interested in incorporating technology into the EFL classroom. They study the effects of technology on EFL learning extensively (Almalki, 2020; Butarbutar & Simatupang, 2020; Hakim, 2020; Raygan & Moradkhani, 2020; Sosas, 2021). Many EFL teachers currently utilize technology such as Moodle to deliver learning materials. These studies are interested in using Moodle to help EFL students improve their writing skills (Bataneh et al., 2019; El-Maghraby, 2021; Fathi & Torabi, 2019; Ghoulali & Cecilia, 2021). Many language practitioners and linguists have used Moodle to teach EFL. Moodle helps EFL teachers to combine traditional classroom teaching methods with innovative technological tools (e-learning with the internet and learning platforms). Some students may feel uncomfortable studying in front of teachers, depending on their personality. Moodle can help teachers write English, manage their teaching materials, improve their methods of communication, and track interactions with students when needed. Moodle allows EFL students to continue their learning outside the classroom. Teaching is important, but students can benefit from working with technological media. Several activities help EFL learners improve their learning skills within the Moodle platform. It contains grammar, vocabulary, reading, listening and writing activities. Lecturers can use several interactive activities in their courses.

Many collaborative tools are available in Moodle, such as a wiki that actively encourages students to participate in class discussions. It has a considerable impact on students' argumentative writing abilities when a wiki is integrated into Moodle (Alwaleedi et al., 2019). It's an excellent way for students to work together on a group project. Moodle allows students to write together in groups in every activity and course. Moodle's activities are based on the concept of communicative language instruction. Students can utilize the Wiki to collaborate on projects (Alwaleedi et al., 2019). Moodle content can be integrated into EFL lectures to create a collaborative learning environment. Authors can convey their feelings and thoughts in meaningful ways through textual communication. Authors can effectively share their feelings and thoughts through textual communication (Jani & Mellinger, 2015). Well-written essays allow students to express themselves verbally and in writing (Quvanch & Kew, 2020).

### *D. Student's Academic Flow*

On the nature and conditions of enjoyment for athletes, artists, and musicians, Csikszentmihalyi (2014) studies flow and its impacts on performance. Csikszentmihalyi (2014) initially presented the notion of flow to explain why some tasks are completed for intrinsic motivation (Nakamura & Csikszentmihalyi, 2002). This best experience is called flow (Buil et al., 2017; Csikszentmihalyi, 2014). Flow is described as the ideal state of attention on a job that is intrinsically motivated by something else (Buil et al., 2017). In a state of flow, time moves more quickly; the individual feels in command, and consciousness and activity merge into one seamless experience. There is no self-reflective thinking or concern for evaluation when the individual is so absorbed in the activity that the goals and actions are clear, and the feedback is unequivocal (Csikszentmihalyi, 2014; Sumaya & Darling, 2018).

Individuals are said to feel the experience of flow when feeling absorption, enjoyment, and intrinsic motivation (Bakker, 2008; Bakker et al., 2017). Absorption is the ability to focus on the activity at hand, and enjoyment is expressed as the individual's comfort level while completing it. A person's self-motivation becomes a driving factor, more commonly called internal drive. As Csikszentmihalyi and colleagues point out, flow is a motivational driver for continuing activities that lead individuals to choose higher challenges beyond the flow experience (de Manzano et al., 2013). Individuals who experience flow are motivated to return to this rewarding experience (Buck et al., 2008). This condition is compared to when individuals have a low academic flow, and then they will show intense enthusiasm for learning and doing their tasks (Sumaya & Darling, 2018). Therefore, flow is considered a motivational component and motivation driver that facilitates a conducive learning process with a high level of engagement.

This study's findings revealed that flow might be experienced in the academic domain, among other things (Elias et al., 2010). Scauffelli et al. (2016) reported that 38% of students experience flow while studying. Flow has a positive relationship with students' learning, satisfaction, and perseverance (Kim & Seo, 2013; Lee, 2005; Park et al., 2020). Based on some results of practical analysis, the flow was found to be related to student engagement and learning (Gilman et al., 2009; Mesurado et al., 2016; Shernoff et al., 2003). Thus, it can be known that flow becomes one of the factors related to academic achievement. The learners and the learning context need to interact balanced to produce a sense of flow in the learning setting.

### *E. Components and Characteristics of Academic Flow*

The three flow components are absorption, enjoyment, and a person's motivation (Bakker et al., 2017; Csikszentmihalyi, 2014). Flow theory relies heavily on these three elements. Absorption, enjoyment, and intrinsic motivation are the three most essential qualities. In the condition of absorption, one's full attention, awareness, and concentration are focused on the project at hand. For the individual to be unable to see or hear what is going on in the world around him. In the workplace, people who enjoy what they do are more likely to be happy and to provide good evaluations of the quality of the work they do. Flow experiences are enjoyable because of assessing cognitive and emotional aspects of the experience. When you're doing things, you get a sense of personal ease. Having a long-term interest in academic pursuits can be a motivating factor for people. Individuals who are intrinsically motivated seek joy and fulfilment from their work. This type of motivation is known as intrinsic motivation. Intrinsic motivation is a drive that originates from within the person to do things even when no one else notices. Self-motivation is a sort of intrinsic motivation. Therefore, students who are immersed, at ease, and genuinely driven in their academic learning activities are considered to be experiencing academic flow. This concludes that the flow of students' educational activities is composed of three components: absorption, enjoyment, and intrinsic motivation.

Csikszentmihalyi (2014) have divided the characteristic of academic into nine aspects (Buil et al., 2017; Maeran & Cangiano, 2013; Mesurado et al., 2016). (1) a goal, which is clear about what a person needs to do to attain the objective and understand what barriers and challenges may arise in the process. Clarity of purpose will lead to more satisfying results, which can be achieved in harmony with one's abilities. (2) Feedback, in the form of ongoing access to information about one's performance, is a second factor. Feedback pertains to the specifics of a task's success or failure. Its purpose is to enhance performance and identify potential improvements. Instantaneous feedback is offered. (3) A balance between abilities and challenges, or the individual's skills and the obstacles they confront, can be achieved. You can have fun in the classroom if you balance difficulties accepted with your skill level. While a challenge might serve as motivation, it can also serve as a means of victory. (4) A balance between attention and action makes actions appear effortless. The effect of this component is a narrowing of one's field of awareness and total immersion in the activity. As a result, conscious actions fade away and integrate with the effort. (5) Focused concentration, something related to focus and no space can interfere. Concentrated feelings occur when an individual is focused on one subject solely. Also, the focus is related to a high concentration degree on attention limits. This practice allows participants to focus and deepen their exploration. (6) A sense of control, a sensation of personal control over a circumstance or action, i.e. what individuals love, is not a sense of being controlled but a sense of being trained to exercise control over a challenging situation. (7) Loss of self-awareness attention disappears because the individual is integrated with the activity. (8) Time distortion occurs (there is a time unconsciousness when a person has dissolved in the activity being performed, making him unconscious of how much time has passed. Time seems to be running faster than usual. (9). A person acts in self-interest and does not expect a reward. According to Csikszentmihalyi (2014) experience combines autotelic and exoteric events. Exotic experiences are done for external motives, like receiving a gift. Autotelic experiences are driven by intrinsic motivation, delight, control, and self-desire and are not destined for future contributions.

Since it was first presented in 1990, these nine flow characteristics have emerged and are still being investigated in most studies today. The nine qualities could not be lowered; nevertheless, they noted that reducing one feature could omit critical sections of the flow description (Engeser & Rheinberg, 2008)

### III. METHODOLOGY

#### A. Research Design

This research employed a quasi-experiment with an experimental and control group. This design is appropriate for causal relationships of two groups since external variables do not control the independent variable. There were two independent variables in the study using Moodle learning management system and conventional teaching managements. The covariate of academic flow was also included in the study. Extraneous influences were avoided to ensure the internal validity of the results acquired during the experiment's treatment. Internal threats such as sample selection bias, instrumentation bias, and regression bias were presumably considered.

#### B. Population and Sample

The participants in the study were undergraduate students from the Department of English Education in Malang, Indonesia. They were divided into two groups. Sixty-nine students from the academic year 2021/2022 served as the sample for this study. The participants were purposively selected from two groups, A and B, through a targeted recruitment process. Class A consisted of thirty-five (35) university students, whilst class B comprised thirty-four (34). The university students were drawn from two different classrooms and divided into two groups: the experimental group (35 students), which used Moodle, and the control group (34 students), which used traditional methods. The following criteria were used to determine which groups to put together: (1) the same lecturer taught A and B in both English courses; (2) because this was educational setting research, it was impossible to rearrange the lessons in either English class.

#### C. Instruments

The tests and Work-Related Flow Inventory (WOLF-S) were the instruments employed in the research. The test was separated into two types: a pre-test and a post-test, presented to the experimental and control classes, respectively, before and after the intervention. Meanwhile, WOLF-S was utilized to gather information about university students' academic flow and the impact on writing skills. The results of writing tests are evaluated using evaluation methods developed by (Oshima & Hogue, 2014). The kind of test offered to learners was a test of writing descriptive paragraphs in English that has been tailored to the theory of writing descriptive paragraphs in good and correct English. Learners were presented with a variety of themes that have been tailored to the general framework of descriptive paragraphs. An expert validated the test of writing descriptive paragraphs.

#### D. Data Analysis

This study used ANCOVA to examine whether or not the academic flow variable affected the writing skills of EFL university students in both experimental and control groups. This analysis used two different sorts of statistical tests. The T-Test was the first, and the ANCOVA was the second. Both the T-Test and the ANCOVA tests were used to determine whether or not the results were statistically significant. Tests were administered to determine whether or not there was a difference in writing skills between the experimental and control groups.

### IV. RESULTS

Both the experimental and control groups have identical mean scores, which allows us to compare the influence of Moodle and traditional learning on students' writing skills. They had scored before receiving Moodle as a management system of learning. The T-Test findings are summarized in Table 1.

TABLE 1  
T-TEST ANALYSIS FOR EXPERIMENTAL AND CONTROL GROUPS BEFORE TREATMENT WITH MOODLE

Groups	N	Mean	St. Deviations	t	DF	Sig.
Experiment	35	73.83	7.168	1.941	67	.056
Control	34	70.24	8.187			

Table 1 showed no statistically significant difference between the control and experimental groups' mean scores (70.24) and the experimental group (73.83). The pre-test scores of the experiment and control groups were also compared;  $p = .56 > .05$ . It was not significant at .05. The two groups did not differ in their pre-test performance before the treatment was administered as a result.

TABLE 2  
T-TEST ANALYSIS FOR EXPERIMENTAL AND CONTROL GROUPS AFTER TREATMENT WITH MOODLE

Groups	N	Mean	St. Deviations	t	DF	Sig.
Experiment	35	82.06	8.633	2.777	67	.007
Control	34	75.74	10.235			

Table 2 showed a statistically significant difference between the experiment group's mean post-test scores (82.06) and the control group's mean post-test scores (75.74). The post-test scores of the experiment and control groups were also compared;  $p = .007 < .05$ . It was significant at .05. The two groups differed in their post-test mean score after the treatment. As a result, it is possible to conclude that there was a statistically significant difference in students' writing skills between the experimental and control groups after Moodle treatment was implemented. The following ANCOVA in Table 3 illustrates the influence of the academic flow covariate as a mediator variable on students' writing skills.

TABLE 3  
THE IMPACT OF MOODLE AND ACADEMIC FLOW ON EFL LEARNERS' WRITING SKILLS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1847.463 <sup>a</sup>	4	461.866	6.117	.000	.2177
Intercept	2514.616	1	2514.616	33.304	.000	.342
Academic Flow	663.349	1	663.349	8.786	.004	.121
Moodle	475.724	1	475.724	6.301	.015	.090
Error	4832.305	64	75.505			
Total	436677.000	69				
Corrected Total	6679.768	68				

Note: a R Square = .277 (adjusted R Square = .231)

Table 3 showed a statistically significant difference in students' writing skills ( $F_{\text{value}} = 6.301 > F_{\text{table}} = .45$ , and the level of statistical significance is  $.015 < .05$ ). It demonstrated that giving Moodle treatment impacted the students' writing achievement. It can also be shown in Table 3 that  $F_{\text{value}} = 8.876 > F_{\text{table}} = .45$ , and the level of significance was  $.004 < .05$ , indicating that the covariate academic flow has a substantial impact on the students' writing skills. The difference in mean scores of students' writing skills between the experimental group (82.06) and the control group (75.74) indicates that giving Moodle had a more significant impact on students' writing skills than the receiving Moodle. Also revealed in the study was the importance of academic flow in the development of students' writing skills.

## V. DISCUSSION

The findings indicated a meaningful difference between the group given treatment with Moodle and those treated conventionally. The experimental group had better writing skills than the control group. The findings of this study are corroborated by prior research, which found that Moodle could assist EFL students in improving their writing skills through online courses (Bataineh et al., 2019; El-Maghraby, 2021; Fathi & Torabi, 2019; Ghouali & Cecilia, 2021). The experimental group performed significantly better in EFL writing than the conventional group. This is since learning through Moodle provides an opportunity for a wide variety of students to collaborate, give and receive feedback from lecturers, and strengthen previous learning materials (Aikina & Bolsunovskaya, 2020). While in conventional learning, the atmosphere in the classroom tends to be teacher-centred, resulting in students who are passive and less able to encourage themselves, as well as fewer opportunities to collaborate in learning. Students are more likely than not to merely listen to material delivered by their instructors rather than participating in the direct performance. As evidenced by prior studies, Moodle can drive students to improve their language abilities and help students build metacognitive awareness and foster a sense of self-determination in the subject they are studying (Amandu et al., 2013). Other studies have found that Moodle can help students enhance their metacognitive awareness while increasing their sense of autonomy when learning the English language at universities (Gulbinskienė et al., 2017). Moodle-based learning can encourage students to learn languages online outside of the classroom, and they are free to choose the internet resources that best suit their interests (Aikina & Bolsunovskaya, 2020). These findings reveal that moodle helps students enhance their EFL writing skills. This is because students will quickly overcome their social needs. The results are also in accordance with prior studies that reported that Moodle helps individuals actualize themselves and cope with social demands (Khoza & Mpungose, 2018).

Due to Moodle's flexibility, EFL students can continue their education even when not in class. For teachers, enforcing this Moodle is vital in teaching via electronic media. Moodle provides a platform for students to collaborate on their writing. This study's findings lead us to conclude that Moodle can assist EFL teachers in combining traditional classroom teaching methods with internet-based technology tools and learning platforms to improve student outcomes. Through Moodle, EFL students can continue their learning outside of the classroom. The importance of teachers' rules in learning aids EFL students in developing their writing skills.

Likewise, students' academic flow becomes a covariate influence between students' treatment and writing skills. This is confirmed by prior research findings, which revealed that Moodle could motivate students to improve their language learning skills, help develop metacognitive awareness, and encourage autonomy of learners' subjects (Amandu et al., 2013). Additionally, Moodle increased students' metacognitive awareness and promoted their sense of independence in university-level English learning (Gulbinskienė et al., 2017). Moodle-based learning is a factor that can motivate students to learn languages online outside the classroom, and they are free to choose internet resources (Aikina & Bolsunovskaya, 2020). These findings also supported previous research reporting that Moodle helps individuals actualize themselves and cope with social needs (Khoza & Mpungose, 2018). It was also in line with an earlier study identifying the use of Educational technologies such as Moodle applications in learning and teaching (Goh et al., 2020). This study also showed that academic flow had a significant influence. The findings indicated that flow might be perceived in education (Elias et al., 2010). Another study reported that 38% of students experience flow while studying (Scaufelli et al., 2016). Flow is positively correlated with learning, satisfaction, and perseverance (Kim & Seo, 2013; Lee, 2005; Park et al., 2020). The flow was related to students' academic involvement (Özhan & Kocadere, 2020) and referred to perfectionists through engagement as a mediator (Ljubin-Golub et al., 2018). When one is in a state of flow, time seems to move faster, one has a greater sense of control, and one's consciousness and activity become one. There is no self-reflective thought or dread or worry about evaluation in a state of total immersion in the action so that nothing else matters (Csikszentmihalyi, 2000; Rogatdo, 2007; Sumaya & Darling, 2018).

Furthermore, based on some results of practical analysis, the flow was found to be related to student engagement and learning (Gilman et al., 2009; Mesurado et al., 2016; Shernoff et al., 2003). Students with a high academic flow can help to focus on all educational activities. Every student needs flow in the academic field because it can provide positive results to improve their academic achievement. Thus, it can be known that flow becomes one of the elements related to academic involvement. Flow in the context of learning can be created due to interaction between learners with education, namely a balanced combination of challenges and skills.

## VI. CONCLUSION

Based on the statistical analysis results, this study identified two conclusions: (1) it was found that Moodle integration in EFL virtual classrooms was more effective than conventional in enhancing university students' achievement in writing English. The use of Moodle in the global era can be a substitute solution for effective and more exciting learning strategies. Using Moodle as a learning tool makes students have an approach and attitude that is encouraging, optimistic, and positive, satisfaction in learning. (2) Academic flow becomes a covariate of influence between the independent and dependent variables. As a covariate, the academic flow has a role in influencing independent and dependent variables in this study. Students with a high academic flow can help to focus on all academic activities. Every student needs an academic flow because it can provide positive results to improve their

academic achievement. Thus, it can be known that academic flow becomes one of the factors related to academic achievements, such as writing skills.

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