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Social Media-Based Learning and Academic Performance: Examining the Role of Student Engagement Among Postgraduate Students in Shanxi, China

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Abstract

Purpose: This study examines factors influencing postgraduate student engagement and academic performance in social media supported learning in higher education in Shanxi, China. **Research design, data and methodology:** A quantitative approach was adopted. A pre-test using the Index of Item Objective Congruence was conducted with three experts, followed by a pilot study with 30 students to ensure clarity and reliability. Data were then collected from 500 postgraduate students. Non-probability sampling was applied, including judgmental, quota, and convenience techniques. Confirmatory Factor Analysis and Structural Equation Modeling were used to assess reliability, validity, and structural relationships. **Results:** Social Media Use, Knowledge Sharing, Interaction with Lecturers, Perceived Ease of Use, and Perceived Usefulness all show significant positive effects on Student Engagement. Student Engagement also has a strong positive effect on Student Academic Performance. Knowledge Sharing and Perceived Ease of Use show the strongest effects, while Perceived Usefulness shows the weakest but significant effect. **Conclusions:** The findings highlight the importance of creating social media-supported learning environments that encourage knowledge sharing, lecturer interaction, and meaningful student engagement in postgraduate education. Strengthening these elements can improve engagement and enhance academic performance in digital learning environments.

Keywords: Student Engagement, Academic Performance, Social Media-Based Learning, Postgraduate Student, China

JEL Classification Code: D83, I21, I23, O33

1. Introduction

The learning environment plays a crucial role in shaping students' academic behavior and performance. In higher education, digital technologies have transformed the way students communicate, collaborate, and learn. Among these technologies, social media has become an important platform for academic interaction beyond the classroom. Students use social media to exchange learning materials, discuss course content, and collaborate with peers, creating opportunities for continuous learning. Previous studies have shown that integrating social media into education can enhance participation, interaction, and collaborative learning (Hrastinski & Aghaee, 2012; Junco et al., 2011; Manca & Ranieri, 2016; Selwyn, 2012; Tess, 2013). These benefits are particularly relevant to postgraduate education, where learning depends heavily on research collaboration, academic discussion, and continuous access to scholarly resources (Gardner, 2009; Lovitts, 2001).

As social media becomes increasingly integrated into higher education, understanding the factors that promote meaningful student engagement has become an important research priority. Student engagement has consistently been identified as a key predictor of learning success in digital learning environments (Bond et al., 2020; Kahu & Nelson, 2018). For postgraduate students, effective engagement requires continuous academic communication and collaboration with peers and lecturers to support research activities and knowledge development (Gardner, 2009; Lovitts, 2001).

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Although recent studies have examined the relationships among social media use, student engagement, and academic performance (Mahdiuon et al., 2020; Su & Huang, 2021), several important gaps remain. First, most studies have focused on general higher education populations rather than postgraduate students, whose learning is more research-oriented and requires sustained academic interaction (Gardner, 2009; Lovitts, 2001). Second, previous research has typically examined social media use, knowledge sharing, lecturer interaction, or technology acceptance as separate determinants of learning outcomes (Al-Emran et al., 2018; Teo, 2011; Wang & Noe, 2010). Limited empirical evidence has integrated these factors into a comprehensive framework to explain how they collectively influence student engagement and, subsequently, academic performance, particularly in the context of Chinese postgraduate education.

To address these gaps, this study develops and tests an integrated model that examines the relationships among social media use, knowledge sharing, interaction with lecturers, perceived ease of use, perceived usefulness, student engagement, and academic performance among postgraduate students at Shanxi University of Finance and Economics, China. Specifically, the study investigates how these factors influence student engagement and how engagement subsequently contributes to academic performance.

This study makes three contributions. First, it focuses on postgraduate students, a population that has received relatively limited attention in studies of social media-supported learning. Second, it integrates social media-related factors and technology acceptance variables into a single empirical framework to examine their relationships with student engagement and academic performance. Third, it provides empirical evidence from a Chinese postgraduate education context and offers practical implications for universities and educators seeking to strengthen student engagement through the effective use of social media in learning.

2. Literature Review

2.1 Student Academic Performance

Student academic performance refers to the extent to which postgraduate students achieve expected learning outcomes and demonstrate success in advanced educational activities. It goes beyond course grades and includes mastery of disciplinary knowledge, research capability, and the development of scholarly competence (Mahdiuon et al., 2020). Given the independent and research-oriented nature of postgraduate study, academic performance is influenced by continuous engagement, academic interaction, and meaningful feedback.

In digital learning environments, academic performance is shaped by how students engage with learning tools and resources. Social media can support academic performance when it facilitates scholarly communication, knowledge sharing, and collaborative learning. However, its effect is often indirect and depends on students' active participation in meaningful academic activities (Al-Rahmi et al., 2015). Recent studies further confirm that social media use is associated with academic performance through engagement-related mechanisms and psychological factors such as social interaction and learning involvement (Gong et al., 2025; Shafiq & Parveen, 2023). In addition, emerging evidence suggests that technology-supported learning environments, including social media and artificial intelligence tools, can enhance academic performance when students perceive them as supportive of learning and engagement (Shahzad et al., 2024). Prior studies also show that higher engagement in social media-supported learning is associated with improved academic outcomes (Mahdiuon et al., 2020).

Therefore, this study conceptualizes student academic performance as a dependent variable influenced by engagement in social media-supported learning activities, reflecting students' ability to translate interaction and knowledge exchange into academic achievement.

2.2 Social Media Use

Social media use refers to postgraduate students' use of digital platforms for academic interaction, information exchange, and participation in online learning communities. In higher education, social media is no longer limited to social communication. It also functions as a flexible academic space where students can discuss ideas, share resources, and maintain communication beyond formal class settings. This is particularly important for postgraduate students, whose learning is more self-directed and research-oriented.

Postgraduate students tend to use social media in more purposeful ways than undergraduates. They often use these platforms to exchange academic literature, discuss research problems, seek peer support, and communicate with lecturers or academic groups (Mahdiuon et al., 2020). As a result, social media use becomes closely linked to scholarly participation and research activities. Recent studies suggest that postgraduate students view social media as a meaningful learning environment rather than only a communication tool (Aleisa, 2022).

Through these functions, social media extends academic interaction into continuous and informal learning contexts. It provides opportunities for discussion, knowledge

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exchange, and collaborative reflection, which are essential for advanced learning. When students actively use social media for academic purposes, they are more likely to participate in learning activities and remain connected to academic communities. This suggests that social media use can strengthen student engagement in postgraduate learning.

H1: Social Media Use has a significant impact on Student Engagement.

2.3 Knowledge Sharing

Knowledge sharing refers to postgraduate students' exchange of research ideas, academic resources, literature, and disciplinary perspectives through social media and other digital platforms. It is commonly viewed as a reciprocal process that includes both knowledge donating and knowledge collecting (Van den Hooff & De Ridder, 2004). This process supports collaborative learning, problem solving, and the development of shared understanding.

In postgraduate education, knowledge sharing plays a critical role because learning is research-oriented and requires continuous intellectual interaction. Students use knowledge sharing not only to obtain information but also to compare ideas, refine arguments, and develop research-related thinking. Social media supports this process by providing accessible spaces for discussion, resource exchange, and academic communication. Prior studies indicate that knowledge sharing is an important mechanism through which social media contributes to learning engagement and creativity among postgraduate students (Rasheed et al., 2020). Recent research further confirms that students' knowledge sharing behavior on social media platforms significantly enhances academic interaction and learning participation (Nawaz et al., 2024).

Compared with undergraduate contexts, knowledge sharing at the postgraduate level is more specialized and closely related to disciplinary inquiry. It often involves exchanging literature, discussing theoretical perspectives, and sharing research approaches. Through these activities, students become more actively involved in academic learning and intellectual collaboration. This suggests that knowledge sharing can enhance students' engagement in postgraduate learning environments.

H2: Knowledge Sharing has a significant impact on Student Engagement.

2.4 Interaction with Lecturers

Interaction with lecturers refers to postgraduate students' academic communication with instructors through discussion, feedback, supervision, and scholarly guidance. In postgraduate education, this interaction is essential because learning extends beyond coursework to include research development and intellectual dialogue. Compared with undergraduate students, postgraduates require more specialized guidance and continuous communication related to research tasks, writing, and disciplinary understanding. As a result, interaction with lecturers supports not only instruction but also the development of academic confidence and higher-level learning (Ong & Quek, 2023).

In digital learning environments, this interaction can be maintained and extended through social media and related platforms. Students can discuss course content, seek clarification, and receive feedback beyond formal class time. This ongoing communication helps sustain academic involvement and supports continuous learning. Prior studies indicate that stronger lecturer-student interaction in online environments is associated with higher levels of student engagement (Ong & Quek, 2023; Wut & Xu, 2021).

Given the importance of guidance and academic dialogue in postgraduate study, interaction with lecturers is expected to encourage active participation in learning activities. When students receive timely feedback and maintain regular communication with lecturers, they are more likely to stay engaged in academic tasks and research-related activities. This suggests that interaction with lecturers can enhance student engagement in postgraduate learning.

H3: Interaction with Lecturers has a significant impact on Student Engagement.

2.5 Perceived Ease of Use

Perceived ease of use refers to postgraduate students' belief that using social media for academic purposes is simple and requires minimal effort. In technology acceptance research, it is a key factor influencing technology adoption, as easier systems are more likely to be accepted and used regularly (Adams et al., 1992). Although postgraduate students are more experienced and self-directed, ease of use remains important in advanced learning contexts.

Postgraduate students often engage in complex academic tasks that require efficient tools for communication and resource management. When platforms are difficult to use, they increase cognitive effort and reduce the effectiveness of academic interaction. In contrast, when social media is perceived as easy to use, students are more likely to adopt it for continuous communication, knowledge sharing, and collaboration. Prior studies show that perceived ease of use is linked to user confidence, system acceptance, and continued usage (Venkatesh & Davis, 2000). Recent evidence also indicates that ease of use enhances students' engagement in technology-supported learning environments (Tarhini et al., 2013; Wang et al., 2025).

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By reducing technical barriers, perceived ease of use supports active participation in academic activities. This suggests that perceived ease of use can enhance students' engagement in postgraduate learning.

H4: Perceived Ease of Use has a significant impact on Student Engagement.

2.6 Perceived Usefulness

Perceived usefulness refers to postgraduate students' belief that using social media improves academic communication, learning quality, and research-related performance. In technology acceptance theory, it is defined as the extent to which a system enhances user performance (Davis, 1989). For postgraduate students, this belief is important because they are unlikely to adopt social media for academic purposes unless it supports advanced learning tasks.

Social media can provide value by enabling efficient communication with peers and lecturers, easier access to academic resources, and continuous discussion beyond formal classes. When students perceive these platforms as useful, they are more likely to engage in academic interaction and sustain participation in learning activities. Prior research shows that perceived usefulness positively influences students' engagement and academic outcomes in technology-supported learning environments (Alalwan, 2022; Mahdiuon et al., 2020). Recent evidence also highlights that perceived usefulness plays a key role in linking social media use to academic performance and learning engagement (Badr et al., 2024).

Given its role in motivating academic use of digital platforms, perceived usefulness is expected to encourage active participation in postgraduate learning. This suggests that perceived usefulness can enhance student engagement.

H5: Perceived Usefulness has a significant impact on Student Engagement.

2.7 Student Engagement

Student engagement refers to postgraduate students' sustained investment of time, effort, and active participation in academic and research-related activities. It is commonly viewed as a multidimensional construct that includes behavioral, cognitive, and emotional involvement in learning (Bond et al., 2020; Gunuc & Kuzu, 2015). In postgraduate education, engagement extends beyond simple participation and reflects deeper intellectual involvement, continuous academic interaction, and commitment to research tasks.

In social media-supported learning environments, engagement can be strengthened through ongoing communication, knowledge exchange, and participation in academic communities. Social media provides opportunities for discussion, feedback, and collaborative learning beyond formal classes. Prior studies indicate that such environments enhance student engagement, especially when interaction is academically meaningful (Mahdiuon et al., 2020). Empirical evidence also shows that engagement acts as a key mechanism linking social media use to academic performance (Su & Huang, 2021).

In this study, student engagement is conceptualized as a central mechanism that connects social media-related factors with academic outcomes. When students remain actively involved in academic interaction and learning activities, they are more likely to achieve better academic results. This suggests that student engagement can enhance academic performance.

H6: Student Engagement has a significant impact on Student Academic Performance.

3. Research Methods and Materials

3.1 Research Framework

This study develops an integrated research framework grounded in prior theoretical and empirical studies. Research by Su and Huang (2021) shows that student engagement mediates the relationship between social media use and academic performance. This provides the basis for positioning Student Engagement (SE) as the central mechanism in the model. Studies on collaborative learning further highlight that knowledge exchange and lecturer interaction are essential for meaningful learning in online environments (Teo et al., 2021). These findings support the inclusion of Knowledge Sharing (KS) and Interaction with Lecturers (IL) as key academic interaction factors. In addition, technology acceptance theory explains that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) influence students' adoption of digital learning tools (Alamri et al., 2020).

Based on these theoretical foundations, the framework proposes that SMU, KS, IL, PU, and PEOU influence SE, which subsequently affects Student Academic Performance (SAP).

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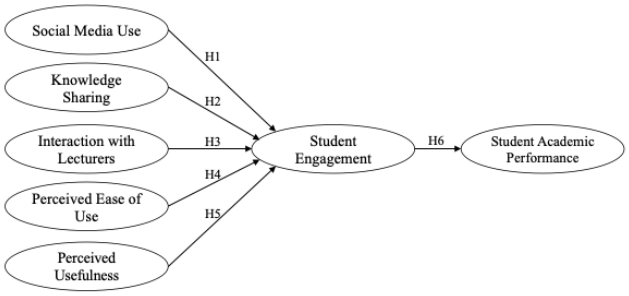

Figure 1: Conceptual Framework

3.2 Research Methodology

This study employed a quantitative research design using a questionnaire survey to collect data from postgraduate students. A non-probability sampling approach was adopted because the respondents represented a specific group within higher education institutions. Prior to the main survey, a pre-test was conducted with three experts to assess content validity using the Index of Item-Objective Congruence (IOC). All items exceeded the acceptable threshold of 0.67 (Turner & Carlson, 2003). A pilot study was then carried out with 30 postgraduate students to evaluate clarity and reliability. Cronbach's alpha values for all constructs were above 0.70, indicating acceptable internal consistency (Hair et al., 2019).

The final questionnaire was distributed online, and 500 valid responses were obtained for analysis. Participation was voluntary, and respondents were informed about the purpose of the study, confidentiality of their responses, and their right to withdraw at any time.

The questionnaire consisted of three sections. The first section included screening questions to confirm postgraduate status. The second section measured the main constructs using a five-point Likert scale from strongly disagree (1) to strongly agree (5). The third section collected demographic information such as gender, age, and academic major. Data were analyzed using SPSS AMOS version 26.0 and jamovi. Confirmatory Factor Analysis was conducted to assess validity and reliability, followed by Structural Equation Modeling to test the proposed relationships.

3.3 Population and Sample Size

The target population of this study consisted of postgraduate students enrolled in three major academic schools at the university, namely the School of Accounting, the School of Finance, and the School of Business Administration. According to official enrollment records, the total population across these schools was 1,940 postgraduate students.

An adequate sample size is important in studies using Structural Equation Modeling to ensure reliable results and stable parameter estimates. Kline (2011) suggests that a sample size of more than 400 respondents is appropriate for SEM analysis. Based on this guideline, a total of 500 valid questionnaires were collected and used for data analysis.

This sample size is considered sufficient to support the statistical analysis and to provide reliable estimates for the proposed research model.

3.4 Sampling Technique

This study employed a non-probability sampling approach. First, judgmental sampling was used to select three main academic schools of the university, namely the School of Accounting, the School of Finance, and the School of Business Administration. These schools were chosen based on their postgraduate student population. Next, quota sampling was applied to ensure that the sample reflected the proportion of students in each school. The total population was 1,940 postgraduate students, as presented in Table 1. Finally, convenience sampling was used to collect data through online methods.

The combination of these sampling techniques was adopted to balance representativeness and practicality. Judgmental sampling ensured that relevant academic groups were included, quota sampling maintained proportional representation across schools, and convenience sampling enabled efficient data collection from accessible respondents.

Table 1: Population and Sample Size by Postgraduate Students

College	Population Size	Proportional Sample Size
School of Accounting	792	204
School of Finance	534	138
School of Business Administration	614	158
Total	**1,940**	**500**

Data collection was conducted over six months, from August 2025 to January 2026. A screening process was applied to ensure that all respondents were postgraduate students from the selected schools. The questionnaire was distributed using Wenjuanxing, a widely used online survey platform, and shared through online communication channels.

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4. Results and Discussion

4.1 Demographic Information

Demographic information collected from the postgraduate participants included gender, age, and academic school. A total of 500 valid questionnaires were obtained from students in the School of Accounting, the School of Finance, and the School of Business Administration.

In terms of gender, 238 respondents were male, representing 47.6 percent, and 262 were female, representing 52.4 percent. The sample shows a slightly higher proportion of female students.

For age distribution, 40 respondents, or 8.0 percent, were aged 19 to 21 years. A total of 210 respondents, or 42.0 percent, were aged 22 to 24 years, forming the largest group. In addition, 140 respondents, or 28.0 percent, were aged 25 to 27 years, while 110 respondents, or 22.0 percent, were above 28 years old.

Regarding academic school, 204 respondents, or 40.8 percent, were from the School of Accounting. A total of 138 respondents, or 27.6 percent, were from the School of Finance, and 158 respondents, or 31.6 percent, were from the School of Business Administration.

Table 2 presents the detailed demographic profile of the respondents.

Table 2: Demographic Characteristics of Respondents

Demographic and Behavior Data (N=500)		Frequency	Percentage
Gender	Male	238	47.6
	Female	262	52.4
Age	19-21 years	40	8.0
	22-24 years	210	42.0
	25-27 years	140	28.0
	Above 28 years	110	22.0
College	School of Accounting	204	40.8
	School of Finance	138	27.6
	School of Business Administration	158	31.6

Source: Created by the author

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis was conducted to evaluate the measurement model of this study. The results indicate that all measurement items are statistically significant, with factor loadings ranging from 0.655 to 0.831, which are within acceptable levels. As shown in Table 3, Cronbach's alpha values range from 0.770 to 0.907, indicating good internal consistency. Composite reliability values range from 0.772 to 0.907, exceeding the recommended threshold of 0.70. In addition, average variance extracted values range from 0.532 to 0.614, which are above the acceptable level of 0.50. These findings confirm that all constructs achieve satisfactory reliability and convergent validity.

Discriminant validity was assessed using the square root of AVE, as presented in Table 4. The diagonal values, ranging from 0.729 to 0.783, are higher than the corresponding inter-construct correlations. This indicates that each construct is distinct and that discriminant validity is established.

Model fit indices for the measurement model are reported in Table 5. The results show that the CFA model achieves acceptable fit, with CMIN/DF = 2.039 (783.136/384), GFI = 0.904, AGFI = 0.883, NFI = 0.901, CFI = 0.947, TLI = 0.939, and RMSEA = 0.046. All values meet the recommended thresholds, indicating that the measurement model fits the data well.

Overall, the CFA results demonstrate that the measurement model is reliable and valid, and it is suitable for further analysis.

Table 3: Confirmatory Factor Analysis (CFA), Composite Reliability (CR), and Average Variance Extracted (AVE) Results

Variable	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factor Loading	CR	AVE
Social Media Use (SMU)	Alamri et al. (2020)	4	0.846	0.729-0.802	0.847	0.581
Knowledge Sharing (KS)	Zhao et al. (2020)	7	0.907	0.684-0.795	0.907	0.583
Interaction with Lecturers (IL)	Alamri et al. (2020)	3	0.802	0.735-0.774	0.802	0.575
Perceived Ease of Use (PEOU)	Bozanta and Mardikyan (2017)	4	0.852	0.738-0.796	0.853	0.593
Perceived Usefulness (PU)	Bozanta and Mardikyan (2017)	4	0.863	0.696-0.831	0.864	0.614
Student Engagement (SE)	Al-Rahmi and Othman (2013)	3	0.770	0.655-0.767	0.772	0.532
Student Academic Performance (SAP)	Alamri et al. (2020)	5	0.859	0.722-0.769	0.860	0.551

Note: CR = Composite Reliability, AVE = Average Variance Extracted

Table 4: Discriminant Validity

Variable	Factor Correlations						
	SMU	KS	IL	PEOU	PU	SE	SAP
SMU	**0.762**						
KS	0.238	**0.764**					
IL	0.231	0.225	**0.758**				
PEOU	0.279	0.281	0.284	**0.770**			
PU	0.255	0.206	0.231	0.244	**0.783**		
SE	0.442	0.508	0.436	0.512	0.380	**0.729**	
SAP	0.313	0.260	0.282	0.326	0.259	0.523	**0.742**

Note: Diagonal values represent the square root of AVE for each construct

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Table 5: Goodness of Fit

Index	Criterion	CFA Value	SEM Value
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.039	2.565
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.904	0.871
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.883	0.849
NFI	≥ 0.80 (Wu & Wang, 2006)	0.901	0.871
CFI	≥ 0.80 (Bentler, 1990)	0.947	0.916
TLI	≥ 0.80 (Sharma et al., 2005)	0.939	0.909
RMSEA	< 0.08 (Pedroso et al., 2016)	0.046	0.056

Note: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normed fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

4.3 Structural Equation Model (SEM)

Structural Equation Modeling was conducted using SPSS AMOS version 26 to examine the structural model of this study. The results show that the proposed model fits the empirical data well. As presented in Table 5, the model achieved a chi-square to degree of freedom ratio (CMIN/DF) of 2.565 (1023.458/399).

The goodness-of-fit indices indicate acceptable model fit, with GFI = 0.871 and AGFI = 0.849. In addition, the incremental fit indices show satisfactory values, with NFI = 0.871, CFI = 0.916, and TLI = 0.909. The Root Mean Square Error of Approximation (RMSEA) is 0.056, indicating a good level of approximation.

Overall, these results confirm that the structural model fits the data adequately and is appropriate for testing the hypothesized relationships.

4.4 Research Hypothesis Testing Result

The structural model was evaluated using standardized path coefficients to examine the proposed relationships. The results show that all hypotheses are statistically supported, indicating that the model explains the relationships among the study variables effectively.

Table 6 presents the results of the structural path analysis, including standardized coefficients, standard errors, and t-values. All paths are significant at $p < 0.05$, confirming the validity of the proposed hypotheses.

Table 6: Hypothesis Result of the Structural Model

Hypothesis	Standardized path coefficients (β)	S.E.	t-value	Test Result
H1: SMU→SE	0.316	0.038	6.164*	Supported
H2: KS→SE	0.418	0.037	7.773*	Supported
H3: IL→SE	0.313	0.037	6.002*	Supported
H4: PEOU→SE	0.418	0.038	7.575*	Supported
H5: PU→SE	0.233	0.032	4.913*	Supported
H6: SE→SAP	0.541	0.083	8.193*	Supported

Note: *=p-value < .05

For H1, Social Media Use has a positive effect on Student Engagement (β = 0.316, t = 6.164), indicating that higher use of social media for academic purposes is associated with greater engagement. For H2, Knowledge Sharing shows a significant positive effect on Student Engagement (β = 0.418, t = 7.773), suggesting that knowledge exchange plays a strong role in promoting engagement. For H3, Interaction with Lecturers also positively influences Student Engagement (β = 0.313, t = 6.002), highlighting the importance of academic communication with instructors.

For H4, Perceived Ease of Use has a significant positive impact on Student Engagement (β = 0.418, t = 7.575), indicating that ease of use encourages active participation. For H5, Perceived Usefulness positively affects Student Engagement (β = 0.233, t = 4.913), showing that perceived value supports engagement, although with a smaller effect size compared to other factors. Finally, for H6, Student Engagement has a strong positive effect on Student Academic Performance (β = 0.541, t = 8.193), indicating that engagement plays a key role in improving academic outcomes.

Overall, these results confirm that all hypothesized relationships are supported and that the model is appropriate for explaining both direct and indirect relationships among the variables.

5. Conclusions and Recommendation

5.1 Conclusions

This study examined how social media use, knowledge sharing, interaction with lecturers, perceived ease of use, and perceived usefulness relate to student engagement and academic performance among postgraduate students. The findings show that all five factors have significant positive effects on student engagement, and that engagement, in turn, has a strong positive effect on academic performance. These findings indicate that student engagement is an important mechanism through which social media-supported learning contributes to academic performance among postgraduate students in China. They also highlight the growing role of digital platforms in supporting academic communication beyond the traditional classroom.

The findings are consistent with recent empirical studies that emphasize the importance of engagement in digital learning environments. Students who actively participate in technology-supported learning are more likely to achieve better academic outcomes (Bond et al., 2020; Kahu & Nelson, 2018). The results also align with studies showing

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that social media enhances engagement when it supports meaningful academic interaction (Alalwan, 2022; Su & Huang, 2021). The present study extends these findings by demonstrating their relevance in the Chinese postgraduate context. Social media supports regular interaction with lecturers and peers, encourages the sharing of research-related resources, and facilitates academic discussions beyond scheduled classes. These functions are particularly valuable for postgraduate students, whose learning relies on independent research and scholarly collaboration.

A closer examination of the results shows that knowledge sharing and perceived ease of use have the strongest effects on engagement. This finding is supported by studies showing that digital knowledge exchange promotes collaboration and sustained learning (Nawaz et al., 2024; Rasheed et al., 2020). In addition, perceived ease of use encourages continued participation by reducing technical barriers (Wang et al., 2025). These findings suggest that Chinese postgraduate students benefit most from learning platforms that are easy to use and support efficient knowledge sharing. Such platforms facilitate communication with lecturers and peers while sustaining engagement throughout the research process.

Overall, social media becomes educationally valuable when it supports participation in digital academic communities. Engagement in such environments involves discussion, collaboration, and knowledge exchange that are essential for research-oriented learning. The findings therefore suggest that the value of social media depends not only on the technology itself but also on how effectively it supports meaningful academic engagement. For postgraduate students in China, social media complements formal learning by facilitating continuous communication, knowledge sharing, and collaboration. Universities can strengthen student engagement by fostering user-friendly digital learning environments that encourage knowledge sharing and meaningful lecturer-student interaction.

5.2 Recommendations

Universities should encourage postgraduate students to engage actively in knowledge sharing and to use social media in ways that support academic communication and research-related learning. Since knowledge sharing shows one of the strongest effects on engagement, institutions should provide structured opportunities for students to exchange literature, research methods, and academic experiences through online platforms. Such practices support collaborative learning and help students develop deeper understanding through interaction (Chiu et al., 2006).

In practice, many postgraduate students already use social media to share articles, discuss research issues, and exchange feedback. Universities can strengthen these activities by linking online platforms with formal academic processes such as seminars, research groups, and supervision. This integration can improve the efficiency of communication and support continuous academic interaction.

Social media can also help students expand academic networks and maintain engagement in research activities. Through regular discussion and knowledge exchange, students can refine ideas, gain new perspectives, and remain involved in scholarly work (Pascarella & Terenzini, 2005). At the same time, platforms should be easy to use, as usability plays an important role in sustaining participation.

Therefore, universities are encouraged to support the development of online academic communities that promote discussion, collaboration, and continuous interaction with lecturers. When combined with clear academic guidance and timely feedback, these environments can enhance engagement and support postgraduate learning and research development (Hrastinski, 2009).

5.3 Limitation and Further Study

This study has several limitations that should be considered when interpreting the findings. First, the sample was limited to postgraduate students from three academic schools at one university in Shanxi, China. Although this context provides relevant evidence, the results may not be generalizable to other institutions, disciplines, or regions. Postgraduate learning is often shaped by disciplinary practices and institutional environments (Gardner, 2009; Lovitts, 2001). Future research could include a wider range of universities and academic fields to improve generalizability.

Second, this study used a quantitative survey design based on self-reported data. Although this method is widely applied, responses may be influenced by personal interpretation. In addition, the cross-sectional design does not capture changes in engagement and academic performance over time. Future studies could adopt longitudinal or mixed-method approaches to examine how these factors develop and interact across different stages of postgraduate study. Qualitative methods such as interviews may also provide deeper insights into student academic experiences (Boud & Lee, 2005).

Finally, this study focused on selected factors related to social media and technology perceptions. Other variables, such as supervisory support, research self-efficacy, and institutional resources, may also influence postgraduate outcomes (Pyhältö et al., 2012; Wisker, 2017). Future research could extend the model by including these factors and exploring different learning contexts.

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References

Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly, 16*(2), 227-247. https://doi.org/10.2307/249577

Alalwan, N. (2022). Actual use of social media for engagement to enhance students' learning. *Education and Information Technologies, 27*(7), 9767-9789. https://doi.org/10.1007/s10639-022-11014-7

Alamri, M. M., Almaiah, M. A., & Al-Rahmi, W. M. (2020). Social media applications affecting students' academic performance: A model developed for sustainability in higher education. *Sustainability, 12*(16), 6471. https://doi.org/10.3390/su12166471

Aleisa, N. A. A. (2022). Graduate students' use of social media as a learning space: A phenomenological study. *Cogent Education, 9*(1), 2010486. https://doi.org/10.1080/2331186X.2021.2010486

Al-Emran, M., Mezhuyev, V., & Kamaludin, A. (2018). Technology acceptance model in M-learning context: A systematic review. *Computers & Education, 125*, 106-112. https://doi.org/10.1016/j.compedu.2018.06.008

Al-Mamary, Y. H., & Shamsuddin, A. (2015). Testing of the technology acceptance model in context of Yemen. *Mediterranean Journal of Social Sciences, 6*(4), 251-260.

Al-Rahmi, W. M., & Othman, M. S. (2013). Using TAM model to measure the use of social media for collaborative learning. *International Journal of Engineering Trends and Technology, 5*(2), 90-95.

Al-Rahmi, W. M., Othman, M. S., & Musa, M. A. (2015). The role of social media for collaborative learning to improve academic performance of students and researchers in Malaysian higher education. *International Review of Research in Open and Distributed Learning, 16*(4), 177-204. https://doi.org/10.19173/irrodl.v16i4.2326

Awang, Z. (2012). *Structural equation modeling using AMOS graphic*. Penerbit Universiti Teknologi MARA.

Badr, A. M. M., Al-Abdi, B. S., Rfeqallah, M., Kasim, R., & Ali, F. A. M. (2024). Information quality and students' academic performance: The mediating roles of perceived usefulness, entertainment and social media usage. *Smart Learning Environments, 11*, 45. https://doi.org/10.1186/s40561-024-00329-2

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-246. https://doi.org/10.1037/0033-2909.107.2.238

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. *International Journal of Educational Technology in Higher Education, 17*, 2. https://doi.org/10.1186/s41239-019-0176-8

Boud, D., & Lee, A. (2005). 'Peer learning' as pedagogic discourse for research education. *Studies in Higher Education, 30*(5), 501-516. https://doi.org/10.1080/03075070500249138

Bozanta, A., & Mardikyan, S. (2017). The effects of social media use on collaborative learning: A case of Turkey. *Turkish Online Journal of Distance Education, 18*(1), 96-110. https://doi.org/10.17718/tojde.285719

Chiu, C. M., Hsu, M. H., & Wang, E. T. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems, 42*(3), 1872-1888. https://doi.org/10.1016/j.dss.2006.04.001

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340. https://doi.org/10.2307/249008

Gardner, S. K. (2009). *The development of doctoral students: Phases of socialization*. Jossey-Bass.

Gong, Z., Guo, Y., & Tan, J. (2025). Social media use and academic performance among college students: The chain mediating roles of social anxiety and fear of missing out and the moderating effect of teacher-student relationship. *Frontiers in Psychology, 16*, 1649890. https://doi.org/10.3389/fpsyg.2025.1649890

Gunuc, S., & Kuzu, A. (2015). Student engagement scale: Development, reliability and validity. *Assessment & Evaluation in Higher Education, 40*(4), 587-610. https://doi.org/10.1080/02602938.2014.938019

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hrastinski, S. (2009). A theory of online learning as online presence. *Computers & Education, 52*(1), 78-82. https://doi.org/10.1016/j.compedu.2008.06.009

Hrastinski, S., & Aghaee, N. M. (2012). How are campus students using social media? *Journal of Interactive Online Learning, 11*(1), 30-45.

Junco, R., Heiberger, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. *Journal of Computer Assisted Learning, 27*(2), 119-132. https://doi.org/10.1111/j.1365-2729.2010.00387.x

Kahu, E. R., & Nelson, K. (2018). Student engagement in the educational interface: Understanding the mechanisms of student success. *Higher Education Research & Development, 37*(1), 58-71. https://doi.org/10.1080/07294360.2017.1344197

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study*. Rowman & Littlefield.

Mahdiuon, R., Salimi, G., & Raeisy, L. (2020). Effect of social media on academic engagement and performance: Perspective of graduate students. *Education and Information Technologies, 25*(4), 2427-2446. https://doi.org/10.1007/s10639-019-10032-2

Manca, S., & Ranieri, M. (2016). Facebook and the others: Potentials and obstacles of social media for teaching in higher education. *Computers & Education, 95*, 216-230. https://doi.org/10.1016/j.compedu.2016.01.012

Nawaz, M. A., Qaisar, N., Arif, M., & Kanwal, S. (2024). Factors affecting the students' knowledge sharing through social media technologies: A structural equation modeling approach. *Information Development*. Advance online publication. https://doi.org/10.1177/02666669241254055

Ong, S. G. T., & Quek, G. C. L. (2023). Enhancing teacher-student interactions and student online engagement in an online learning environment. *Learning Environments Research, 26*(3), 681-707. https://doi.org/10.1007/s10984-022-09447-5

AU-GSB E-JOURNAL

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. Jossey-Bass.

Pedroso, R., Zanetello, L., Guimarães, L., Pettenon, M., Gonçalves, V., Scherer, J. N., Kessler, F., & Pechansky, F. (2016). Confirmatory factor analysis of the Crack Use Relapse Scale (CURS). *Archives of Clinical Psychiatry (São Paulo), 43*(3), 37-40. https://doi.org/10.1590/0101-60830000000079

Pyhältö, K., Vekkaila, J., & Keskinen, J. (2012). Exploring the fit between doctoral students' and supervisors' perceptions of resources and challenges vis-à-vis the doctoral journey. *International Journal of Doctoral Studies, 7*, 395-414. https://doi.org/10.28945/1745

Rasheed, M. I., Malik, M. J., Pitafi, A. H., Iqbal, J., Anser, M. K., & Abbas, M. (2020). Usage of social media, student engagement, and creativity: The role of knowledge sharing behavior and cyberbullying. *Computers & Education, 159*, 104002. https://doi.org/10.1016/j.compedu.2020.104002

Selwyn, N. (2012). *Social media in higher education*. Routledge.

Shafiq, M., & Parveen, K. (2023). Social media usage: Analyzing its effect on academic performance and engagement of higher education students. *International Journal of Educational Development, 98*, 102738. https://doi.org/10.1016/j.ijedudev.2023.102738

Shahzad, M. F., Xu, S., Lim, W. M., Yang, X., & Khan, Q. R. (2024). Artificial intelligence and social media on academic performance and mental well-being: Student perceptions of positive impact in the age of smart learning. *Heliyon, 10*(8), e29523. https://doi.org/10.1016/j.heliyon.2024.e29523

Sharma, S., Mukherjee, S., Kumar, A., & Dillon, W. R. (2005). A simulation study to investigate the use of cutoff values for assessing model fit in covariance structure models. *Journal of Business Research, 58*(7), 935-943. https://doi.org/10.1016/j.jbusres.2003.10.007

Sica, C., & Ghisi, M. (2007). The Italian versions of the Beck Anxiety Inventory and the Beck Depression Inventory-II: Psychometric properties and discriminant power. In M. A. Lange (Ed.), *Leading-edge psychological tests and testing research* (pp. 27-50). Nova Science Publishers.

Su, X., & Huang, J. (2021). Social media use and college students' academic performance: Student engagement as a mediator. *Social Behavior and Personality: An International Journal, 49*(10), e10612. https://doi.org/10.2224/sbp.10797

Tarhini, A., Hone, K., & Liu, X. (2013). Factors affecting students' acceptance of e-learning environments in developing countries: A structural equation modeling approach. *International Journal of Information and Education Technology, 3*(1), 54-59. https://doi.org/10.7763/IJIET.2013.V3.233

Teo, S. C., San, Z. J., & Koo, A. C. (2021). Collaborative learning and social media acceptance for student engagement. *Journal of International Business, Economics and Entrepreneurship, 6*(2), 16-26.

Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers & Education, 57*(4), 2432-2440. https://doi.org/10.1016/j.compedu.2011.06.008

Tess, P. A. (2013). The role of social media in higher education classes (real and virtual): A literature review. *Computers in Human Behavior, 29*(5), 60-68. https://doi.org/10.1016/j.chb.2012.12.032

Turner, R. C., & Carlson, L. (2003). Indexes of item-objective congruence for multidimensional items. *International Journal of Testing, 3*(2), 163-171. https://doi.org/10.1207/S15327574IJT0302_5

Van den Hooff, B., & De Ridder, J. A. (2004). Knowledge sharing in context: The influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of Knowledge Management, 8*(6), 117-130. https://doi.org/10.1108/13673270410567675

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926

Wang, Q., Liu, Y., & Zhang, Z. (2025). Perceived ease of use, perceived enjoyment, and continuance intention in hybrid learning environments: An extended technology acceptance model perspective. *Frontiers in Psychology, 16*, 1704678. https://doi.org/10.3389/fpsyg.2025.1704678

Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review, 20*(2), 115-131. https://doi.org/10.1016/j.hrmr.2009.10.001

Wisker, G. (2017). *The postgraduate research handbook: Succeed with your MA, MPhil, EdD and PhD*. Bloomsbury Academic.

Wu, J.-H., & Wang, Y.-M. (2006). Measuring KMS success: A respecification of the DeLone and McLean model. *Information & Management, 43*(6), 728-739. https://doi.org/10.1016/j.im.2006.05.002

Wut, T.-M., & Xu, J. (2021). Person-to-person interactions in online classroom settings under the impact of COVID-19: A social presence theory perspective. *Asia Pacific Education Review, 22*, 371-383. https://doi.org/10.1007/s12564-021-09673-1

Zhao, Y., Zhang, X., Wang, J., & Zhang, K. (2020). How do features of social media influence knowledge sharing? An ambient awareness perspective. *Journal of Knowledge Management, 24*(2), 439-462. https://doi.org/10.1108/JKM-10-2019-0543

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