RESEARCH ARTICLE

Empowering engagement: The mediating role of academic selfefficacy in the link between teacher support and internship success among Wenzhou's application-oriented university interns

Yiru Jiang¹, Bity Salwana Alias^{2,*}, Mohamed Yusoff Mohd Nor³, Mohd Rashid Bin Ab Hamid⁴, Bo Li^{5,*}

¹ Faculty of Education, Universiti Kebangsaan Malaysia (UKM), Selangor, 43600, Malaysia

- ² Centre of Leadership and Educational Policy, Faculty of Education, Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, 43600, Malaysia
- ³ Faculty of Education, Universiti Kebangsaan Malaysia (UKM), Bangi, Selangor, 43600, Malaysia
- ⁴ Centre for Mathematical Science, Universiti Malaysia Pahang al-Sultan Abdullah, Persiaran Tun Khalil Yaakob, Gambang, Kuantan, Pahang, 26300, Malaysia

⁵ Department of Human Resources, Wenzhou University of Technology, Wenzhou City, Zhejiang Province, 325000, China

* Corresponding author: Bity Salwana Alias, bity@ukm.edu.my; Bo Li, autumnlibo@gmail.com

ABSTRACT

This study investigates the relationship between teacher support, academic self-efficacy, and internship attendance in a cohort of application-oriented university interns in Wenzhou, China. With a quantitative research design, data were collected from 152 interns by means of online surveys employing validated instruments to measure the three variables under study. Using the application of multiple regression and bootstrap methods, findings indicated that teacher support was a predictor of internship participation ($\beta = 0.485$, p < 0.01), and academic self-efficacy was a partial mediator for this context (indirect effect $\beta = 0.204$, 95% CI [0.119, 0.338]). The findings suggest that the construction of strong support mechanisms for instructors, as well as the development of students' academic self-efficacy, can enhance internship results in higher education settings where practical applications are emphasized. Institutions of higher learning ought to implement specific strategies aimed at creating these factors in a bid to enhance the quality and effectiveness of their internship programs.

Keywords: teacher support; academic self-efficacy; internship engagement; application-oriented university

1. Introduction

The paramount significance of education in the contemporary world is firmly established; it is strongly viewed as a cornerstone driving force to socially sustainable development²⁶. Education is the most essential requirement for development through enhancing the capabilities of the individual and supporting national development⁶⁴. Higher education is indispensable in developing higher-level and modern skills in the general

CITATION

Jiang YR, Alias BS, Hamid MRBA, et.al. Empowering engagement: The mediating role of academic self-efficacy in the link between teacher support and internship success among Wenzhou's application-oriented university interns. *Environment and social Psychology* 2025; 10(5): 3659. doi:10.59429/ESP.v10i5.3659

COPYRIGHT

Copyright © 2025 by author(s). *Environment and Social Psychology* is published by Arts and Science Press Pte. Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), permitting distribution and reproduction in any medium, provided the original work is cited.

ARTICLE INFO

Received: 22 April 2025 | Accepted: 27 April 2025 | Available online: 25 May 2025

education framework²⁰. With continued social development, there has been increased need for excellent, high-end talent²⁵. Through this system, application-oriented universities have developed into a significant component of China's higher education system, embodying a crucial element of high-level education and a major characteristic of pluralistic higher education (Ling et al. 2023). The development of application-oriented universities in China is a reflection of a nascent worldwide trend that values professionalism, expertise, and technological innovation⁷².

Internships pursued by students have become an indispensable component of training in China's application-based universities, providing a key channel for students to convert theoretical learning into practical environments and gain applicable competencies. Many studies highlight the significance of internships as an imperative link between theoretical acquisition and experiential learning and hence the development of students' skill set, employability, and preparedness for their future careers^{8,11,21,31}. According to some scholars, the development of academic performance and attainment within the learning environment is paramount^{13,40}. Internships at application-oriented universities are thus seen as essential in cultivating students' practical abilities effectively.

Despite the recognized value of internships, many Chinese college students exhibit a lukewarm attitude towards participation, resulting in low engagement levels⁷⁴. Nhia and My Duyan (2018) highlighted that active participation during internships is critical for both personal and professional growth, yet it remains underexplored. Kuh (2009b)³⁴ suggested that student engagement could serve as a proxy for the quality of learning. In higher education, the term 'learning engagement' is often used interchangeably with 'academic success' and 'effective learning' ⁶³. Guo et al.²³ emphasized that learning engagement is a significant predictor of academic success, noting a robust correlation between students' engagement, academic achievement, skill development, and overall satisfaction with learning.

Given this context, there is a pressing need for research focused on enhancing the internship engagement of students at application-oriented universities. While previous research has extensively explored learning engagement and its influencing variables within campus settings^{36,44}, there is a notable gap in understanding the factors that affect engagement during internships. Previous research has established that teacher support, as one type of social support, is positively linked to students' learning engagement^{41,47,48} and does this through the mediating role played by academic self-efficacy^{28,38,45,49}. Still, the interaction among these variables within the setting of internships in practical universities is not sufficiently investigated yet, causing a considerable lacuna in the research literature.

The objective of this study is to address this gap by developing and empirically evaluating a model that examines the relationships between teacher support, academic self-efficacy, and internship engagement for university interns enrolled in practice-based programs. The results are expected to have both theoretical implications and practical suggestions, thereby contributing to an understanding of internship engagement and providing feasible proposals for improving students' employability and skill development in application-oriented universities. There are various noteworthy contributions of the study to the literature. This research continues the utility of Self-Determination Theory in the precise context of internship participation at application-type universities, a space that has remained relatively underresearched despite increasing relevance to China's higher education. It examines systematically the mediating function of academic self-efficacy in the relation between teacher support and internship participation, thereby adding a finer grasp of the mechanisms underlying teacher-student interaction impact on professional development results. This study targets application-oriented universities in Wenzhou, adding useful knowledge to an important but often overlooked aspect of China's higher education sector that is increasingly vital to the nation's economic

and workforce development initiatives. The results introduce actionable suggestions for educators and administrators who aim to improve internship experience and outcomes, thereby potentially shaping institutional policy and pedagogical practice in application-oriented higher education. Collectively, these contributions enhance theoretical insight and applied practice within the field and make this research highly significant for scholars and practitioners dedicated to facilitating the transition between academic education and occupational practice.

2. Literature review

2.1. Learning engagement: Concept and significance

In educational research, learning engagement has been recognized as one of the key factors to improve not only the overall quality of students but also the overall quality of education. Learning engagement can be understood in terms of the degree to which undergraduate students participate in different learning activities, devoting time and effort to learning experiences offered by their institution³⁴. Student engagement is now identified as being a fundamental element of university students' academic success and as a key determinant of the overall quality of the education institution³³.

Earlier research has consistently demonstrated the significant contribution of learning engagement as a predictor of students' academic outcomes and subsequent career success. For instance, engagement in learning is a reasonable predictor of the immediate academic performance of students³² and even has longterm predictive validity, influencing graduation, career, and professional achievement a decade after⁰. The critical role of learning engagement in the development of students is also determined through research focusing on its vitality as the primary predictor of academic performance, skills acquisition, and overall satisfaction with learning23. In higher education, "learning engagement" has been increasingly linked with "academic achievement" and "effective learning" ⁶³. Recent research has attended to the dynamic nature of learning engagement in contemporary learning settings. Guo and Wang²⁴ explored the impact of artificial intelligence-based tools on the academic engagement of EFL learners and concluded that AI-supported learning environments have noteworthy impacts on both the behavioral and affective dimensions of engagement. Their mixed-methods study showed that, if well-integrated, AI tools have the potential to enhance student engagement through individualized learning experiences and instant feedback systems. Wang et al.⁶⁷ also investigated the complex interaction between learning climate, AI literacy, and student resilience in developing learning engagement in AI-supported Chinese EFL classrooms. In accordance with their research, technology integration, rooted in good learning climate and appropriate digital literacy, can strongly support learning engagement for students of diverse groups. The present research calls attention to the fact that the concept of engagement evolves in keeping with technological advancement and shifts in learning designs, yet never loses its intrinsic worth to learning and academic success.

In conclusion, student engagement in their learning activities is inherently connected with the academic achievement of university students and is core to higher education institutions' educational attainment. Such a principle is viewed as an almost sacrosanct academic tenet, as argued by Zepke⁷⁸, constituting a common and traditional belief among academics. Because of the significant difference which the learning engagement makes in the performance of the students, it matters to evaluate its relevance in the context of internships for college students pursuing application-oriented learning, as this learning is likely to affect internship performance as well as overall academic success.

2.2. The relationship between teacher support and learning engagement

The investigation of the multitude of factors influencing students' learning engagement in order to enhance education quality and stimulate academic development remains a central issue in both psychological and educational research. Learning engagement is defined as a person's persistent, positive psychological state during the learning process, characterized by three key dimensions: energy, commitment, and concentration⁵⁸. Bronfenbrenner's ecological model proposes that school, being a part of the microsystem, plays an important role in the development of students, in addition to the home environment⁶.

Within this school microsystem, teachers' perceived support is a fundamental element in defining students' self-esteem, learning quality, behavior, and attitudes⁵. This aspect is frequently explored as a primary social relation structure of the school setting and is defined by the extent of trust that the student has in the values of teachers and in the quality of the interpersonal relationships that they establish with them^{52,35}.

There are several empirical investigations that corroborated this relation. For instance, it has been revealed through research that the quality of teachers' academic and social support largely dictates the learning behaviors of students^{41,47}. In one particular study with 384 English as a Foreign Language (EFL) learners, it was found that teacher support positively and directly predicts learning engagement⁵⁴. Moreover, a structural equation modeling study of 615 Chinese college students learning English online showed that social support, both from peers and teachers, was a strong predictor of students' cognitive, emotional, and social engagement in learnin³⁹.

Based on this background, it can be expected that teacher support may have positive and direct impacts on internship involvement in internship-based universities.

2.3. Mediating role of academic self-efficacy

Self-Determination Theory (SDT) holds that the dynamic interaction of individuals and their environment promotes intrinsic motivation, along with extrinsic and amotivational⁵³. It was demonstrated that teachers' perceived support actually strengthens personal self-efficacy⁵⁹ and internal and external motivation in students¹².

Academic self-efficacy refers to an individual's belief in their ability to successfully complete specific learning tasks³. Longitudinal research has demonstrated that teacher support can predict students' academic self-efficacy over time, fostering learning enjoyment, self-efficacy, and engagement when students perceive positive emotional support from their teachers^{29,38}.

Academic self-efficacy has been identified as a significant proximal determinant of learning engagement¹⁹. Students with high self-efficacy are expected to put more effort into learning, have a positive and optimistic attitude and confidence in the presence of barriers, and effectively deal with barriers, hence enhancing learning engagement^{42,71}. Scholarly studies consistently demonstrate that high levels of academic self-efficacy are indicative of more learning engagement^{58,56}. Moreover, empirical studies identify a significant relationship between academic self-efficacy, academic engagement, and academic performance, with self-efficacy being a key predictor of engagement⁴³.

Following this debate, it can be argued that academic self-efficacy serves as a mediator between perceived teacher support and learning engagement. The mediating influence is backed by empirical findings based on educational settings. For instance, a sample of 869 Chinese elementary school students showed that teachers' perceived support directly and significantly affected three aspects of math engagement, and academic self-efficacy had a mediating influence on the effect³⁸. In addition, a test of structural equation modeling on 492 college students revealed that teacher autonomy support significantly affected students' online learning engagement, and self-efficacy acted as a mediating variable⁴⁵.

In conclusion, it is hypothesized that teacher support indirectly impacts internship participation through academic self-efficacy in application-based university interns, and academic self-efficacy mediates teacher support on internship participation.List can be presented with each item indicated by bullets and numbers.

2.4. Research questions

This study aims to address the following research questions:

RQ1: Does teacher support positively influence internship engagement among application-oriented university interns in Wenzhou, China?

RQ2: Does academic self-efficacy mediate the relationship between teacher support and internship engagement among these interns?

2.5. Research model

Drawing on established theoretical frameworks and empirical literature, this study proposes a conceptual model to examine the relationships between teacher support, academic self-efficacy, and internship engagement among interns at application-oriented universities. The proposed model is illustrated in **Figure 1**.



Figure 1. Research model.

2.6. Research hypotheses

Based on the theoretical underpinnings and previous studies, the following hypotheses are proposed:

H1: Teacher support positively influences internship engagement among interns at application-oriented universities in Wenzhou, China.

H2: Academic self-efficacy mediates the relationship between teacher support and internship engagement among interns at application-oriented universities in Wenzhou, China.

3. Methodology

3.1. Research design

This study employed a quantitative research approach using a correlational design to examine the relationships between teacher support, academic self-efficacy, and internship engagement. The mediation model was tested to investigate both direct and indirect effects among the variables of interest. This design was appropriate for examining the complex relationships between the predictor variable (teacher support), the mediator variable (academic self-efficacy), and the outcome variable (internship engagement).

3.2. Participants

The study recruited interns from five application-oriented universities in Wenzhou, China, using an online sampling technique.Specific inclusion criteria were established to ensure the recruitment of

appropriate participants for this study. To be eligible, individuals needed to: (1) be officially enrolled students at one of the five selected application-oriented universities in Wenzhou; (2) be actively participating in an internship program at the time of data collection or have completed an internship within the previous three months; (3) have experienced at least eight weeks of internship to ensure sufficient exposure to the internship environment; and (4) have regular interaction with supervising teachers from their university during the internship period. These criteria ensured that participants had adequate experience with both internship engagement and teacher support to provide relevant responses. Students who did not meet all four criteria were excluded from the analysis. The recruitment process adhered to ethical guidelines, with participation being entirely voluntary and confidential. A convenience sampling approach was utilized, resulting in a total of 152 participants. The demographic characteristics of the participants are presented in **Table 1**, including gender distribution (47.37% males, N = 72; 52.63% females, N = 80), place of origin (40.13% rural, N = 61; 59.87% urban, N = 91), and various subject areas of study such as Engineering (13.82%, N = 21), Business (17.76%, N = 27), and Information Technology (19.08%, N = 29). Additionally, 63.16% (N = 96) of participants were from public colleges, while 36.84% (N = 56) were from private institutions.

3.3. Instruments

The study adapted established scales from previous research to measure the three key variables, utilizing a 5-point Likert scale for all items, ranging from 1 (strongly disagree) to 5 (strongly agree).

3.3.1. Teacher support

The measure for teacher support was based on the questionnaire by Chi⁹, which draws on the work of Belmont et al. ⁴ and Skinner and Belmont⁶¹. The items were revised to reflect the internship context for application-oriented university students. The questionnaire consists of 11 items across three dimensions: Autonomy Support (5 items), Emotional Support (4 items), and Competency Support (3 items). Examples of items are: "My supervisor provides a lot of options for how to organize my internship work" (Autonomy Support), "My supervisor cares about me as a person" (Emotional Support), and "My supervisor helps me learn to solve problems independently" (Competency Support).

3.3.2. Academic self-efficacy

Academic self-efficacy was assessed using a scale adapted by Chi (2017)⁹ from Pintrich et al. (1993)⁵⁰ and Greene et al. (2004)²². This five-point scale was also modified to suit the setting of the internship for application-based university students. Some of the sample items on this scale are: "I have confidence in my ability to learn the most difficult material presented under my internship" and "I am confident that I can master the skills being taught under my internship."

3.3.3. Internship engagement

Internship experience was measured using the Yao and Zhang (2021)⁷⁴ scale. The scale has 21 items across four dimensions: Emotional Engagement with 6 items; Effort Quality with 7 items; Psychological Adjustment with 5 items; and Colleague Interaction with 3 items. Salient items include: "I feel excited when engaging in internship activities" (Emotional Engagement), "I exert my best effort in the performance of internship tasks" (Effort Quality), "I am able to adjust easily to new working conditions in my internship" (Psychological Adjustment), and "I actively interact with colleagues in my internship" (Colleague Interaction).

3.4. Data collection

QR codes and survey links were posted on the WeChat application and social media groups utilized by the university classes for easy access to the questionnaire. The participants had the freedom to respond to the questionnaire at their convenience, and most of them spent more than 10 minutes responding. All participants were informed of the aims of the study and gave their consent prior to filling in the survey. Data was collected in the 2023-2024 academic year.

3.5. Data analysis

Statistical analysis of the collected data from 152 interns was conducted using SPSS 26.0. The analysis included several steps: (1) examination of demographic information using descriptive statistics; (2) assessment of the normality of data distribution through kurtosis and skewness coefficients; (3) evaluation of the reliability and validity of the measurement instruments using Cronbach's alpha and exploratory factor analysis, respectively; (4) examination of the relationships among variables through correlation analysis; (5) testing of the direct effect of teacher support on internship engagement using regression analysis; and (6) investigation of the mediating effect of academic self-efficacy through bootstrap analysis with 5000 resamples using the PROCESS macro (Model 4) in SPSS.

4. Results

4.1. Demographic information

Data analysis was performed on all 152 interns who completed the survey. **Table 1** provides detailed demographic information. For instance, the gender distribution of the sample included 47.37% males (N = 72) and 52.63% females (N = 80). In terms of place of origin, 40.13% (N = 61) of the participants were from rural areas, while 59.87% (N = 91) were from urban areas.

Items	Options	Ν	%	Accumulative percentage(%)
Candan	Male	72	47.37	47.37
Gender	Female	N % 72 47.37 80 52.63 61 40.13 91 59.87 21 13.82 27 17.76 n 16 10.53 Health 10 6.58 ic Administration 22 14.47 Technology 29 19.08 Humanities 15 9.87 & Ecological Environment 12 7.89 ge 96 63.16 ege 56 36.84 onstruction of applied undergraduate 52 34.21 lied undergraduate university 100 65.79	100.00	
Place of origin	Rural	61	40.13	40.13
Place of origin	Urban	91	59.87	100.00
	Engineering	21	13.82	13.82
	Business	27	17.76	31.58
Subject	Art & Design	16	10.53	42.11
	Medicine & Health	10	6.58	48.68
	Law & Public Administration	22	14.47	63.16
	Information Technology	29	19.08	82.24
	Education & Humanities	15	9.87	92.11
	Agriculture & Ecological Environment	12	7.89	100.00
TTI (C(1 1 1	Public college	96	63.16	63.16
The nature of the school	Private college	56	36.84	100.00
School level	High-level construction of applied undergraduate university	52	34.21	34.21
	General applied undergraduate university	100	65.79	100.00
Total		152	100.0	100.0

4.2. Normal distribution test

In this study, the central tendency and dispersion of the sample data were assessed using the mean and standard deviation. The normality of the sample data was evaluated through the kurtosis and skewness coefficients. The overall characteristics of the sample data (N = 152) indicate that the scores for all scale items exceeded the mean value of 3, indicating a generally positive response across the sample. Additionally, the kurtosis and skewness coefficients for each item were found to be within acceptable ranges, confirming that the data exhibit normal distribution characteristics.

Items	Min	Max	Mean	Std. Deviation	Kurtosis	Skewness
Teacher support 1	1	5	3.572	1.29	-0.68	-0.641
Teacher support 2	1	5	3.566	1.259	-0.615	-0.605
Teacher support 3	1	5	3.671	1.291	-0.672	-0.638
Teacher support 4	1	5	3.724	1.219	-0.219	-0.81
Teacher support 5	1	5	3.651	1.278	-0.359	-0.826
Teacher support 6	1	5	3.73	1.19	-0.067	-0.895
Teacher support 7	1	5	3.678	1.183	-0.446	-0.64
Teacher support 8	1	5	3.586	1.349	-0.644	-0.717
Teacher support 9	1	5	3.566	1.275	-0.629	-0.596
Teacher support 10	1	5	3.579	1.32	-0.687	-0.672
Teacher support 11	1	5	3.5	1.302	-0.753	-0.575
Academic self-efficacy 1	1	5	3.737	1.195	-0.176	-0.776
Academic self-efficacy 2	1	5	3.625	1.286	-0.647	-0.632
Academic self-efficacy 3	1	5	3.645	1.268	-0.514	-0.686
Academic self-efficacy 4	1	5	3.612	1.347	-0.521	-0.776
Academic self-efficacy 5	1	5	3.658	1.251	-0.258	-0.849
Internship engagement 1	1	5	3.803	1.196	0.061	-0.952
Internship engagement 2	1	5	3.697	1.261	-0.356	-0.776
Internship engagement 3	1	5	3.704	1.301	-0.463	-0.804
Internship engagement 4	1	5	3.757	1.196	-0.456	-0.718
Internship engagement 5	1	5	3.678	1.243	-0.375	-0.75
Internship engagement 6	1	5	3.664	1.162	-0.199	-0.753
Internship engagement 7	1	5	3.697	1.292	-0.337	-0.855
Internship engagement 8	1	5	3.697	1.229	-0.322	-0.791
Internship engagement 9	1	5	3.73	1.245	-0.31	-0.852
Internship engagement 10	1	5	3.651	1.225	-0.321	-0.751
Internship engagement 11	1	5	3.691	1.333	-0.59	-0.774
Internship engagement 12	1	5	3.691	1.235	-0.287	-0.8
Internship engagement 13	1	5	3.776	1.146	0.164	-0.887
Internship engagement 14	1	5	3.704	1.286	-0.457	-0.793
Internship engagement 15	1	5	3.671	1.2	-0.308	-0.76

Table 2. Descriptive ANALYSIS OF SCALE ITEMs.

$D_{11} V_{11} O_{11} $	Environment	and Social	Psychology	doi:	10.59429/esp	p.v10i5.365
--	-------------	------------	------------	------	--------------	-------------

Items	Min	Max	Mean	Std. Deviation	Kurtosis	Skewness
		1.1		Star 2 Criation	1141 00010	Sheviness
Internship engagement 16	1	5	3.73	1.116	0.12	-0.812
Internship engagement 17	1	5	3.803	1.151	-0.188	-0.82
Internship engagement 18	1	5	3.796	1.203	-0.048	-0.893
Internship engagement 19	1	5	3.711	1.264	-0.328	-0.813
Internship engagement 20	1	5	3.711	1.211	0.152	-0.969
Internship engagement 21	1	5	3.651	1.288	-0.418	-0.812

Table 2. (Continued)

4.3. Reliability analysis

Cronbach's alpha (α) was used to assess the internal consistency of the scales. A value above 0.7 was considered acceptable¹⁰. As shown in **Table 3**, the Cronbach's α coefficient for each variable exceeded 0.7, indicating high internal consistency and good reliability of the measurement instruments⁴⁶.

Items	CITC	Item deleted α coefficient	Cronbach α coefficient
Teacher support 1	0.769	0.933	
Teacher support 2	0.715	0.935	
Teacher support 3	0.759	0.933	
Teacher support 4	0.718	0.935	
Teacher support 5	0.766	0.933	
Teacher support 6	0.693	0.936	0.94
Teacher support 7	0.717	0.935	
Teacher support 8	0.719	0.935	
Teacher support 9	0.723	0.935	
Teacher support 10	0.75	0.933	
Teacher support 11	0.808	0.931	
Academic self-efficacy 1	0.697	0.847	
Academic self-efficacy 2	0.664	0.855	
Academic self-efficacy 3	0.704	0.845	0.873
Academic self-efficacy 4	0.71	0.844	
Academic self-efficacy 5	0.731	0.839	
Internship engagement 1	0.737	0.966	
Internship engagement 2	0.749	0.966	
Internship engagement 3	0.801	0.966	
Internship engagement 4	0.727	0.966	
Internship engagement 5	0.755	0.966	0.968
Internship engagement 6	0.733	0.966	
Internship engagement 7	0.79	0.966	
Internship engagement 8	0.774	0.966	
Internship engagement 9	0.809	0.966	

Table 3. Cronbach reliability analysis.

Environment and Social	Psychology	doi:	10.59429/esp	5.v10i5.36	559

Items	CITC	Item deleted a coefficient	Cronbach a coefficient
Internship engagement 10	0.742	0.966	
Internship engagement 11	0.829	0.965	
Internship engagement 12	0.776	0.966	
Internship engagement 13	0.665	0.967	
Internship engagement 14	0.742	0.966	
Internship engagement 15	0.766	0.966	
Internship engagement 16	0.706	0.967	
Internship engagement 17	0.735	0.966	
Internship engagement 18	0.736	0.966	
Internship engagement 19	0.775	0.966	
Internship engagement 20	0.697	0.967	
Internship engagement 21	0.781	0.966	

Table 3. (Continued)

4.4. Validity analysis

An exploratory factor analysis (EFA) was conducted to assess the construct validity of the scale. The Kaiser-Meyer-Olkin (KMO) value was 0.954, which is considered excellent, indicating that the sample size was adequate for factor analysis. Bartlett's test of sphericity was significant ($\chi^2 = 4167.549$, df = 666, p < 0.001), suggesting that the items were sufficiently correlated to proceed with factor extraction.

Table 4	. KMO	and	bartlett's	test.
---------	-------	-----	------------	-------

Kaiser-Meyer-Olkin Measure of San	npling Adequacy	0.954	
	Approx. Chi-Square (Non-parametric data)	4167.549	
Bartlett's Test of Sphericity	df	666	
	Significant Sig. (p-value)	0.000	

Three factors were extracted using principal component analysis. The factor loadings of items exceeded the recommended threshold of 0.4, indicating acceptable convergent validity. These factors corresponded to the three main variables in the study: teacher support, academic self-efficacy, and internship engagement. The cumulative variance explained was 62.62%, exceeding the 60% threshold and supporting the structural validity of the instrument.

Table 5.	Validity	analysis	results

Items	Factor load co	Commenciality			
items	Factor 1	Factor 2	Factor 3	- Commonanty	
Teacher support 1	0.105	0.803	0.143	0.676	
Teacher support 2	0.153	0.754	0.087	0.6	
Teacher support 3	0.242	0.761	0.127	0.653	
Teacher support 4	0.175	0.766	-0.009	0.617	
Teacher support 5	0.245	0.766	0.11	0.659	
Teacher support 6	0.192	0.726	0.046	0.565	
Teacher support 7	0.248	0.707	0.19	0.598	

	Factor load	~ *			
Items	Factor 1	Factor 2	Factor 3	 Commonality 	
Teacher support 8	0.191	0.72	0.203	0.596	
Teacher support 9	0.093	0.761	0.181	0.621	
Teacher support 10	0.285	0.743	0.087	0.642	
Teacher support 11	0.278	0.782	0.178	0.72	
Academic self-efficacy 1	0.337	0.222	0.69	0.638	
Academic self-efficacy 2	0.311	0.198	0.693	0.616	
Academic self-efficacy 3	0.261	0.24	0.737	0.668	
Academic self-efficacy 4	0.226	0.167	0.79	0.703	
Academic self-efficacy 5	0.386	0.082	0.74	0.704	
Internship engagement 1	0.718	0.122	0.246	0.591	
Internship engagement 2	0.733	0.171	0.189	0.603	
Internship engagement 3	0.768	0.197	0.226	0.679	
Internship engagement 4	0.691	0.169	0.266	0.576	
Internship engagement 5	0.71	0.211	0.248	0.611	
Internship engagement 6	0.724	0.182	0.14	0.578	
Internship engagement 7	0.782	0.188	0.133	0.665	
Internship engagement 8	0.755	0.171	0.198	0.638	
Internship engagement 9	0.822	0.207	0.042	0.721	
Internship engagement 10	0.735	0.166	0.149	0.59	
Internship engagement 11	0.767	0.239	0.292	0.731	
Internship engagement 12	0.73	0.187	0.278	0.645	
Internship engagement 13	0.656	0.159	0.168	0.484	
Internship engagement 14	0.723	0.227	0.146	0.596	
Internship engagement 15	0.733	0.251	0.167	0.629	
Internship engagement 16	0.722	0.109	0.125	0.549	
Internship engagement 17	0.717	0.172	0.191	0.58	
Internship engagement 18	0.746	0.159	0.106	0.593	
Internship engagement 19	0.746	0.204	0.192	0.635	
Internship engagement 20	0.67	0.18	0.215	0.528	
Internship engagement 21	0.762	0.295	0.068	0.673	
Characteristic root value (before rotation)	16.943	4.29	1.936	-	
Variance interpretation rate % (before rotation)	45.79%	11.60%	5.23%	-	
Cumulative variance interpretation rate % (before rotation)	45.79%	57.39%	62.62%	-	
Characteristic root value (after rotation)	12.304	7.217	3.648	-	
Variance interpretation rate % (after rotation)	33.25%	19.51%	9.86%	-	
Cumulative variance interpretation % (after rotation)	33.25%	52.76%	62.62%	-	

Environment and Social Psychology | doi: 10.59429/esp.v10i5.3659

4.5. Correlation analysisitem one

Pearson's correlation coefficient was calculated to examine the linear relationships among teacher support, academic self-efficacy, and internship engagement. As shown in **Table 6**, all three variables were positively and significantly correlated (p < 0.01). Specifically:

- Teacher support and internship engagement: r = 0.508
- Teacher support and academic self-efficacy: r = 0.446
- Academic self-efficacy and internship engagement: r = 0.610

These findings suggest strong and meaningful associations among the core constructs of the study.

	Mean	SD	Internship engagement	Teacher support	Academic self-efficacy	
Internship engagement	3.715	0.958	1			
Teacher support	3.620	1.002	0.508**	1		
Academic self-efficacy	3.655	1.035	0.610**	0.446**	1	

Table 6. Correlations between three variables.

4.6. Regression analysis

A multiple regression analysis was conducted to examine the extent to which teacher support and academic self-efficacy predict internship engagement. The results indicated that both teacher support ($\beta = 0.294$, p < 0.01) and academic self-efficacy ($\beta = 0.479$, p < 0.01) were significant predictors. The model explained 44.2% of the variance in internship engagement ($R^2 = 0.442$).

No issues of multicollinearity were found, as all variance inflation factor (VIF) values were below 5. The Durbin-Watson statistic was approximately 2, suggesting no autocorrelation in the residuals. These results provide support for the first hypothesis (H1).

	Non-standardized coefficient		Standardization coefficient			Collinearity diagnostics		
	В	Standard error	Beta	- 1	p	VIF	Tolerance	
Constant	1.075	0.253	-	4.243	0.000**	-	-	
Teacher support	0.281	0.065	0.294	4.302	0.000**	1.248	0.802	
Academic self-efficacy	0.444	0.063	0.479	7.005	0.000**	1.248	0.802	
R^{2}	0.442							
Adjusted R^2	0.434							
F	F (2, 149) =58.910, p=0.000							
D-W value	2.010							

Table 7. Results of the linear regression analysis.

Note. Dependent variable: Internship engagement; * p<0.05 ** p<0.01

4.7. Mediation analysis

This study tested a mediation model in which teacher support predicts internship engagement both directly and indirectly through academic self-efficacy. The analysis was conducted using the PROCESS macro (Model 4) in SPSS 26.0 with 5000 bootstrap resamples based on the actual sample of 152 interns. The mediation model is presented in **Figure 2**.



Figure 2. Mediation model.

As shown in **Table 8**, regression results indicate that teacher support significantly predicted both academic self-efficacy ($\beta = 0.460$, p < 0.01) and internship engagement ($\beta = 0.485$, p < 0.01). When both teacher support and academic self-efficacy were included in the model, both remained significant predictors of internship engagement ($\beta = 0.281$ and $\beta = 0.444$, respectively; both p < 0.01).

	Internship engagement (Model 1)	Academic self-efficacy (Model 2)	Internship engagement (Model 3)
Constant	1.958** (7.753)	1.991** (7.024)	1.075** (4.243)
Teacher support	0.485** (7.215)	0.460** (6.094)	0.281** (4.302)
Academic self-effica	су		0.444** (7.005)
Sample size	152	152	152
R^2	0.258	0.198	0.442
Adjusted R^2	0.253	0.193	0.434
F value	F (1, 150)=52.062, p=0.000	F (1, 150)=37.143, p=0.000	F (2, 149)=58.910, p=0.000

Note. * p < 0.05 * * p < 0.01, t value in parentheses

The bootstrapped indirect effect was $\beta = 0.204$ with a 95% confidence interval [0.119, 0.338], which did not include zero, indicating a statistically significant mediation. Since the direct effect remained significant, academic self-efficacy partially mediated the relationship between teacher support and internship engagement.

Table 9. Summary of the mediation effect test results.	

_	c	a	b	a*b	a*b	c'	– Testing conclusion
Item	Total effect			Intermedi ary effect	(95% Boot CI)	Direct effect	
Teacher support => Academic self-efficacy =>Internship engagement	0.485**	0.460**	0.444**	0.204	0.119 ~ 0.338	0.281**	Partially mediating effect

4.8. Hypotheses test

Based on the results from the regression and mediation analyses, both proposed hypotheses were supported. **Table 9** summarizes the outcomes of the hypothesis testing:

H1: Teacher support has a significant and positive effect on internship engagement. Supported

H2: Academic self-efficacy significantly mediates the relationship between teacher support and internship engagement. Supported

These findings highlight the importance of fostering both external support from educators and internal confidence in students to promote effective engagement in internship programs.

Hypotheses	Conclusions
H ₁ : Teacher support has a positive effect on internship engagement among applied undergraduate university interns in Wenzhou, China.	Valid
H ₂ : Academic self-efficacy has a mediating role between teacher support and internship engagement among applied undergraduate university interns in Wenzhou, China.	Valid

Table 10. Summary of hypotheses test.

5. Discussion

5.3. The positive effect of teacher support on internship engagement

This study found a significant positive relationship between teacher support and internship engagement among interns at application-oriented universities in Wenzhou. This supports previous findings that teacher support is a vital environmental resource influencing students' academic and behavioral engagement^[41,47]. The result aligns with the broader body of literature that recognizes the teacher-student relationship as a key determinant of learning motivation and commitment^[52].

Interns who perceive higher levels of support from their teachers tend to show greater levels of effort, emotional involvement, and psychological adjustment during their internships. This finding highlights the role of teachers not only as content deliverers but also as mentors and emotional supporters in students' professional socialization. The presence of teacher autonomy support, emotional encouragement, and competency-related feedback can positively shape students' attitudes and behaviors in real-world work settings, facilitating more meaningful internship engagement.

5.4. Mediating role of academic self-efficacy

The results also affirm the mediating function of academic self-efficacy within teacher support and internship participation settings. These findings are consistent with Bandura's Social Cognitive Theory, which contends that individuals' conviction of self-efficacy is an influential factor in their behavior, motivation, and resilience^[3]. Interns with high academic self-efficacy levels are likely to possess the belief that difficulties are surmountable, a belief in effort, and persistence even when faced with adversity^[19,42].

This mediation suggests that teacher support alone is not enough; its impact is most effective when it enhances students' belief in their own academic capabilities. Thus, academic self-efficacy acts as an internal driver that translates external support into actual engagement behaviors. This insight reinforces the need for educators to implement instructional strategies that build self-efficacy—such as mastery experiences, verbal encouragement, and modeling effective problem-solving.

These findings extend prior research by situating the teacher support–efficacy–engagement linkage in the context of internships, a setting where students are transitioning from structured academic environments to more ambiguous and dynamic professional roles. The study therefore contributes to a more holistic understanding of how support and self-beliefs interact to influence experiential learning outcomes.

5.5. Limitations and recommendations

Despite the contributions of this study, several limitations should be acknowledged. To begin with, the research design was cross-sectional and relied on self-reported data, which may be subject to common method bias and limits causal inference. Future studies could employ longitudinal or experimental designs to better establish the directionality of relationships.

The other limitation of the study is that the sample consisted of merely 152 interns from applicationoriented universities in Wenzhou, China. Although this gives valuable information about a particular educational context, findings may not be applicable to other kinds of institutions or locations. Future research studies ought to try to utilize larger as well as more varied samples to facilitate external validity.

Last, while this study focused on academic self-efficacy and teacher support, other variables of interest such as peer support, organizational climate, or internship structure were not considered. Future studies could incorporate a larger number of variables to develop a more holistic model of what affects internship participation.

With the above limitations in mind, some practical suggestions are made. Firstly, practitioners in education need to keep working on specific support interventions that target students' psychological wellbeing and professional preparedness. Some of these interventions may be personalized mentoring, psychosocial guidance, and formal feedback systems specifically designed for internship settings.

Second, policy-makers in higher education can provide for the inclusion of internship support structures in broader employability and talent development frameworks. Both teacher support and self-efficacy training may be embedded in internship planning and supervision in institutional policy.

Third, scholars are invited to investigate other mediating and moderating variables to inform the understanding of student engagement in internship settings. Peer influence, institutional climate, and internship structure are variables that may provide insight into enhancing engagement in a broad array of educational environments.

6. Conclusion

6.3. Summary of research findings

This research explored the interrelations among teacher support, academic self-efficacy, and internship engagement of interns in application-oriented universities in Wenzhou, China. According to constructing and examining a mediation model, the results indicated that teacher support directly and positively affected internship engagement, and the effect is partly mediated by academic self-efficacy.

The findings emphasize the significance of both external support from instructors and the learners' internal beliefs. When learners feel supported by their instructors and believe in their learning abilities, they are more likely to participate more intensely in internship activities. These findings give strength to theoretical models of learner engagement and practical interventions aimed at enhancing internship outcomes.

Last but not least, enhancing teacher support and cultivating academic self-efficacy should be looked at as basic strategies for boosting engagement in internships and eventually university alumni professional readiness.

6.4. Research limitations

In spite of the value of this research, it is necessary to recognize several limitations. First, the research was cross-sectional in nature and used self-report measures, which can be susceptible to common method bias and restrict causal inference. Future research would like to employ longitudinal or experimental designs to more accurately establish relationship directionality.

A further limitation is the small sample size of 152 interns from application-oriented universities in Wenzhou, China. Although the sample here gives useful information within one category of education system, the results may not be applicable to other types of institutions or locations. Larger and more varied samples should be attempted by subsequent studies in order to increase external validity.

Last, because this study focused on teacher support and academic self-efficacy, other possible variables such as peer support, organizational climate, or internship organization were not considered. Future studies could incorporate a broader range of variables to paint a more comprehensive portrait of what encourages internship involvement.

6.5. Future research directions

With the acknowledged limitations in mind, several directions for future research are promising. Longitudinal investigations following interns throughout their internship experience would offer stronger causal evidence between teacher support, academic self-efficacy, and internship participation. Such research designs would clarify the manner in which these relations develop over time, thereby offering greater insight into the dynamic quality of internship experiences.

Expansion of inquiry to other third-level institutions and regions would enhance generalizability of findings as well as reveal contextual variables that can influence the findings. Culture-based comparisons are particularly valuable in offering information about educational and cultural contexts in shaping internship experience and outcomes.

The examination of additional mediating and moderating variables is a promising direction for future research aimed at more fully informing our understanding of student engagement in internship settings. A peer influence, organizational climate, and structural design of internship consideration may provide valuable insight with the ability to inform engagement in a number of educational settings.

The utilization of mixed-methods designs that blend quantitative measurement with qualitative data coming from focus groups or interviews would provide a clearer image of how teacher support influences academic self-efficacy and engagement in internships. This methodological variation would provide insight into the experiences of interns while identifying particular teacher behaviors that play a large role in promoting student success in internship environments.

Conflict of interest

The authors declare no conflict of interest.

References

- 1. Alexander K.L., Entwisle D.R. & Horsey C.S. 1997. From first grade forward: Early foundations of high school dropout. Sociology of Education 70(2): 87–107.
- Anderman E.M. & Patrick H. 2012. Achievement goal theory, conceptualization of ability/intelligence, and classroom climate. In Christenson S.L., Reschly A.L. & Wylie C. (eds.). Handbook of Research on Student Engagement: 173–191. Springer US.
- 3. Bandura A. 1986. Social foundations of thought and action. Prentice Hall.
- 4. Belmont M., Skinner E., Wellborn J. & Connell J. 1988. Teacher as social context. University of Rochester.
- Bronfenbrenner U. 1977. Toward an experimental ecology of human development. American Psychologist 32(7): 513–531.
- 6. Bronfenbrenner U. & Evans G.W. 2000. Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. Social Development 9(1): 115–125.
- 7. Calamlam J.M. & Mokshein S.E. 2020. Belonging, being and becoming: Learning-to-teach during internship. Southeast Asia Early Childhood Journal 9(2): 166–180.
- Chen T.-L., Shen C.-C. & Gosling M. 2018. Does employability increase with internship satisfaction? Enhanced employability and internship satisfaction in a hospitality program. Journal of Hospitality, Leisure, Sport & Tourism Education 22: 88–99.
- 9. Chi X.L. 2017. A Study on the Effects of Teacher Support on College Student Engagement Based on Self-Determination Theory. Doctoral Dissertation. Tianjin University.
- 10. Cronbach L.J. 1951. Coefficient alpha and the internal structure of tests. Psychometrika 16(3): 297-334.

- 11. D'Abate C.P., Youndt M.A. & Wenzel K.E. 2009. Making the most of an internship: An empirical study of internship satisfaction. Academy of Management Learning & Education 8(4): 527–539.
- 12. Deci E.L. & Ryan R.M. 2004. Handbook of self-determination research. University Rochester Press.
- 13. Denissen J.J.A., Zarrett N.R. & Eccles J.S. 2007. I like to do it, I'm able, and I know I am: Longitudinal couplings between domain-specific achievement, self-concept, and interest. Child Development 78(2): 430–447.
- Din N.M., Ayub A.F.M. & Tarmizi R.A. 2016. Influence of parental involvement and peer support on mathematics engagement among Malaysian secondary school students. Malaysian Journal of Mathematical Sciences 10: 175– 185.
- Diseth Å., Danielsen A.G. & Samdal O. 2012. A path analysis of basic need support, self-efficacy, achievement goals, life satisfaction and academic achievement level among secondary school students. Educational Psychology 32(3): 335–354.
- Ferla J., Valcke M. & Schuyten G. 2010. Judgments of self-perceived academic competence and their differential impact on students' achievement motivation, learning approach, and academic performance. European Journal of Psychology of Education 25: 519–536.
- 17. Filak V.F. & Sheldon K.M. 2008. Teacher support, student motivation, student need satisfaction, and college teacher course evaluations: Testing a sequential path model. Educational Psychology 28(6): 711–724.
- Fisher E. 2017. Sharing student learning from individual internship experiences. In 2017 ASEE Annual Conference & Exposition. Columbus, Ohio, 24–28 June 2017.
- 19. Fredricks J.A., Blumenfeld P.C. & Paris A.H. 2004. School engagement: Potential of the concept, state of the evidence. Review of Educational Research 74(1): 59–109.
- Gao F. & Zhang P. 2020. Performance evaluation of industry-education integration in Applied Undergraduate University: An evidence from China. International Journal of Emerging Technologies in Learning (iJET) 15(23): 208–219.
- 21. Gourgiotou E. 2018. Trainee teachers' collaborative and reflective practicum in kindergarten classrooms in Greece: A case study approach. The Educational Review, USA 2(1): 117–128.
- 22. Greene B.A., Miller R.B., Crowson H.M., Duke B.L. & Akey K.L. 2004. Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. Contemporary Educational Psychology 29(4): 462–482.
- 23. Guo J.P., Liu G.Y. & Yang L.Y. 2021. An empirical study on internal and external dynamics of university student engagement based on SSMMD. Gao Jao Wen Zhai 10: 25–27, 45.
- Guo, Y., & Wang, Y. (2024). Exploring the effects of artificial intelligence application on EFL students' academic engagement and emotional experiences: A mixed-methods study. European Journal of Education, 60(1), e12812. https://doi.org/10.1111/ejed.12812
- 25. Hamdan A., Sarea A., Khamis R. & Anasweh M. 2020. A causality analysis of the link between higher education and economic development: empirical evidence. Heliyon 6(6): e04046.
- Holman D. & Švejdarová E. 2023. The 21st-century empowering wholeness adaptive (EWA) educational model transforming learning capacity and human capital through wholeness systems thinking towards a sustainable future. Sustainability 15(2): 1301.
- 27. Holyoak L. 2013. Are all internships beneficial learning experiences? An exploratory study. Education+ Training 55(6): 573–583.
- Ji C., Zhang Y. & Yu J. 2023. The relationship between teacher support and middle school student engagement: The chain mediating effect of academic self-concept and academic self-efficacy. Journal of Tianjin Academy of Educational Science 35(01): 67–77.
- 29. Jungert T. & Koestner R. 2015. Science adjustment, parental and teacher autonomy support and the cognitive orientation of science students. Educational Psychology 35(3): 361–376.
- 30. Kang B.-J. 2017. Role and policies of STP in the era of 4th industrial revolution from triple helix viewpoint. World Technopolis Review 6(2): 90–101.
- 31. Kipreos G. & Dimitropoulos P. 2016. Academic internship and students' satisfaction: Evidence from Greece. Journal of Studies in Education 6(3): 21–31.
- Kiuru N., Pakarinen E., Vasalampi K., Silinskas G., Aunola K., Poikkeus A.-M., Metsäpelto R.-L., Lerkkanen M.-K. & Nurmi J.-E. 2014. Task-focused behavior mediates the associations between supportive interpersonal environments and students' academic performance. Psychological Science 25(4): 1018–1024.
- 33. Kuh G.D. 2009a. The national survey of student engagement: Conceptual and empirical foundations. New Directions for Institutional Research 141: 5–20.
- 34. Kuh G.D. 2009b. What student affairs professionals need to know about student engagement. Journal of College Student Development 50(6): 683–706..
- 35. Li H., Zhang M., Hou S., Huang B., Xu C., Li Z. & Si J. 2023. Examining the dynamic links among perceived teacher support, mathematics learning engagement, and dimensions of mathematics anxiety in elementary school students: A four-wave longitudinal study. Contemporary Educational Psychology 75: 102211.

- Liang F., Adenan A., Xu W. & Nurudeen B.B. 2023. The relationship between student self-efficacy and learning engagement at Chinese applied undergraduate university during internship. Perspectives of Science and Education 66(6): 160–173.
- 37. Ling Y., Chung S.J. & Wang L. 2023. Research on the reform of management system of higher education in China based on personality standard. Current Psychology 42(2): 1225–1237.
- Liu R.-D., Zhen R., Ding Y., Liu Y., Wang J., Jiang R. & Xu L. 2018. Teacher support and math engagement: Roles of academic self-efficacy and positive emotions. Educational Psychology 38(1): 3–16.
- Luan L., Hong J.-C., Cao M., Dong Y. & Hou X. 2023. Exploring the role of online EFL learners' perceived social support in their learning engagement: A structural equation model. Interactive Learning Environments 31(3): 1703–1714.
- 40. Marsh H.W. & Martin A.J. 2011. Academic self-concept and academic achievement: Relations and causal ordering. British Journal of Educational Psychology 81(1): 59–77.
- Martin A.J. & Collie R.J. 2019. Teacher-student relationships and students' engagement in high school: Does the number of negative and positive relationships with teachers matter? Journal of Educational Psychology 111(5): 861–876.
- Martin D.P. & Rimm-Kaufman S.E. 2015. Do student self-efficacy and teacher-student interaction quality contribute to emotional and social engagement in fifth grade math? Journal of School Psychology 53(5): 359–373.
- 43. Meng Q. & Zhang Q. 2023. The influence of academic self-efficacy on university students' academic performance: The mediating effect of academic engagement. Sustainability 15(7): 5767.
- 44. Merlini C., Savarese M., Pierboni L., Mazzocchi B., Benedetti T., La Sala R., Boggian A., Rinieri M.T., Sarli L. & Artioli G. 2021. Growing through relationship—the engagement of the health professional students in the internship experience: A grounded theory research. Acta Bio Medica: Atenei Parmensis 92(Suppl 2): e2021024.
- 45. Miao J. & Ma L. 2023. Teacher autonomy support influence on online learning engagement: The mediating roles of self-efficacy and self-regulated learning. Sage Open.
- 46. Nunnally J.C., Knott P.D., Duchnowski A. & Parker R. 1967. Pupillary response as a general measure of activation. Perception & Psychophysics 2: 149–155.
- Ober T.M., Coggins M.R., Rebouças-Ju D., Suzuki H. & Cheng Y. 2021. Effect of teacher support on students' math attitudes: Measurement invariance and moderation of students' background characteristics. Contemporary Educational Psychology 66: 101988.
- 48. Pan X. 2022. Exploring the multidimensional relationships between educational situation perception, teacher support, online learning engagement, and academic self-efficacy in technology-based language learning. Frontiers in Psychology 13: 1000069.
- 49. Patrick H., Ryan A.M. & Kaplan A. 2007. Early adolescents' perceptions of the classroom social environment, motivational beliefs, and engagement. Journal of Educational Psychology 99(1): 83–98.
- Pintrich P.R., Smith D.A.F., Garcia T. & McKeachie W.J. 1993. Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). Educational and Psychological Measurement 53(3): 801–813.
- 51. Preckel F., Niepel C., Schneider M. & Brunner M. 2013. Self-concept in adolescence: A longitudinal study on reciprocal effects of self-perceptions in academic and social domains. Journal of Adolescence 36(6): 1165–1175.
- 52. Ryan A.M. & Patrick H. 2001. The classroom social environment and changes in adolescents' motivation and engagement during middle school. American Educational Research Journal 38(2): 437–460.
- 53. Ryan R.M. & Deci E.L. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist 55(1): 68–78.
- 54. Sadoughi M. & Hejazi S.Y. 2023. The effect of teacher support on academic engagement: The serial mediation of learning experience and motivated learning behavior. Current Psychology 42(22): 18858–18869.
- 55. Sakiz G., Pape S.J. & Hoy A.W. 2012. Does perceived teacher affective support matter for middle school students in mathematics classrooms? Journal of School Psychology 50(2): 235–255.
- 56. Salanova M., Llorens S. & Schaufeli W.B. 2011. "Yes, I can, I feel good, and I just do it!" On gain cycles and spirals of efficacy beliefs, affect, and engagement. Applied Psychology 60(2): 255–285.
- 57. Sansone C. & Harackiewicz J.M. 2000. Intrinsic and extrinsic motivation: The search for optimal motivation and performance. San Diego: Academic Press.
- 58. Schaufeli W.B., Salanova M., González-Romá V. & Bakker A.B. 2002. The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. Journal of Happiness Studies 3: 71–92.
- 59. Scott J.E. & Walczak S. 2009. Cognitive engagement with a multimedia ERP training tool: Assessing computer self-efficacy and technology acceptance. Information & Management 46(4): 221–232.
- 60. Sierens E., Vansteenkiste M., Goossens L., Soenens B. & Dochy F. 2009. The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. British Journal of Educational Psychology 79(1): 57–68.

- 61. Skinner E.A. & Belmont M.J. 1993. Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. Journal of Educational Psychology 85(4): 571–581.
- 62. Stanard P., Belgrave F.Z., Corneille M.A., Wilson K.D. & Owens K. 2010. Promoting academic achievement: The role of peers and family in the academic engagement of African American adolescents. Journal of Prevention & Intervention in the Community 38(3): 198–212.
- 63. Thomas L. 2012. Building student engagement and belonging in Higher Education at a time of change. London: Paul Hamlyn Foundation.
- 64. Tindowen D.J., Bangi J. & Parallag Jr C. 2019. Pre-service teachers' evaluation on their student internship program. International Journal of Learning, Teaching and Educational Research 18(10): 279–291.
- 65. Tse T.S.M. 2010. What do hospitality students find important about internships? Journal of Teaching in Travel & Tourism 10(3): 251–264.
- 66. Veas A., Castejón J.L., Miñano P. & Gilar-Corbí R. 2019. Relationship between parent involvement and academic achievement through metacognitive strategies: A multiple multilevel mediation analysis. British Journal of Educational Psychology 89(2): 393–411.
- Wang, X., Gao, Y., Wang, Q., & Zhang, P. (2025). Fostering engagement in AI-assisted Chinese EFL classrooms: The role of classroom climate, AI literacy, and resilience. European Journal of Education, 60(1), e12874. https://doi.org/10.1111/ejed.12874
- Wigfield A. & Eccles J.S. 2000. Expectancy-value theory of achievement motivation. Contemporary Educational Psychology 25(1): 68–81.
- 69. Williams G.C. & Deci E.L. 1998. The importance of supporting autonomy in medical education. Annals of Internal Medicine 129(4): 303–308.
- Wilson A.J., Liu Y., Keith S.E., Wilson A.H., Kermer L.E., Zumbo B.D. & Beauchamp M.R. 2012. Transformational teaching and child psychological needs satisfaction, motivation, and engagement in elementary school physical education. Sport, Exercise, and Performance Psychology 1(4): 215–230.
- 71. Wu H., Li S., Zheng J. & Guo J. 2020. Medical students' motivation and academic performance: The mediating roles of self-efficacy and learning engagement. Medical Education Online 25(1): 1742964.
- 72. Xiong J. 2011. Understanding higher education in China: Vocationalism vs Confucianism. Frontiers of Education in China 6(4): 495–520.
- 73. Yang Y., Li G., Su Z. & Yuan Y. 2021. Teacher's emotional support and math performance: The chain mediating effect of academic self-efficacy and math behavioral engagement. Frontiers in Psychology 12: 651608.
- 74. Yao L. & Zhang Y. 2021. The research analysis of university students' internship engagement. University Education Science (03): 63–73.
- 75. Yıldırım S. 2012. Teacher support, motivation, learning strategy use, and achievement: A multilevel mediation model. The Journal of Experimental Education 80(2): 150–172.
- 76. Yu C., Li X. & Zhang W. 2015. Predicting adolescent problematic online game use from teacher autonomy support, basic psychological needs satisfaction, and school engagement: A 2-year longitudinal study. Cyberpsychology, Behavior, and Social Networking 18(4): 228–233.
- 77. Yu R. & Singh K. 2018. Teacher support, instructional practices, student motivation, and mathematics achievement in high school. The Journal of Educational Research 111(1): 81–94.
- 78. Zepke N. 2014. Student engagement research in higher education: Questioning an academic orthodoxy. Teaching in Higher Education 19(6): 697–708.
- 79. Zhen R., Liu R.-D., Ding Y., Wang J., Liu Y. & Xu L. 2017. The mediating roles of academic self-efficacy and academic emotions in the relation between basic psychological needs satisfaction and learning engagement among Chinese adolescent students. Learning and Individual Differences 54: 210–216.
- Zhou P., Zhou Y. & Wang H. 2022. The effect of teacher emotional support on secondary school student learning engagement--Analysis of mediating effect based on academic self-efficacy. Research on Modern Basic Education 48(04): 119–126.