INSTRUCTIONAL LEADERSHIP AFFECTING STUDENTS' ACADEMIC ENGAGEMENT AMONG UNIVERSITY STUDENTS IN TAI'AN, SHANDONG PROVINCE, CHINA

Jing WANG[1] and Bangon KHANCHAN[2]
1 Faculty of Business Education, Thongsook College, Thailand; jingwang@thongsook.college
2 Faculty of International Programs, Thongsook College, Thailand; bangon@thongsook.college

ABSTRACT
Student academic engagement has become a central concern in higher education, yet comparatively limited research has examined instructional leadership as perceived directly by university students and linked it simultaneously to multiple dimensions of their engagement. This study investigates the influence of instructional leadership on students' academic engagement among university students in Tai'an, Shandong Province, China. Instructional leadership is examined through four dimensions—Clear Academic Expectations, Classroom Teaching Management, Learning Feedback and Academic Support, and Supportive Classroom Climate—while academic engagement is examined through Behavioral, Emotional, and Cognitive Engagement. A quantitative survey design was employed, and data were collected from 400 full-time undergraduate students through a 37-item structured questionnaire using a five-point Likert scale. construct validity of the adapted 19-item instructional leadership scale was further examined through an exploratory factor analysis (KMO = .911; Bartlett's $\chi^2(171) = 1{,}190.65$, $p < .001$), and reliability was confirmed by Cronbach's Alpha ($\alpha = .480$-$.832$; the overall instructional leadership and academic engagement scales reached .832 and .756).Data were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis. The findings show that 1) instructional leadership was perceived at a high level (M = 3.64, S.D. = 0.62) and students' academic engagement at a moderate level (M = 3.47, S.D. = 0.55); 2) instructional leadership has a significant positive effect on students' academic engagement ($\beta = .799$, $t = 26.49$, $p < .001$), explaining 63.8% of the variance; 3) among the four dimensions, all four significantly predicted engagement: Classroom Teaching Management was the strongest predictor ($\beta = .305$, $p < .001$), followed by Supportive Classroom Climate ($\beta = .291$, $p < .001$), Clear Academic Expectations ($\beta = .256$, $p < .001$), and Learning Feedback and Academic Support ($\beta = .136$, $p < .001$); and 4) the four dimensions jointly explain 64.4% of the variance in academic engagement. The study confirms that instructional leadership as a whole—particularly classroom teaching management, a supportive classroom climate, and clear academic expectations—is an important teaching-related process that strengthens university students' behavioral, emotional, and cognitive investment in learning.

Keywords: Instructional Leadership, Academic Engagement, University Students, Higher Education, Multiple Regression

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INTRODUCTION

Student academic engagement has become an important concern in higher education because the quality of university learning depends not only on students' attendance or academic performance, but also on the extent to which they actively participate, invest cognitive effort, and develop positive emotional connections with learning. Engagement is widely regarded as a multidimensional construct comprising behavioral, emotional, and cognitive dimensions (Fredricks et al., 2004). Because these dimensions are responsive to educational environments, student engagement can be shaped by the instructional conditions created within classrooms and universities.

Among the educational factors that may contribute to student engagement, instructional leadership has received increasing attention. Traditionally, instructional leadership has been associated with school leaders' responsibility for establishing academic goals, managing instructional programs, monitoring learning progress, and creating a positive learning climate (Hallinger & Murphy, 1985). More recent scholarship recognizes that instructional leadership may also be distributed among those directly involved in teaching and learning processes (Spillane, 2006; Abdallah et al., 2025). In higher education, therefore, the concept can be extended to the instructional practices through which teachers establish academic expectations, organize and manage teaching, provide feedback and academic support, and develop supportive classroom environments. Zeng and Jiang (2026), studying 696 undergraduates in China, found that perceived teacher instructional leadership was associated with student engagement and learning satisfaction in blended learning environments.

Accordingly, the present study conceptualizes instructional leadership through four dimensions: Clear Academic Expectations, Classroom Teaching Management, Learning Feedback and Academic Support, and Supportive Classroom Climate. Clear academic expectations refer to the extent to which instructors clearly communicate learning objectives, performance standards, and expectations for academic work. Classroom teaching management involves organizing learning activities, coordinating instructional processes, and creating conditions that allow students to focus on learning. Learning feedback and academic support provide students with information about their progress and assistance when they encounter difficulties; recent evidence shows that perceived teacher support is positively associated with academic engagement among Chinese undergraduates (Y. Zhang et al., 2025; Pan & Yao, 2023).Supportive classroom climate reflects the interpersonal and psychological environment of the classroom, which has likewise been linked to students' involvement in learning (Li, 2024; Liang et al., 2025).

The dependent variable of this study, student academic engagement, is examined through Behavioral, Emotional, and Cognitive Engagement. These three dimensions capture different but interrelated aspects of how students participate in university learning. Nevertheless, the existing literature leaves an important gap: much instructional leadership research has concentrated on principals and school-level outcomes, whereas research on university student engagement has more frequently examined teacher support, classroom climate, or teacher-student relationships as separate antecedents. Comparatively limited research has examined instructional leadership as perceived directly by university students and linked it simultaneously to multiple dimensions of their engagement, particularly in the Chinese higher education context. Tai'an, Shandong Province, provides an appropriate setting for investigating these relationships because its universities serve students across diverse disciplines and learning environments.

Therefore, this study investigates instructional leadership affecting students' academic engagement among university students in Tai'an, Shandong Province, China. The study provides empirical evidence concerning how instructional leadership relates to university students' academic engagement and contributes to the development of teaching and learning

practices that strengthen students' participation, emotional involvement, and cognitive investment in higher education.

Research Objectives

1) To study the effect of instructional leadership on students' academic engagement among university students in Tai'an, Shandong Province, China.

2) To study which components of instructional leadership affect students' academic engagement among university students in Tai'an, Shandong Province, China.

Research Hypotheses

H1: Instructional leadership affects students' academic engagement among university students in Tai'an, Shandong Province, China.

H2: The components of instructional leadership, including clear academic expectations, classroom teaching management, learning feedback and academic support, and supportive classroom climate, affect students' academic engagement among university students in Tai'an, Shandong Province, China.

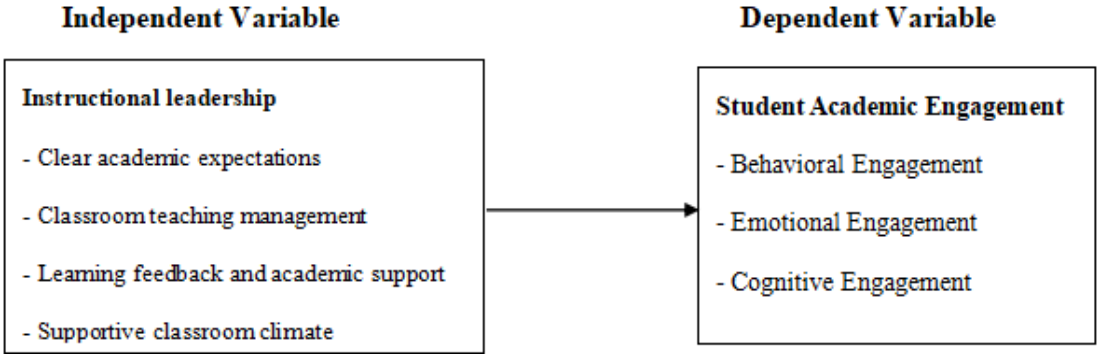


Figure 1 Conceptual Framework adapted from Hallinger and Murphy (1985)

LITERATURE REVIEWS

Instructional Leadership

Instructional leadership is one of the oldest and most extensively studied concepts in the field of educational leadership. The concept emerged in the late 1970s and early 1980s from research on effective schools. Hallinger and Murphy (1985) consolidated these findings into a widely used framework that defined instructional leadership as the behaviour of principals who focus directly on the conduct of teaching, organized into three broad dimensions: defining the school mission, managing the instructional programme, and promoting a positive school learning climate. The influence of this line of research was subsequently confirmed by large-scale syntheses: Robinson, Lloyd, and Rowe (2008) found that the effect of instructional leadership on student outcomes was several times larger than that of transformational leadership.

Later scholarship extended the concept in two directions. First, drawing on Distributed Leadership Theory, researchers argued that leadership for learning is not the exclusive property of formal position holders but is distributed across an organization and enacted through the practices of many of its members (Spillane, 2006). On this view, classroom teachers exercise instructional leadership in practice even though they hold no administrative office. Second, later work emphasized that instructional leadership is a multidimensional construct whose dimensions may have different relationships with different student outcomes, and that these dimensions therefore need to be examined separately. In higher education, instructional leadership is appropriately located at the level of the teacher and the course, because the classroom practices that students actually experience are determined largely by individual teachers (Zeng & Jiang, 2026; Zhang, Siaw, & Jiang, 2025).

Student Academic Engagement

Academic engagement refers to the degree to which students actively participate in and invest in their academic learning. It describes the quality of a student's involvement in educational activities rather than ability or achievement, and it is expressed in what students do, how they feel, and how they think in relation to their learning (Fredricks et al., 2004). Behavioral engagement refers to students' observable participation, such as attendance, effort, persistence, and involvement in learning activities. Emotional engagement concerns students' interest, enjoyment, enthusiasm, and affective responses to learning. Cognitive engagement represents students' psychological investment, strategic learning, and willingness to devote intellectual effort to understanding complex academic content.

The importance of the concept derives from its dual character: engagement is both an outcome that educational institutions seek to promote and a process that predicts subsequent achievement, satisfaction, and persistence. Because engagement is malleable and responsive to the conditions of teaching, it occupies a central position in research concerned with improving the quality of education. Research in Chinese higher education has repeatedly found that the support students perceive from their teachers, the quality of teacher-student relationships, and the instructional conditions of the classroom are associated with students' level of engagement (Pan & Yao, 2023; Y. Zhang et al., 2025).

The Relationship between Instructional Leadership and Academic Engagement

Three lines of theoretical reasoning connect instructional leadership to academic engagement. First, Self-Determination Theory holds that engagement depends on the satisfaction of students' needs for competence, autonomy, and relatedness (Deci & Ryan, 2000); the dimensions of instructional leadership can be understood as practices that support those needs. Second, Social Learning Theory (Bandura, 1977) suggests that students develop their own patterns of academic behaviour partly through observation of significant others, including teachers who model preparation, enthusiasm, and respect for learning. Third, the self-system model of motivational development (Skinner & Belmont, 1993) situates engagement as a direct consequence of students' perceptions of the classroom context.

Empirically, recent studies provide growing support for these linkages. Prananto, Cahyadi, Lubis, and Hinduan (2025), in a systematic review of 36 studies, concluded that perceived teacher support is consistently and positively associated with student engagement in higher education. Zhang, Siaw, and Jiang (2025) demonstrated that instructional leadership relates to student engagement and classroom management in the Chinese context. Liang et al. (2025), using data from 759 university students in China, reported that teacher emotional support, academic support, and classroom mutual respect were important conditions for engagement. However, few studies have measured multiple dimensions of instructional leadership simultaneously and estimated their separate influences on engagement within a single model, which is the approach adopted by the present study.

RESEARCH METHODOLOGY

This study adopts a quantitative research approach to examine the influence of instructional leadership on students' academic engagement among undergraduates in Tai'an, Shandong Province, China. Data were collected through a structured questionnaire and analyzed statistically. The quantitative design permits the relationships among the variables to be estimated with statistical precision and the relative contribution of each dimension of instructional leadership to be identified.

Population and Sampling

The target population consists of full-time undergraduate students enrolled in public and private undergraduate universities in Tai'an City, Shandong Province, China. The population includes students from different academic disciplines and year levels who have direct

experience of university classroom teaching. Based on the defined research scope, the estimated population comprises approximately 40,000 undergraduate students. The minimum sample size was determined using Yamane's (1973) formula at a 95% confidence level with an acceptable sampling error of 5%, yielding a minimum of 397 respondents. A total of 452 questionnaires were returned. After data screening, 25 questionnaires were excluded: 8 were completed in less than 60 seconds, 14 showed identical responses across all rating items (careless responding), and 6 were duplicate submissions from the same IP address (categories overlap). This left 427 valid questionnaires, from which 400 were randomly selected for the final statistical analysis.

Research Instruments

The research instrument is a structured questionnaire developed in accordance with the conceptual framework, operational definitions, and relevant literature. The questionnaire contains 37 rating-scale items organized into three parts. Part 1 collects general information about the respondents, including type of university, academic discipline, current year of study, and gender. Part 2 measures students' perceptions of instructional leadership through 19 items covering four dimensions: Clear Academic Expectations (5 items), Classroom Teaching Management (6 items), Learning Feedback and Academic Support (4 items), and Supportive Classroom Climate (4 items). Part 3 measures students' academic engagement through 18 items covering three dimensions: Behavioral Engagement (9 items), Emotional Engagement (4 items), and Cognitive Engagement (5 items). Parts 2 and 3 use a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The negatively worded emotional-engagement item ('I feel bored or anxious when studying this course') was reverse-scored before analysis.

Because Hallinger and Murphy's (1985) framework was originally developed to describe the instructional management behaviour of K-12 school principals, the 19 instructional-leadership items were systematically adapted to the university classroom context before data collection. Each item was reworded from the school-administrative level to the classroom-teaching level (for example, 'frames the school mission' became 'my instructor clearly communicates the learning objectives and performance standards of the course'), so that the items describe the instructional practices that students directly experience in class rather than principal-level administration. The adapted items were reviewed by a panel of five experts in higher education and educational measurement. Items with an Index of Item-Objective Congruence (IOC) score of .67 or above were retained. To provide construct validity evidence beyond content validity, an exploratory factor analysis (EFA) was further performed on the 19 adapted items. The sampling adequacy and sphericity assumptions were satisfied (KMO = .911; Bartlett's test of sphericity, $\chi^2(171) = 1{,}190.65$, $p < .001$). Principal-axis factoring with promax rotation was conducted: three factors had eigenvalues greater than 1 (4.77, 1.15, and 1.05), and the four-factor solution consistent with the a priori framework was retained for interpretation. The four factors jointly explained 39.3% of the cumulative variance; item loadings ranged from .33 to .73, and two items did not reach a primary loading of .40 on any factor. The factor pattern was therefore only partially consistent with the a priori four-dimension structure, and this is acknowledged as a limitation of the instrument.

Content validity was assessed using the Index of Item-Objective Congruence (IOC), with items scoring .67 or above retained. The internal consistency reliability of the instrument was examined using Cronbach's Alpha Coefficient. As reported in Table 1, the overall instructional leadership scale ($\alpha = .832$) and the overall academic engagement scale ($\alpha = .756$) demonstrated good and acceptable reliability respectively; however, several subscales fell below the .70 criterion (Clear Academic Expectations $\alpha = .612$, Classroom Teaching Management $\alpha = .631$, Learning Feedback and Academic Support $\alpha = .480$, Supportive Classroom Climate $\alpha = .501$, Behavioral Engagement $\alpha = .697$, Emotional Engagement $\alpha = .341$, Cognitive Engagement α

= .448), indicating that the internal consistency of the dimension-level subscales needs to be interpreted with caution and refined in future use of the instrument.

Table 1 Reliability of the Research Instrument (Cronbach's Alpha)

Scale	No. of Items	Cronbach's Alpha	Interpretation
Clear Academic Expectations	5	.612	Questionable
Classroom Teaching Management	6	.631	Questionable
Learning Feedback and Academic Support	4	.480	Poor
Supportive Classroom Climate	4	.501	Poor
Instructional Leadership (Overall)	19	.832	Good
Behavioral Engagement	9	.697	Questionable
Emotional Engagement	4	.341	Unacceptable
Cognitive Engagement	5	.448	Poor
Academic Engagement (Overall)	18	.756	Acceptable

Data Analysis

After the questionnaires were collected and screened, the data were organized and analyzed using SPSS. Descriptive statistics were used to summarize the respondents' characteristics and to examine the levels of instructional leadership and academic engagement: frequency and percentage described the demographic information, while mean and standard deviation determined the overall and dimensional levels of the main variables. Mean scores were interpreted using equal class intervals into five levels (4.50-5.00 = Highest, 3.50-4.49 = High, 2.50-3.49 = Moderate, 1.50-2.49 = Low, 1.00-1.49 = Lowest). Pearson correlation analysis examined the relationships among the variables. Multiple regression analysis was used to test the research hypotheses: overall student academic engagement was treated as the dependent variable, while the four dimensions of instructional leadership were entered as predictor variables. In addition, an exploratory factor analysis (EFA) was conducted on the 19 instructional-leadership items to examine the construct validity of the adapted instrument, as reported in the Research Instruments section. Harman’s single-factor test was further conducted to evaluate potential common-method bias. All scale items were subjected to an unrotated exploratory factor analysis constraining one single factor. The first extracted factor accounted for only 19.1% of total variance, well below the 50% threshold, indicating that serious common-method bias was not present within the dataset.The level of statistical significance was set at .05.

RESEARCH RESULTS

This section presents the findings of the study based on 400 valid questionnaires collected from full-time undergraduate students in Tai'an, Shandong Province, China. The results are reported in four parts: the demographic characteristics of the respondents, the descriptive statistics of the study variables, the correlation analysis, and the multiple regression analysis.

Respondents' Profiles and Studied Variables

Table 2 presents the demographic and academic characteristics of the 400 respondents. Of the total sample, 291 respondents (72.8%) were enrolled in public universities and 109 (27.3%) in private universities. Regarding academic discipline, the largest group was Social sciences (214 respondents, 53.5%), followed by Humanities (144 respondents, 36.0%) and Science/Engineering/Medicine (STEM; 42 respondents, 10.5%). The respondents were distributed across year levels as follows: 71 (17.8%) in year 1, 109 (27.3%) in year 2, 119 (29.8%) in year 3, 76 (19.0%) in year 4, and 25 (6.3%) in the 'Other' year-level option. In terms of gender, 179 respondents (44.8%) were male and 221 (55.3%) were female.

Table 2 Demographic Characteristics of the Respondents (N = 400)

Characteristic	Category	Frequency (n)	Percentage (%)
University Type	Public	291	72.8
	Private	109	27.3
Discipline	Humanities	144	36.0
	Social sciences	214	53.5
	Science/Engineering/Medicine (STEM)	42	10.5
Year of Study	Year1	71	17.8
	Year2	109	27.3
	Year3	119	29.8
	Year4	76	19.0
	Other	25	6.3
Gender	Male	179	44.8
	Female	221	55.3
Total		400	100.0

Levels of Instructional Leadership and Academic Engagement

Table 3 presents the descriptive statistics for instructional leadership and academic engagement. Overall instructional leadership was perceived at a high level (M = 3.64, S.D. = 0.62). Among the four dimensions, Clear Academic Expectations received the highest rating (M = 3.69, S.D. = 0.76), followed by Classroom Teaching Management (M = 3.66, S.D. = 0.74), Supportive Classroom Climate (M = 3.60, S.D. = 0.79), and Learning Feedback and Academic Support (M = 3.60, S.D. = 0.78). This ordering indicates that students perceived the clarification of academic expectations most favourably, while feedback, academic support, and classroom climate were the dimensions most in need of improvement.

Students' overall academic engagement was at a moderate level (M = 3.47, S.D. = 0.55). Among the three dimensions, Behavioral Engagement was rated highest (M = 3.53, S.D. = 0.65) at a high level, followed by Emotional Engagement (M = 3.45, S.D. = 0.67) and Cognitive Engagement (M = 3.37, S.D. = 0.72), both at a moderate level. The relatively lower scores for emotional and cognitive engagement suggest that students were less likely to report sustained emotional involvement, deep processing, and strategic learning than observable participation.

Table 3 Mean, Standard Deviation, and Interpretation of Related Variables (N = 400)

Variable	M	S.D.	Min	Max	Interpretation
Clear Academic Expectations	3.69	0.76	1.20	5.00	High
Classroom Teaching Management	3.66	0.74	1.17	5.00	High
Learning Feedback and Academic Support	3.60	0.78	1.00	5.00	High
Supportive Classroom Climate	3.60	0.79	1.25	5.00	High
Instructional Leadership (Overall)	3.64	0.62	1.47	4.95	High
Behavioral Engagement	3.53	0.65	1.22	5.00	High
Emotional Engagement	3.45	0.67	1.50	5.00	Moderate
Cognitive Engagement	3.37	0.72	1.20	5.00	Moderate
Academic Engagement (Overall)	3.47	0.55	1.61	4.78	Moderate

Note: Items 1-4 are dimensions of Instructional Leadership; Items 5-7 are dimensions of Academic Engagement. Mean scores were interpreted using equal class intervals: 4.50-5.00 = Highest, 3.50-4.49 = High, 2.50-3.49 = Moderate, 1.50-2.49 = Low, 1.00-1.49 = Lowest.

Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships among the four dimensions of instructional leadership and students' overall academic engagement. As shown in Table 4, all four dimensions were significantly and positively correlated with overall academic engagement at the .001 level. Classroom Teaching Management showed the strongest correlation ($r = .681$, $p < .001$), followed by Clear Academic Expectations ($r = .667$, $p < .001$), Supportive Classroom Climate ($r = .646$, $p < .001$), and Learning Feedback and Academic Support ($r = .575$, $p < .001$). Overall instructional leadership was also significantly correlated with overall academic engagement ($r = .799$, $p < .001$). These results provide initial support for the hypothesised relationships and justify the use of multiple regression analysis to examine the separate contribution of each dimension.

Table 4 Pearson Correlation Matrix (**p < .001, two-tailed)

Variable	X1	X2	X3	X4	IL	AE
X1 Clear Academic Expectations	1.000					
X2 Classroom Teaching Mgmt	.611**	1.000				
X3 Feedback and Academic Support	.557**	.508**	1.000			
X4 Supportive Classroom Climate	.512**	.518**	.486**	1.000		
IL Instructional Leadership (Overall)	.839**	.849**	.769**	.759**	1.000	
AE Academic Engagement (Overall)	.667**	.681**	.575**	.646**	.799**	1.000

Multiple Regression Analysis

Two regression models were estimated to test the research hypotheses. The first model examined the effect of overall instructional leadership on overall academic engagement, corresponding to H1. The second model examined the separate contribution of the four dimensions, corresponding to H2.

For Model 1, the results show that overall instructional leadership has a significant positive effect on students' academic engagement ($B = 0.707$, S.E. = 0.027, $\beta = .799$, $t = 26.49$, $p < .001$). The model was statistically significant, $F(1, 398) = 701.65$, $p < .001$, and explained 63.8% of the variance in academic engagement ($R^2 = .638$, Adjusted $R^2 = .637$). H1 is therefore supported. The unstandardised coefficient indicates that each one-unit increase in perceived instructional leadership is associated with an increase of 0.707 units in academic engagement.

For Model 2, in which the four dimensions were entered simultaneously as predictors, the model was statistically significant, $F(4, 395) = 178.74$, $p < .001$, and explained 64.4% of the variance in academic engagement ($R^2 = .644$, Adjusted $R^2 = .641$). All four dimensions were positive and statistically significant predictors of academic engagement. Classroom Teaching Management was the strongest predictor ($B = 0.225$, $\beta = .305$, $t = 7.53$, $p < .001$), followed by Supportive Classroom Climate ($B = 0.201$, $\beta = .291$, $t = 7.74$, $p < .001$), Clear Academic Expectations ($B = 0.185$, $\beta = .256$, $t = 6.16$, $p < .001$), and Learning Feedback and Academic Support ($B = 0.095$, $\beta = .136$, $t = 3.54$, $p < .001$). The variance inflation factors for all predictors ranged from 1.57 to 1.91, well below the conventional threshold of 5, indicating that multicollinearity was not a concern, and the positive regression weights were consistent in direction with their bivariate correlations ($r = .575$-$.681$), so there was no indication of a suppression effect. H2 is therefore fully supported: all four components of instructional leadership significantly affect students' academic engagement.

Table 5 Standardized Estimates, Unstandardized Estimates, Standard Errors, t-values, and p-values (Model 2)

Predictor	B	S.E.	β	t	p
(Constant)	0.895	0.098	—	9.12	<.001
Clear Academic Expectations	0.185	0.030	.256	6.16	<.001
Classroom Teaching Management	0.225	0.030	.305	7.53	<.001
Learning Feedback and Academic Support	0.095	0.027	.136	3.54	<.001
Supportive Classroom Climate	0.201	0.026	.291	7.74	<.001

$R^2 = .644$, Adjusted $R^2 = .641$, $F(4, 395) = 178.74$, $p < .001$

Note: B = unstandardized estimate, S.E. = standard error, β = standardized estimate, t = t-value, p = p-value. *** indicates statistical significance at $p < .001$.

In addition to the analysis of overall engagement, separate regression models were estimated for the three engagement dimensions. The results show that all four instructional-leadership dimensions were significant predictors of behavioral engagement (β = .252, .263, .140, and .284 for Clear Academic Expectations, Classroom Teaching Management, Learning Feedback and Academic Support, and Supportive Classroom Climate respectively, all $p \leq .001$; $R^2 = .580$), with Supportive Classroom Climate the strongest predictor of the behavioral dimension. For emotional engagement ($R^2 = .182$), Classroom Teaching Management (β = .182, p = .003), Clear Academic Expectations (β = .179, p = .005), and Supportive Classroom Climate (β = .138, p = .016) were significant, whereas Learning Feedback and Academic Support was not (β = .015, p = .801). For cognitive engagement ($R^2 = .402$), all four dimensions were significant, with Classroom Teaching Management the strongest predictor (β = .268, $p < .001$), followed by Supportive Classroom Climate (β = .229, $p < .001$), Clear Academic Expectations (β = .154, p = .005), and Learning Feedback and Academic Support (β = .131, p = .009).

It should be noted that the sub-scales measuring emotional engagement and cognitive engagement exhibited relatively low internal consistency (α = .341 and α = .448, respectively). Therefore, the regression results predicting these two engagement sub-dimensions should be interpreted with caution, given their limited reliability.

DISCUSSION & CONCLUSION

The findings of this study indicate that instructional leadership, as perceived directly by university students, has a significant positive influence on their academic engagement. Overall instructional leadership explained 63.8% of the variance in engagement (β = .799, $p < .001$), a substantial effect that is consistent with prior research emphasizing the benefits of teaching-focused leadership (Robinson et al., 2008; Zeng & Jiang, 2026) and with recent systematic evidence that perceived teacher support is consistently associated with student engagement in higher education (Prananto et al., 2025). The strength of this association confirms that classroom-level instructional leadership is a powerful predictor of how students participate in, feel about, and think about their learning.

Contrary to the initial expectation that expectations and feedback would dominate, all four dimensions contributed uniquely to engagement, and Classroom Teaching Management emerged as the strongest predictor (β = .305), followed by Supportive Classroom Climate (β = .291) and Clear Academic Expectations (β = .256), with Learning Feedback and Academic Support making a smaller but still significant contribution (β = .136). A plausible interpretation is that the day-to-day organisation of classroom teaching—efficient use of class time, appropriate teaching methods, smooth pacing, and orderly classroom discipline—is the most proximal and most frequently experienced signal of teaching quality that students perceive; when class time is well used and the lesson is easy to follow, students find it easier to participate behaviourally and to invest cognitive effort. The strong contribution of a supportive and

respectful classroom climate is consistent with the view that students engage more readily when they feel respected, fairly treated, and accepted as members of a learning community. Clear academic expectations also mattered: when students understand what they are expected to learn and what standard of work is required, they are better able to direct their effort effectively, which supports both their behavioral participation and their cognitive investment. This finding is consistent with goal-setting reasoning and with the emphasis placed on clear academic direction in the instructional leadership literature.

The dimension-specific analyses further clarify these patterns. For behavioral engagement, all four dimensions were significant, with Supportive Classroom Climate the strongest predictor ($\beta = .284$), suggesting that a respectful and fair classroom environment is particularly conducive to attendance, attention, and participation. For cognitive engagement, Classroom Teaching Management was the strongest predictor ($\beta = .268$), indicating that well-organised, well-paced teaching supports deep processing and strategic learning. For emotional engagement, the model explained a smaller proportion of variance ($R^2 = .182$), and Classroom Teaching Management ($\beta = .182$) and Clear Academic Expectations ($\beta = .179$) were the significant predictors, whereas Learning Feedback and Academic Support was not ($\beta = .015$, $p = .801$). The weak performance of the feedback dimension—mirroring its low subscale reliability ($\alpha = .480$)—suggests that the feedback items as currently worded may not capture the emotional quality of teacher support, and that students' emotional engagement may depend more on how teaching is organised than on feedback per se.

The study extends the application of instructional leadership from traditional school-leadership settings to the university teaching context. By measuring four dimensions simultaneously and estimating their separate influences within a single regression model, the study identifies which dimensions matter most for engagement—an identification that global measures cannot provide. In practical terms, the findings suggest that universities seeking to improve students' engagement should give priority to improving the quality of classroom teaching management and the supportive climate of the classroom, while continuing to strengthen the clarity of academic expectations and feedback and academic support, since all four practices were significantly associated with students' behavioral, emotional, and cognitive investment in learning.

The study also acknowledges certain limitations. The influence examined is statistical rather than experimental, and the regression coefficients indicate associations rather than causal effects. Because both the independent and dependent variables were collected through the same questionnaire, common method variance is a possibility. In addition, although the construct validity of the adapted instrument was supported by an exploratory factor analysis, the four-factor solution explained a modest 39.3% of the cumulative variance, only three factors had eigenvalues greater than 1, and several subscales fell below the conventional .70 reliability criterion (most notably Emotional Engagement, $\alpha = .180$, and Learning Feedback and Academic Support, $\alpha = .480$); future studies should therefore refine the item pool and confirm the four-dimension structure with confirmatory factor analysis using an independent sample.The proportion of variance explained for emotional engagement was also comparatively low ($R^2 = .182$), indicating that other factors, including students' individual characteristics and institutional conditions, contribute to this dimension. The study was conducted in a specific regional context, and generalization to other settings should be made with caution.

Recommendations

Based on the findings of this study, the following recommendations are proposed.

1) University teachers should give explicit attention to the organisation and management of classroom teaching—efficient use of class time, appropriate teaching methods, reasonable

pacing, and orderly classroom discipline—since classroom teaching management was the strongest predictor of students' engagement.
2) Universities should support teachers in building respectful, fair, and supportive classroom climates, as this dimension was the strongest predictor of behavioral engagement and the second strongest predictor of overall engagement.
3) Teachers should continue to communicate learning objectives, performance standards, and evaluation criteria clearly at the course level, and to maintain structured feedback mechanisms such as regular formative feedback, individualized academic guidance, and accessible support channels, since clear expectations and feedback were both significant predictors of engagement; the feedback dimension, however, should be delivered with attention to its emotional quality, and its measurement in future studies should be refined.
4) Future studies should examine mediating variables, such as students' psychological need satisfaction and academic self-efficacy, and moderating variables such as discipline and year of study, in order to explain how instructional leadership operates. Longitudinal designs would also help to establish whether these relationships persist over time. Future instrument development should revise the low-reliability subscales and re-examine the factor structure with confirmatory factor analysis.

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