DEVELOPMENT OF A MODEL TO ENHANCE STUDENT LEARNING MOTIVATION AT PRIVATE UNIVERSITIES IN ZHENGZHOU, CHINA*

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Abstract

This study examines how active learning approaches influence student learning motivation in private universities in Zhengzhou, China, pursuing five objectives: (1) to assess students' perceptions of active learning approaches; (2) to assess students' learning attitude, learning intention, and learning motivation; (3) to examine the relationships among active learning, learning attitude, learning intention, and learning motivation; (4) to develop a motivational enhancement model; and (5) to evaluate the effectiveness of the proposed model. Guided by the Theory of Planned Behavior and Achievement Goal Theory, the study adopts a mixed-methods design combining questionnaire surveys and intervention experiments. Quantitative data were collected from 558 undergraduate students across three private universities in Zhengzhou, China, and analysed using descriptive statistics, ANOVA, structural equation modelling, and paired-sample t-tests.

Five findings emerge. First, students reported high levels of active learning participation (M = 4.12). Second, learning attitude (M = 4.08), learning intention

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(M = 4.15), and learning motivation (M = 4.10) were all high. Third, active learning significantly influenced learning attitude (β = 0.71, $p < 0.001$) and learning intention (β = 0.64, $p < 0.001$), while learning intention significantly affected learning motivation (β = 0.69, $p < 0.001$). Fourth, the Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM) was successfully developed. Fifth, post-test motivation scores were significantly higher than pre-test scores after the eight-week intervention ($t = 8.47$, $p < 0.001$). The study contributes new knowledge by integrating TPB and AGT into a unified motivational framework for student-centered learning.

Keywords: Active Learning, Learning Motivation, Learning Attitude, Learning Intention, Theory of Planned Behavior, Achievement Goal Theory, Private Universities

Introduction

Learning motivation plays an important role in higher education because it influences students' willingness to participate in classroom activities, persist in academic tasks, and achieve positive learning outcomes. In many private universities in China, however, traditional lecture-based instruction still remains the dominant teaching approach. Under this teaching style, students often receive knowledge passively and have limited opportunities to participate in discussion, collaboration, or independent problem-solving. As a result, some students gradually lose interest in learning and show low levels of classroom engagement and academic motivation. To improve this situation, many universities have started to introduce active learning approaches that encourage students to participate more actively in the learning process through discussion, teamwork, problem-solving, and experiential learning activities (Prince, 2004; Freeman et al., 2014). In recent years, Chinese higher education reforms have also emphasized student-centered teaching and the development of critical

thinking, creativity, and autonomous learning ability. These changes are especially important for private universities in Zhengzhou, where differences in students' academic preparation and learning readiness create additional challenges for classroom teaching and instructional management.

Previous studies have shown that active learning can positively influence students' classroom participation, engagement, and academic performance (Prince, 2004; Freeman et al., 2014). Research based on self-determination theory also suggests that autonomy-supportive learning environments strengthen students' intrinsic motivation and psychological engagement (Deci & Ryan, 2000; Jang et al., 2010). Achievement Goal Theory explains that students' goal orientations influence their learning behaviors, persistence, and achievement motivation (Pintrich, 2000; Elliot & Murayama, 2008), while the Theory of Planned Behavior proposes that attitudes and intentions affect individuals' behavioral participation in learning activities (Ajzen, 1991). In addition, students with stronger motivation are more likely to demonstrate self-regulated learning behaviors and sustained academic engagement (Ryan & Deci, 2017; Zimmerman, 2002). Although active learning has been widely discussed in higher education research, many previous studies mainly focus on academic achievement and classroom outcomes. Limited attention has been given to the relationships among active learning, learning attitude, learning intention, and learning motivation, particularly in the context of private universities in China. Moreover, few studies combine the Theory of Planned Behavior and Achievement Goal Theory into a unified framework to explain the motivational mechanisms underlying active learning. Therefore, this study examines the relationships among active learning, learning attitude, learning intention, and learning motivation, and further develops an Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM) for private universities in Zhengzhou, China.

Objectives

1. To assess the views and cognitive awareness of students on active learning approaches

2. To assess students' perceptions about learning attitudes, intentions and motivations.

3. To examine the relationships between the active learning approach learning, learning attitude, learning intention and students' learning motivation.

4. To design a model capable of strengthening student learning motivation under active learning.

5. To build up an evaluation system to examine the effect on motivating undergraduate students to keep motivation for learning for a longer period when they have been using this model.

Hypotheses

H1: Learning attitude positively affects college students' learning attitude.

H2: Active learning has a positive effect on college students' learning intention.

H3: Learning intention has a positive effect on college students' learning motivation.

H4: states that there was a statistically significant positive effect caused by implementing the developed model for increasing student learning motivation via using active learning strategies on students' overall learning motivation at private universities located in Zhengzhou.

Conceptual Framework

This study is based on the Theory of Planned Behavior (TPB) and Achievement Goal Theory (AGT) to explain students' motivational and behavioral engagement in learning activities. The study examines four main constructs, including active learning, learning attitude, learning intention, and

learning motivation. In this framework, active learning is treated as the independent variable, while learning attitude, learning intention, and learning motivation are regarded as key motivational outcomes.

The study focuses on how active learning influences students' motivational responses. TPB explains how attitudes and intentions shape students' learning behavior, while AGT explains how goal orientation influences students' motivation and engagement. The conceptual framework proposes that active learning enhances learning motivation by strengthening students' learning attitude and learning intention. The overall conceptual framework of the study is presented in Figure 1

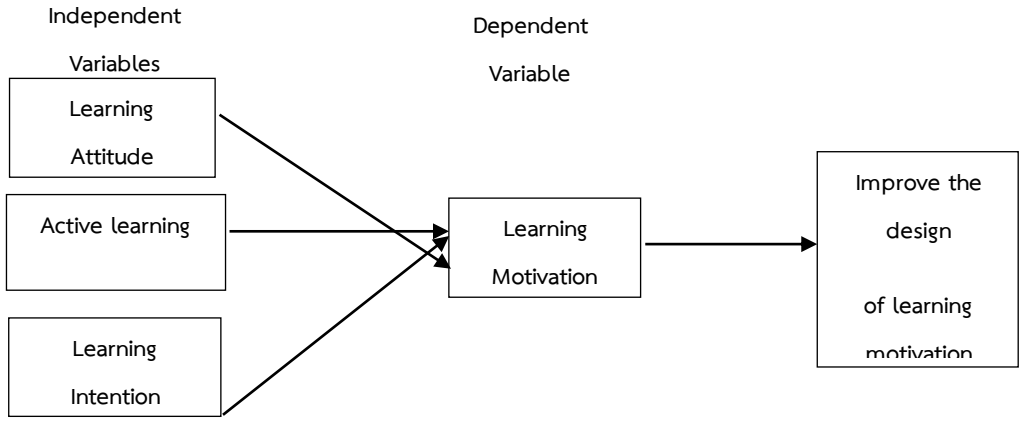


Figure 1 Conceptual Framework

Methodology

Population and Sample

The population of this study consisted of undergraduate students from private universities in Zhengzhou, China. Stratified sampling was used to select participants from three private universities: Yellow River Institute of Science and Technology, Zhengzhou Asia College, and Zhengzhou Shengda Institute of Economics and Trade Management. A total of 600 questionnaires were distributed, and 558 valid responses were used for data analysis.

Research Instrument

The research instrument was a structured questionnaire developed from the Theory of Planned Behavior (TPB), Achievement Goal Theory (AGT), and related studies. The questionnaire included demographic information, active learning approaches, learning attitude, learning intention, and learning motivation. All items were measured using a five-point Likert scale. The questionnaire was reviewed by experts and tested for reliability before the formal survey.

Data Collection

Data were collected during the 2025 academic year. Questionnaires were distributed to undergraduate students in the selected universities. In addition, an eight-week teaching intervention based on the Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM) was conducted to examine the effectiveness of the proposed model.

Data Analysis

The data were analysed using descriptive statistics, independent-sample t-tests, one-way ANOVA, structural equation modelling (SEM), and paired-sample t-tests. Descriptive statistics were used to examine students' perceptions of the main variables, while SEM was used to test the relationships among active learning, learning attitude, learning intention, and learning motivation. Paired-sample t-tests were used to evaluate the effectiveness of the intervention model.

Results

Research Objective 1: To assess the views and cognitive awareness of students on active learning approaches.

Students generally showed positive perceptions toward active learning approaches. Most respondents reported that they were willing to participate in

classroom discussion, complete learning activities independently, and search for additional learning resources outside class. The highest mean score was found in the item related to seeking additional learning resources (M = 3.78, SD = 1.125), while participation in classroom discussion received the lowest mean score (M = 3.71, SD = 1.000). Although all items were rated at a high level, the findings suggest that some students were still less confident in direct classroom interaction.

Table 1 Descriptive Statistics of Active Learning Approaches

Question	Mean	SD	Interpretation
I actively participate in class discussions to deepen my understanding of the subject.	3.71	1.000	High
After class, I often take stock of what I have learned and make summaries.	3.73	1.003	High
I am motivated to apply what I have learned from my learning activities.	3.72	1.084	High
I often carry out active learning tasks both in and out of class.	3.75	0.962	High
I often look for extra resources or opportunities which will help my active learning.	3.78	1.125	High

The results in Table 1 indicate that students were generally familiar with and receptive toward active learning activities. Most students demonstrated willingness to engage in learning beyond traditional classroom instruction.

Research Objective 2: To assess students' perceptions about learning attitudes, intentions and motivations.

The findings indicated that students maintained relatively positive perceptions regarding learning attitude, learning intention, and learning motivation. Students showed interest in their courses and recognized the

importance of learning for future development. In addition, many respondents demonstrated strong learning intention, especially in relation to curiosity and interest in learning new knowledge. Students also showed relatively stable learning motivation, particularly in understanding their academic responsibilities and maintaining active participation in classroom learning.

Table 2 Descriptive Statistics of Learning Attitude

Question	Mean	SD	Interpretation
I am very interested in this course.	3.71	1.089	High
I feel happy studying this course.	3.62	1.088	High
I am willing to spend time and energy on this course.	3.72	1.135	High
I am curious about the content of this course.	3.66	1.122	High
I think this course is very important for my future.	3.68	1.109	High

The findings in Table 2 show that students generally possessed positive attitudes toward learning. Most respondents recognized the value of learning and were willing to invest effort in academic activities.

Table 3 Descriptive Statistics of Learning Intention

Question	Mean	SD	Interpretation
I study this course because I like to learn new things.	3.86	0.949	High
I study this course because I am interested in the course content.	3.73	0.996	High
I study this course because it makes me feel accomplished.	3.72	0.994	High
I study this course because I like to	3.73	0.987	High

challenge myself.			

The results in Table 3 suggest that students possessed relatively strong learning intentions. Personal interest and intrinsic learning needs appeared to be important factors influencing students' willingness to continue learning.

Table 4 Descriptive Statistics of Learning Motivation

Question	Mean	SD	Interpretation
I clearly understand my academic direction and strive to perform well.	3.95	0.919	High
I place great importance on cultivating my academic interest in my field of study.	3.93	0.906	High
I clearly recognize the responsibilities and obligations associated with being a student.	3.99	0.892	High
I believe academic performance and active participation in class are important to me.	3.93	0.934	High

The findings in Table 4 indicate that students maintained relatively high levels of learning motivation. Academic responsibility and learning identity were important motivational characteristics among the respondents.

Table 5 Reliability Analysis

Variable	Cronbach's Alpha	Interpretation
Active Learning	0.88	High Reliability
Learning Attitude	0.91	High Reliability
Learning Intention	0.89	High Reliability
Learning Motivation	0.93	High Reliability

The reliability analysis showed that all variables achieved Cronbach's Alpha values above 0.80, indicating good internal consistency and acceptable reliability for further statistical analysis.

Research Objective 3: To examine the relationships between the active learning approach, learning attitude, learning intention and students' learning motivation.

The analysis confirmed significant positive relationships among active learning, learning attitude, learning intention, and learning motivation. Students who participated more actively in learning activities were more likely to develop positive learning attitudes and stronger learning intentions. At the same time, learning attitude and learning intention were positively associated with learning motivation.

Table 6 Model Fit Indices of the Structural Equation Model

Fit Index	Recommended Value	Result	Interpretation
χ^2/df	< 3.00	2.11	Good Fit
RMSEA	< 0.08	0.052	Good Fit
CFI	> 0.90	0.941	Good Fit
TLI	> 0.90	0.932	Good Fit
SRMR	< 0.08	0.047	Good Fit

The findings in Table 6 indicate that the structural equation model achieved acceptable goodness-of-fit values. Therefore, the model was considered appropriate for examining the relationships among the study variables.

Table 7 Correlation Analysis among Variables

Variables	**Active Learning**	**Learning Attitude**	**Learning Intention**	**Learning Motivation**
Active Learning	1			

Learning Attitude	0.61**	1		
Learning Intention	0.58**	0.66**	1	
Learning Motivation	0.63**	0.71**	0.69**	1

**p < 0.01

The correlation analysis revealed significant positive relationships among all variables. Learning attitude and learning intention demonstrated relatively strong relationships with learning motivation.

Table 8 Summary of Hypothesis Testing Results

Hypothesis	Path Relationship	Result
H1	Active Learning ⟶ Learning Attitude	Supported
H2	Active Learning ⟶ Learning Intention	Supported
H3	Learning Attitude ⟶ Learning Motivation	Supported
H4	Learning Intention ⟶ Learning Motivation	Supported

The hypothesis testing results confirmed that all proposed relationships were statistically supported. The findings suggest that active learning strengthens students' learning motivation indirectly through learning attitude and learning intention.

Research Objective 4: To design a model capable of strengthening student learning motivation under active learning.

Based on the empirical findings and theoretical foundations of the study, the researcher developed the Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM). The model consists of four interconnected dimensions: Active Learning Activation, Learning Attitude Construction, Learning Intention Reinforcement, and Learning Motivation Stabilization. The model

explains how active learning activities influence students' engagement, shape positive learning attitudes, strengthen learning intentions, and ultimately stabilize long-term learning motivation.

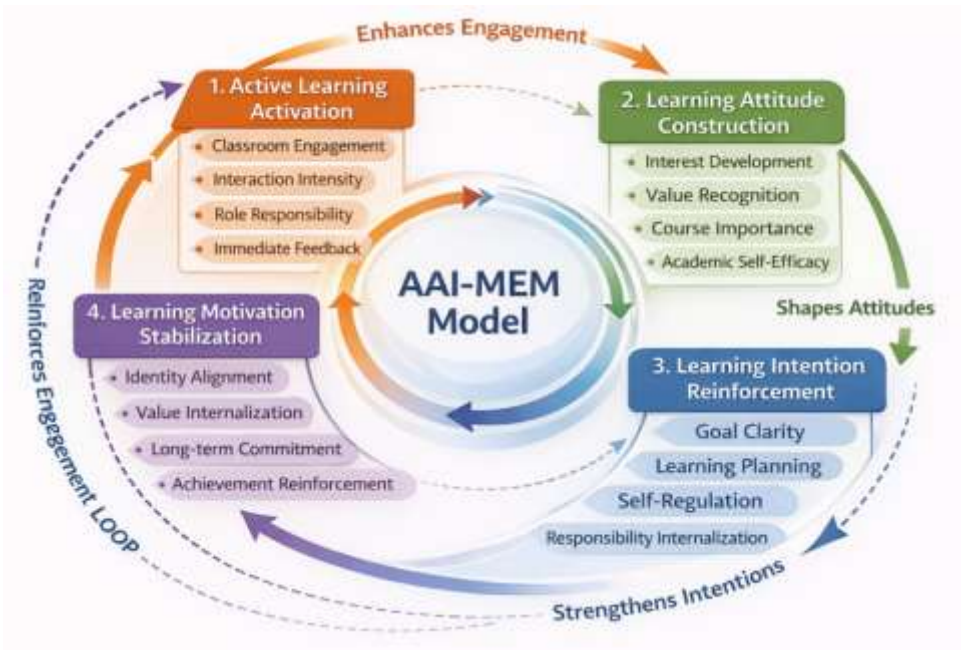


Figure 2 Revised Model of AAI-MEM Model

The revised model demonstrates that active learning serves as the initial driving force influencing students' attitudes and intentions, which subsequently contribute to stronger and more sustainable learning motivation.

Table 9 Core Sub-dimension Structure of AAI-MEM Model

Main Dimension	Sub-dimensions
Active Learning Activation	Classroom Engagement, Interaction Intensity, Role Responsibility, Immediate Feedback
Learning Attitude Construction	Interest Development, Value Recognition,

	Course Importance, Academic Self-Efficacy
Learning Intention Reinforcement	Goal Clarity, Learning Planning, Self-Regulation, Responsibility Internalization
Learning Motivation Stabilization	Identity Alignment, Value Internalization, Long-term Commitment, Achievement Reinforcement

Table 9 summarizes the core dimensions and sub-dimensions included in the AAI-MEM model. The model integrates behavioral, cognitive, and motivational components within a unified framework.

Research Objective 5: To build up an evaluation system to examine the effect on motivating undergraduate students to keep motivation for learning for a longer period when they have been using this model.

An eight-week intervention based on the AAI-MEM model was conducted to evaluate the effectiveness of the proposed model. The results showed that students' learning motivation improved after participating in the intervention program. The post-test mean score was higher than the pre-test mean score, indicating that the model positively influenced students' motivation and classroom engagement.

Table 10 Comparative Analysis of Pre-test and Post-test of AAI-MEM Model

Variable	Pre-test Mean	Post-test Mean	t-value	Sig.
Learning Motivation	3.75	4.02	3.51	0.001

The findings in Table 10 indicate that students' learning motivation significantly increased after the implementation of the AAI-MEM model. The results support the effectiveness of the proposed model in strengthening students' long-term learning motivation.

Discussion of the Findings

Students from the selected private universities generally showed positive responses toward active learning activities and maintained relatively stable levels of learning attitude, learning intention, and learning motivation. Most respondents were willing to participate in classroom discussions, complete learning tasks independently, and search for additional learning resources outside class. This result is similar to the findings of Prince (2004) and Freeman et al. (2014), who found that active learning can increase students' classroom participation and academic engagement compared with traditional lecture-based instruction. The findings also support Deci and Ryan (2000) and Ryan and Deci (2017), who explained that learning environments emphasizing autonomy and participation help strengthen students' intrinsic motivation and psychological engagement. In addition, students in this study demonstrated positive learning attitudes and clear academic responsibility, which is consistent with Vallerand et al. (1992), who emphasized the importance of intrinsic motivation and academic identity in sustaining learning behavior.

The analysis further showed significant positive relationships among active learning, learning attitude, learning intention, and learning motivation. Students who participated more actively in learning activities tended to develop more positive attitudes toward learning and stronger learning intentions, which subsequently strengthened their motivation. This finding is consistent with the Theory of Planned Behavior proposed by Ajzen (1991), which explains that attitudes and intentions influence behavioral participation. The results also support Achievement Goal Theory, which suggests that students' goal orientation affects learning behavior and motivation (Pintrich, 2000; Elliot & Murayama, 2008). Based on these findings, the study developed the Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM). The intervention results also indicated that students' learning motivation improved after the eight-week

implementation of the model, suggesting that active learning activities can support students' long-term engagement and sustained motivation in higher education learning environments.

New Knowledge

This study contributes new knowledge by explaining how active learning strengthens students' learning motivation through the interconnected roles of learning attitude and learning intention. Unlike many previous studies that mainly examined the direct influence of active learning on classroom participation or academic performance, this study demonstrates the psychological process through which active learning enhances students' long-term motivational development. The study also integrates the Theory of Planned Behavior and Achievement Goal Theory into a unified framework and develops the Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM), which provides both theoretical and practical support for improving student motivation in private universities in Zhengzhou, China.

Conclusion

The results of this study indicate that active learning plays an important role in strengthening students' learning motivation in private universities in Zhengzhou, China. Students who participated more actively in classroom learning activities tended to demonstrate more positive learning attitudes, stronger learning intentions, and higher levels of learning motivation. The findings also showed that active learning was not only related to classroom participation, but also connected to students' psychological engagement and academic responsibility. Based on the empirical findings and the integration of the Theory of Planned Behavior and Achievement Goal Theory, the study developed the Active Learning–Attitude–Intention Motivational Enhancement Model (AAI-MEM). The intervention results further confirmed that the proposed model contributed to improving students' learning motivation and maintaining their engagement in learning activities over time.

Recommendations

Greater attention should be given to the use of active learning approaches in private university classrooms in order to strengthen students' participation and long-term learning motivation. Teaching activities should encourage discussion, collaboration, problem-solving, and independent learning rather than relying mainly on lecture-based instruction. Universities should also provide support for instructors through training programs related to student-centered teaching and classroom engagement strategies. Future research may expand the study to different educational settings or apply longitudinal research designs to further examine the long-term influence of active learning on students' motivational development.

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