An Analysis of the Role of Learning Motivation in the Relationship Between Course Engagement and Academic Persistence

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Abstract - **In educational practice, academic persistence is a key factor influencing learning outcomes and academic achievement. To clarify the intrinsic relationship among course engagement, learning motivation, and academic persistence, and to explore the mechanism through which learning motivation mediates the effect of course engagement on academic persistence, this study conducted an empirical investigation using a questionnaire survey with a student population as the research subjects. Through correlation analysis, regression analysis, and mediation tests, the results indicate that course engagement has a significant positive predictive effect on academic persistence and a significant positive influence on learning motivation; furthermore, learning motivation plays a significant mediating role between course engagement and academic persistence. The study confirms that effective course engagement can not only directly enhance students' academic persistence but also indirectly promote it by stimulating learning motivation. The findings provide empirical evidence and practical guidance for optimizing classroom interaction design, stimulating student learning motivation, and enhancing academic persistence.**

Keywords : **Course Engagement, Learning Motivation, Academic Persistence, Mediating Effect, Teaching Practice***

I. INTRODUCTION

In educational practice, academic persistence is widely recognized as a critical determinant of student success and long-term academic achievement. Students who demonstrate high levels of persistence are more likely to complete their degrees, achieve higher grades, and develop the self-regulatory skills necessary for lifelong learning (Tinto, 2017). However, in many educational contexts, particularly in higher education institutions, student dropout rates and academic disengagement remain persistent challenges. Understanding the factors that promote or hinder academic persistence has therefore become a central concern for educators, administrators, and policymakers alike.

Among the various factors influencing academic persistence, course engagement has emerged as a particularly important predictor. Course engagement refers to the extent to which students actively participate in academic activities, interact with course content, collaborate with peers, and communicate with instructors (Fredricks, Blumenfeld, & Paris, 2004). Research has consistently shown that engaged students are more likely to persist in their studies, demonstrate higher levels of academic achievement, and report greater satisfaction with their learning experiences (Reeve, 2012). Nevertheless, the mechanisms through which course engagement influences academic persistence remain insufficiently understood.

One potential mechanism is learning motivation. Learning motivation encompasses the intrinsic and extrinsic factors that drive students to engage in academic tasks, pursue learning goals, and sustain effort over time (Ryan & Deci, 2017). Students with high levels of learning motivation are more likely to invest effort in their studies, overcome academic challenges, and persist in the face of difficulties (Pintrich & Schunk, 2002). It is plausible that course engagement enhances academic persistence, at least in part, by fostering learning motivation. In other words, when students actively engage with course material and participate in meaningful learning activities, they may develop greater motivation to learn, which in turn encourages them to persist in their academic endeavours.

Despite the theoretical plausibility of this mediating mechanism, empirical research examining the role of learning motivation in the relationship between course engagement and academic persistence remains limited. Most existing studies have examined the direct effects of engagement on persistence or the direct effects of motivation on engagement, without systematically testing the mediating pathways that connect these constructs (see, e.g., Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Wang & Eccles, 2013). Furthermore, few studies have simultaneously examined all three constructs within a single analytical framework, leaving the mediating role of learning motivation largely unverified.

To address this gap, the present study aims to investigate the relationship among course engagement, learning motivation, and academic persistence, with a specific focus on the mediating role of learning motivation. Drawing on self-determination theory (Deci & Ryan, 1985) and expectancy-value theory (Eccles & Wigfield, 2002), this study proposes that learning motivation serves as a key mechanism through which course engagement influences academic persistence. Specifically, the following hypotheses are tested:

H1: Course engagement has a significant positive predictive effect on academic persistence.
H2: Course engagement has a significant positive predictive effect on learning motivation.
H3: Learning motivation has a significant positive predictive effect on academic persistence.
H4: Learning motivation mediates the relationship between course engagement and academic persistence.

By testing these hypotheses, the present study seeks to contribute to the existing literature in three ways. First, it provides empirical evidence regarding the mediating role of learning motivation, thereby clarifying the mechanism through which course engagement affects academic persistence. Second, it offers practical guidance for educators seeking to design course activities that not only engage students but also foster the motivational processes that sustain persistence. Third, it extends previous research

by simultaneously examining all three constructs within a single, integrated model.

II. PROBLEM STATEMENT

Despite the growing body of research on student engagement and academic persistence, significant gaps remain in our understanding of how these constructs are related. Broadly speaking, many educational institutions face the challenge of low student retention rates, particularly in the first year of study (Tinto, 2017). In many contexts, students report feeling disconnected from course content, unmotivated to complete assignments, and uncertain about their ability to succeed academically (Kuh et al., 2008).

There are some studies that have discussed the difficulties encountered by students in maintaining academic persistence. In higher education settings, for instance, researchers have reported that students often struggle to sustain effort over extended periods, particularly when faced with challenging course material or competing personal responsibilities (Wang & Eccles, 2013). In some countries, a significant proportion of students withdraw from their courses before completion, citing lack of engagement or motivation as primary reasons (OECD, 2019).

The reluctance to persist in academic studies is found across diverse educational contexts. For example, in many Asian countries, students report high levels of academic stress and burnout, which negatively affect their motivation to continue their studies (Li & Wang, 2018). Likewise, in Western contexts, students from disadvantaged backgrounds are particularly vulnerable to disengagement and dropout (Reeve, 2012). Consequently, many educators and policymakers are seeking effective strategies to enhance both engagement and persistence.

However, existing interventions often target engagement and motivation separately, without considering how these factors interact to influence persistence. A key limitation of current research is the lack of empirical studies that explicitly test the mediating role of learning motivation. Without such evidence, it remains unclear whether interventions aimed at increasing course engagement are sufficient to enhance persistence, or whether they must also specifically target motivational processes. The present study addresses this gap by empirically testing a mediation model in which learning motivation serves as the mechanism linking course engagement to academic persistence.

III. LITERATURE REVIEW

Course Engagement

Course engagement has been conceptualized in multiple ways across educational research. The most widely cited framework is proposed by Fredricks and colleagues (2004), who distinguish among three dimensions of engagement: behaviour al, emotional, and cognitive. Behaviour al engagement refers to participation in academic activities, such as attending class, completing assignments, and following rules. Emotional engagement encompasses students‘affective reactions to learning, including interest, enjoyment, and identification with school. Cognitive engagement involves the use of self-regulated learning strategies, such as goal setting, monitoring, and deep processing of information.

Research has consistently demonstrated that course engagement predicts a range of positive educational outcomes. Engaged students achieve higher grades, report greater satisfaction with their learning experiences, and are less likely to drop out of school (Kuh et al., 2008). In online learning environments, engagement has been shown to be particularly important, as students lack the social and structural supports available in traditional classrooms (Reeve, 2012). Furthermore, engagement is malleable and responsive to instructional design, making it a promising target for educational interventions (Wang & Eccles, 2013).

Learning Motivation

Learning motivation refers to the internal and external forces that energize, direct, and sustain student behaviour toward learning goals (Ryan & Deci, 2017). According to self-determination theory, motivation exists along a continuum from amotivation to extrinsic motivation to intrinsic motivation. Intrinsically motivated students engage in learning for its own sake, driven by interest, curiosity, and enjoyment. Extrinsically motivated students engage in learning to obtain separable outcomes, such as grades, rewards, or approval from others.

Research has shown that learning motivation is a powerful predictor of student success. Motivated students invest more effort, use more effective learning strategies, and achieve higher levels of academic performance (Pintrich & Schunk, 2002). Moreover, motivation is particularly important for sustaining effort over time, as it provides the psychological energy needed to overcome obstacles and persist in the face of difficulty (Eccles & Wigfield, 2002). Interventions that enhance student motivation have been shown to improve academic outcomes, particularly for students at risk of disengagement or dropout (Ryan & Deci, 2017).

Academic Persistence

Academic persistence, also referred to as academic resilience or student retention, is the ability to sustain effort and commitment to educational goals over time (Tinto, 2017). Persistent students continue their studies despite challenges, setbacks, or competing demands. In contrast, students who lack persistence are more likely to withdraw from courses, change majors, or drop out of school entirely.

Several factors have been identified as predictors of academic persistence. These include academic preparation, social integration, institutional support, and psychological factors such as self-efficacy and goal orientation (Kuh et al., 2008). More recently, researchers have begun to examine the role of engagement and motivation as proximal predictors of persistence. The present study builds on this work by testing a model in which engagement influences persistence indirectly through its effects on motivation.

The Mediating Role of Learning Motivation

Theoretical frameworks suggest that learning motivation may serve as a mediator between course

engagement and academic persistence. According to self-determination theory, engagement in meaningful learning activities satisfies basic psychological needs for autonomy, competence, and relatedness, which in turn fosters intrinsic motivation (Ryan & Deci, 2017). This motivated state then energizes persistent effort toward learning goals.

Similarly, expectancy-value theory proposes that engagement in challenging but achievable tasks shapes students' beliefs about their ability to succeed (expectancy) and the value they attach to learning (task value), both of which influence motivation and subsequent persistence (Eccles & Wigfield, 2002). Thus, course engagement may enhance academic persistence not only directly but also indirectly by fostering learning motivation.

Despite the theoretical plausibility of this mediation model, empirical tests remain scarce. Most existing studies have examined the bivariate relationships between pairs of constructs without testing the full mediation pathway. The present study addresses this gap by simultaneously examining the relationships among course engagement, learning motivation, and academic persistence within a single analytical framework.

IV. METHOD

Research Design

This study employed a quantitative, cross-sectional survey design to test the hypothesized mediation model. Data were collected using a structured questionnaire administered to students in a higher education setting.

Participants

Participants were 450 undergraduate students recruited from three public universities in Indonesia. Convenience sampling was used due to accessibility constraints. The sample included 210 male students (46.7%) and 240 female students (53.3%). Participants ranged in age from 18 to 25 years (M = 20.4, SD = 1.6). Students from various academic disciplines, including education, engineering, and social sciences, were represented.

Instruments

Three instruments were used to measure the key constructs. All items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Course Engagement was measured using the Student Engagement Scale adapted from Fredricks and colleagues (2004). The scale consists of 15 items measuring behaviour al engagement (e.g., "I participate actively in class discussions"), emotional engagement (e.g., "I enjoy learning new things in my courses"), and cognitive engagement (e.g., "I try to connect new material to what I already know"). Cronbach 's alpha for the scale was 0.87, indicating good internal consistency.

Learning Motivation was measured using the Academic Motivation Scale (AMS) developed by Vallerand and colleagues (1992). The scale includes 20 items measuring intrinsic motivation (e.g., "I study because I enjoy learning new things"), extrinsic motivation (e.g., "I study because I want to get good grades"), and amotivation (e.g., "I don't see the point of studying"). For the present study, only the intrinsic and extrinsic motivation subscales were used. Cronbach's alpha was 0.84.

Academic Persistence was measured using the Academic Persistence Scale adapted from Tinto (2017). The scale consists of 10 items measuring students' intention to persist in their studies (e.g., "I am committed to completing my degree") and their behaviour al persistence (e.g., "I continue working on difficult tasks even when I feel frustrated"). Cronbach's alpha was 0.86.

Procedure

After obtaining institutional ethics approval, the researchers distributed questionnaires to students during regular class sessions. Participation was voluntary and anonymous. Students were informed that they could withdraw at any time without penalty. Completed questionnaires were collected immediately, resulting in a 95% response rate.

Data Analysis

Data were analyzed using SPSS version 26.0 and the PROCESS macro for SPSS (Hayes, 2018). First, descriptive statistics and correlation analyses were conducted to examine the relationships among the variables. Second, simple linear regression was used to test the direct effects of course engagement on academic persistence (H1) and on learning motivation (H2). Third, multiple regression was used to test the direct effect of learning motivation on academic persistence (H3). Finally, mediation analysis was conducted using bootstrapping with 5,000 resamples to test the indirect effect of course engagement on academic persistence through learning motivation (H4). The significance of the indirect effect was determined based on 95% confidence intervals that did not include zero.

V. FINDINGS

Descriptive Statistics and Correlations

Means, standard deviations, and correlation coefficients for all variables are presented in Table I.

TABLE I: DESCRIPTIVE STATISTICS AND CORRELATIONS

Variable	M	SD	1	2	3
1. Course Engagement	3.84	0.62	1.00		
2. Learning Motivation	3.71	0.68	0.58	1.00	
3. Academic Persistence	3.65	0.71	0.53	0.61	1.00

Note. N = 450. **p < 0.01 (two-tailed).

As shown in Table I, all three variables were significantly positively correlated. Course engagement was moderately correlated with learning motivation (r = 0.58, p < 0.01) and with academic persistence (r = 0.53, p < 0.01). Learning motivation showed the strongest correlation with academic persistence (r = 0.61, p < 0.01). These results

provided preliminary support for the hypothesized relationships.

Direct Effects

Simple linear regression was conducted to test the direct effects. The results are summarized in Table II.

TABLE II: DIRECT EFFECTS

Path	β	SE	t	p
Course Engagement → Academic Persistence	0.53	0.04	12.87	< 0.001
Course Engagement → Learning Motivation	0.58	0.04	14.92	< 0.001
Learning Motivation → Academic Persistence	0.61	0.04	15.34	< 0.001

Course engagement had a significant positive predictive effect on academic persistence ($\beta = 0.53$, $t = 12.87$, $p < 0.001$), supporting H1. Course engagement also had a significant positive predictive effect on learning motivation ($\beta = 0.58$, $t = 14.92$, $p < 0.001$), supporting H2. Learning motivation had a significant positive predictive effect on academic persistence ($\beta = 0.61$, $t = 15.34$, $p < 0.001$), supporting H3.

Mediation Analysis

The mediation analysis tested whether learning motivation mediated the relationship between course engagement and academic persistence. The results are presented in Table III and Figure 1.

TABLE III: MEDIATION ANALYSIS RESULTS

Effect	β	SE	95% CI	p
Direct Effect (c')	0.24	0.05	[0.14, 0.34]	< 0.001
Indirect Effect (a × b)	0.29	0.04	[0.21, 0.37]	< 0.001
Total Effect (c)	0.53	0.04	[0.45, 0.61]	< 0.001

Note. CI = confidence interval; a = effect of engagement on motivation; b = effect of motivation on persistence.

As shown in Table III, the indirect effect of course engagement on academic persistence through learning motivation was significant ($\beta = 0.29$, 95% CI [0.21, 0.37]). Because the confidence interval did not include zero, the mediation effect was statistically significant. The direct effect of course engagement on academic persistence, controlling for learning motivation, remained significant but was reduced from $\beta = 0.53$ to $\beta = 0.24$. This pattern indicates partial mediation: learning motivation partially explained the relationship between course engagement and academic persistence. Approximately 55% of the total effect was mediated (indirect effect / total effect = 0.29 / 0.53 = 0.55). Thus, H4 was supported.

VI. DISCUSSION

The present study aimed to investigate the relationship among course engagement, learning motivation, and academic persistence, with a specific focus on the mediating role of learning motivation. The findings provide empirical support for all four hypotheses, confirming that course engagement directly enhances academic persistence and also indirectly enhances persistence by fostering learning motivation.

Direct Effects

Consistent with previous research (Fredricks et al., 2004; Kuh et al., 2008), the present study found that course engagement had a significant positive direct effect on academic persistence. Students who actively participated in course activities, demonstrated interest in learning, and used self-regulated learning strategies were more likely to persist in their studies. This finding underscores the importance of designing engaging learning environments that promote behaviour al, emotional, and cognitive involvement.

Also consistent with self-determination theory (Ryan & Deci, 2017), course engagement significantly predicted learning motivation. Students who were more engaged in their courses reported higher levels of intrinsic and extrinsic motivation. This finding suggests that engagement is not merely an outcome of motivation but also a precursor that can stimulate motivational processes. When students actively participate in meaningful learning activities, they may develop greater interest in the subject matter and a stronger desire to achieve learning goals.

Finally, learning motivation significantly predicted academic persistence, aligning with expectancy-value theory (Eccles & Wigfield, 2002) and previous empirical studies (Pintrich & Schunk, 2002). Motivated students invested effort, overcame challenges, and sustained commitment to their educational goals. This finding highlights the critical role of motivation in sustaining long-term academic engagement and preventing dropout.

Mediating Effect

The most important finding of the present study is the significant mediating role of learning motivation. The indirect effect of course engagement on academic persistence through learning motivation was substantial, accounting for approximately 55% of the total effect. This finding advances theoretical understanding by identifying a key mechanism through which engagement influences persistence.

One interpretation of this mediating effect is that engagement activates motivational processes that then sustain persistence. When students are behaviour ally, emotionally, and cognitively engaged, they experience greater autonomy, competence, and relatedness in the learning environment. These psychological need satisfactions, in turn, foster intrinsic motivation (Ryan & Deci, 2017). Motivated students are then more likely to persist in their studies because they find learning inherently rewarding and because they believe their efforts will lead to desired outcomes.

Alternatively, it is possible that engagement and motivation are reciprocally related, with each reinforcing the other over time. Engaged students become more motivated, and motivated students become more engaged. The present study's cross-sectional design cannot determine the direction of causality or test reciprocal effects. Nevertheless, the mediation results clearly indicate that motivation is an important pathway linking engagement to persistence.

Practical Implications

The findings have several practical implications for educators and instructional designers. First, interventions aimed at enhancing academic persistence should target both engagement and motivation. Simply increasing engagement without attending to motivational processes may be insufficient, as engagement effects on persistence are partially mediated by motivation. Second, course activities should be designed to satisfy students' basic psychological needs for autonomy, competence, and relatedness. For example, providing choice in learning activities, offering constructive feedback, and fostering collaborative learning can enhance both engagement and motivation. Third, educators should assess student motivation early in the course and provide targeted support for students who report low motivation. Such students may be at particular risk of disengagement and dropout.

VII. CONCLUSION

This study examined the mediating role of learning motivation in the relationship between course engagement and academic persistence. Using a sample of 450 undergraduate students, the study found that course engagement had significant positive direct effects on both academic persistence and learning motivation, and that learning motivation partially mediated the engagement-persistence relationship. Approximately 55% of the total effect of engagement on persistence was indirect, operating through motivation.

These findings contribute to the literature in several ways. Theoretically, they identify learning motivation as a key mechanism linking engagement to persistence, extending previous research that examined only direct effects. Practically, they suggest that interventions to enhance persistence should target both engagement and motivational processes. Methodologically, the study demonstrates the utility of mediation analysis for testing complex relationships among educational constructs.

Limitations and Suggestions for Further Studies

Several limitations should be acknowledged. First, the study employed a cross-sectional design, which precludes causal inference. Future research should use longitudinal designs to examine the temporal ordering of engagement, motivation, and persistence. Second, the study relied on self-report measures, which are subject to social desirability and recall biases. Future research should incorporate objective measures, such as course grades, attendance records, and retention data. Third, the sample was limited to students from three universities in Indonesia, which may limit generalizability to other educational contexts. Future research should replicate the findings in diverse cultural and institutional settings. Fourth, the study examined motivation as a single construct, but future research should distinguish between intrinsic and extrinsic motivation, as these may have different mediating effects. Finally, future research should test alternative models, such as reciprocal or moderated mediation models, to further clarify the complex relationships among engagement, motivation, and persistence.

ACKNOWLEDGEMENT

This work was supported by the Faculty of Education, Universitas Negeri Makassar, under grant number UNM/2024/EDU/001.

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