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Investigating the Relationship between Subconstructs of School Belonging and Students' Motivation to Learn at Universities in Vietnam

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Abstract
School attributes noticeably influence students' learning abilities and academic motivation. This study focuses on three elements of belonging: pride in membership, teacher and student relationships, and peer interactions. It aims to explore how aspects of the university environment relate to students' motivation to learn. Motivation was measured using the MSLQ (Garcia & Pintrich, 1996), while an adapted version of the PSSM (Goodenow, 1993) was used, including key dimensions of belongingness. The data were collected from 337 students across various programs in northern Vietnamese provinces, using quantitative methods in SPSS 26. The findings showed that all three aspects are linked to higher learning motivation, with peer interactions, pride in membership, and teacher support emerging as particularly influential. When combined, these trends support theories of students' psychological needs and underscore the importance of interpersonal connections in maintaining motivation.

INTRODUCTION

In the Vietnamese higher education system, there is a growing interest in understanding the relationship between psychological constructs and students' motivation to learn. With a rapidly expanding higher education system, Vietnam has seen an increase in the number of universities and students seeking tertiary education (Parajuli et al., 2020). The sense of belonging at school has attracted significant attention in education and is considered an essential element that impacts students' well-being and academic achievement. School belonging refers to the extent to which students experience a sense of connection, acceptance, and value within their educational environment (Allen et al., 2021; Baek, 2023; Lee & Huang, 2021; Mooney & Becker, 2021; Pedler et al., 2021; Scales et al., 2020). Previous research has used various terms interchangeably with school belongingness, such as school attachment,

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academic engagement, student involvement, school membership, and sense of relatedness (Osterman, 2000). Thus, the concept encompasses multiple subconstructs that work together to foster a sense of belonging among students, including teacher-student relationships, peer interactions, and pride in membership.

It is essential to understand the relationship between students' motivation to learn and subconstructs of school belonging, especially in universities. A key factor shaping students' participation, devotion, and academic achievement is their sense of belonging (Baek, 2023; Korpershoek et al., 2020; Pedler et al., 2021). This sense expresses students' aspirations, curiosity, and preparedness for active learning (Ahn & Davis, 2020; Baumeister & Leary, 1995; Korpershoek et al., 2020; Maslow, 1943; Wentzel & Miele, 2016).

Goodenow and Grady (1993) previously found a direct connection between classroom belonging and support, hope for academic achievement, academic interest, value, general school inspiration, and self-reported effort. Recent studies have further supported a favorable relationship between school participation and student motivation (Gillen-O'Neel, 2021; Pedler et al., 2021; Scales et al., 2020; Slaten et al., 2016). However, limited studies have particularly examined the interplay among the subconstructs of school belonging and students' inspiration at the university level. Therefore, there is a need for comprehensive investigations to explore the possible relationships and consequences of these subconstructs on students' motivation in higher education. Identifying the school belonging variables that significantly affect students' motivation enables educational institutions to tailor interventions and strategies to enhance students' academic engagement and overall educational experience.

The theoretical framework underpinning this study is the combined Psychological Sense of School Membership (PSSM) model with Self-Determination Theory. This framework is essential for explaining how specific elements of school belonging impact university students' drive to learn. It also provides a logical background for understanding how peer interaction, pride in membership, and relationships with the teacher influence motivational processes in tertiary education.

The following sections of this study are organized as follows: The Literature Review provides a foundation in the theories and research that preceded it. The Methodology section explains how the research was designed and how the data were analyzed. The Research Model, conversely, clarifies the theoretical framework and the hypotheses. The Results section presents the findings, and the Discussion section examines their implications and compares them with previous studies. The Conclusions provide a summary of the most important findings, and the Limitations section is about the study's limitations and suggests areas for future research. Lastly, the Conflict-of-Interest statement states any potential biases.

LITERATURE REVIEW

Sense of belonging

A sense of belonging is a foundational human need, as it plays a key role in shaping individuals' emotional and social well-being (Allen & Boyle, 2022). In the academic context, it signifies a sense of belonging, reflecting the belief that individuals similar to oneself are entitled to be in their educational institution or discipline (Rattan et al., 2015). A student's sense of belonging has been widely recognized as the expression of individual approval, respect, integration, and support within the academic setting (Goodenow, 1993). This increased sense of belonging is linked to positive motivational, social-emotional, and behavioral outcomes, including improved academic performance (Korpershoek et al., 2020). However, to completely understand its impact, it is important to define the concept of school belonging in a way that indicates its specific dimensions and indicators in the context of this research.

Researchers argue that school belongingness and emotional involvement are linked yet separate constructs (Allen & Boyle, 2022). Recent studies show that students' sense of belonging encompasses feelings of acceptance, respect, integration, assistance, and satisfaction within their university environment (Lee & Huang, 2021). Conversely, the absence of these elements, such as peer or instructor acceptance or emotional support, may result in feelings of detachment, dropout, and academic failure (Li et al., 2020). Therefore, understanding the expression of school belonging via specific emotional and social experiences, including relationships with peers, educators, and the broader school community, is essential for exploring its influence on students' motivation to learn.

A sense of belonging is often associated with favorable outcomes, including increased motivation, improved social-emotional adjustment, and academic achievement; yet, the concept itself includes various subconstructs that may vary across educational contexts. Recent research has examined the association between school belonging and positive relationships, motivation, subjective well-being, and student retention (Allen et al., 2021; Pedler et al., 2021). They have also investigated the possible adverse effects of feeling omitted or unsupported, such as bullying, loneliness, and mental health challenges (Arslan & Allen, 2021; Gopalan et al., 2022). These studies highlight the complexity of the concept, indicating that belonging is not a singular, fixed emotion but a dynamic interplay of factors that shape students' emotional and academic engagement. The existing literature has mainly focused on school belonging in the high school context, leaving a significant gap in understanding how its subconstructs affect university students' motivation to learn. A strong sense of belonging at the university level is also said to boost academic interest, motivation, and performance (Gopalan & Brady, 2020). Wa and Dung (2024) conducted a study in Vietnam that identified the factors influencing students' sense of belonging to the university as academic factors (classroom comfort and instructor support), social factors (extracurricular engagement, peer interactions, teacher support, and campus climate), and environmental factors (campus facilities and living space). Institutional variables did not impact students' sense of belonging. The results showed that students' sense of belonging significantly influenced their motivation, academic achievement, and overall well-being. During this time, stress and isolation decreased

(Wa & Dung, 2024). However, the specific subconstructs of school belonging, including peer relationships, teacher and student engagement, and university support, are insufficiently studied within the context of higher education, in particular in Vietnam.

This study aims to narrow this gap by operationalizing the concept of school belonging to better understand its components and how they affect students' motivation to learn at universities. Specifically, this study will investigate how subconstructs of belonging, such as pride in membership, teacher relationships, and peer interactions, impact students' motivation to participate in academic activities. By explaining these elements and their interactions, this study will enhance overall understanding of how a sense of belonging influences student motivation and success, particularly within the higher education context in Vietnam.

Sense of belonging and motivation

Motivation is a multifaceted construct that encompasses desires, goals, needs, values, and emotions, all of which govern the initiation, direction, intensity, persistence, and quality of behavior (Wentzel & Miele, 2016). In an academic context, motivation is closely linked to a student's willingness and ability to learn and succeed in school (Libbey, 2004). Glasser (1986) emphasizes that students may experience academic difficulties if their fundamental need for belonging is unmet. Both theoretical and empirical studies emphasize the significant role that a sense of belonging plays in academic performance, as students' motivation to learn is often motivated by their feeling of connection to the school environment (Anderman, 2003; Slaten et al., 2016).

In recent years, the role of a sense of belonging at school has gained increasing attention as a crucial determinant of students' motivation and academic performance. Studies consistently indicate that when students feel a sense of belonging, they exhibit higher levels of academic motivation and engagement (Allen et al., 2018; Arslan et al., 2022; Gillen-O'Neel, 2021; Goodenow, 1993; Pedler et al., 2021). This sense of belonging cultivates a favorable emotional climate, enhances self-esteem, and provides a supportive foundation for students to achieve their academic goals (Anderman, 2003; Zhang et al., 2020). According to the Need-to-Belong theory (Baumeister & Leary, 1995) and Self-Determination Theory (Ryan & Deci, 2000), students' motivation is strongly influenced by their emotional attachment to the school, with belongingness being a primary driver of their intrinsic motivation to engage in learning (Eccles & Roeser, 2012; Scales et al., 2020).

Regarding motivation, both internal and external factors drive students' eagerness to engage in learning activities (Eccles & Wigfield, 2002; Ryan & Deci, 2000). Research indicates that students who feel a strong sense of belonging in their school environment are more likely to have a positive emotional attachment to the learning process, which enhances their intrinsic motivation and academic perseverance. The social support associated with belongingness contributes to students' self-efficacy, belief in their abilities, and willingness to participate actively in learning activities (Eccles & Roeser, 2012; Wang & Eccles, 2013). As Goodenow (1993) notes, students who feel respected, supported, and inspired by their teachers and peers are more likely to engage in educational pursuits, thereby increasing their motivation.

Pedler et al. (2021) further confirmed that a strong sense of belonging at university not only improves motivation to learn but also elevates learning enjoyment, thereby positively impacting academic success and retention rates.

Pride in membership and motivation

Goodenow's (1993) definition of school membership explicitly refers to students' feelings of respect, inclusion, and acceptance from other members of the school. Belonging is further characterized as an individual's identification with or emotional attachment to a group (Yıldırım et al., 2023). Scholars have utilized Maslow's (2013) theory of belonging to explore the relationship between student achievement and the psychosocial development associated with group membership.

Many studies have highlighted the positive correlation between feelings of pride in school membership and student motivation in educational settings (Goodenow & Grady, 1993; Gutman & Midgley, 2000; Yıldırım et al., 2023). According to these studies, a sense of belonging to school is indispensable for all students and can significantly support academic achievement. Pride of membership refers to students' recognition of and positive feelings toward their school community, including a sense of belonging, engagement, and commitment (Wentzel, 2016; Yıldırım et al., 2023). This developing field of research emphasizes the importance of developing a school environment that fosters a sense of pride among its members.

Slaten et al. (2016) identified three dimensions of university belonging: feeling supported and welcomed, and being proud to be part of the university, along with experiencing psychological safety and comfort when interacting with faculty and staff. Students who take pride in their school are more likely to develop a sense of purpose and identity, which fosters their motivation to learn. The combination of pride and support from friends and teachers brings a positive and helpful learning environment (Wentzel, 2016). Therefore, I came up with the following hypothesis:

H1: Pride in membership has a positive correlation with motivation.

Student/peer interactions and motivation

Current studies in education indicate that students with strong friendships are more likely to be motivated to learn in school. Peer interaction is acknowledged as a significant factor influencing student motivation, engagement, and overall academic performance (Ladd, 1990; Wentzel et al., 2021). Recent studies emphasize that positive relationships with friends play a crucial role in fostering students' intrinsic motivation (Wentzel et al., 2021). Establishing supportive and positive relationships with peers, including same-gender peers (Martin et al., 2022), gives rise to a sense of belonging and social connectedness, fostering environments that are favorable to learning motivation (Allen et al., 2021; Ryan & Deci, 2000; Wentzel et al., 2021). Peer support serves as an effective regulator, fostering students' confidence and increasing their willingness to participate in learning activities.

Law et al. (2013) also emphasize that friendship is essential for addressing the emotional dimension of belonging at school. Peer acceptance and support are associated with increased academic motivation and self-esteem, personal development, and reduced outward-directed behaviors and school belonging (Bester, 2007; Law et al., 2013). Ladd (1990) found that students who were more accepted by their peers performed better academically and had a more positive overall view of school, as indicated by a greater number of peer friendships. Moreover, positive peer relationships correlate with heightened motivation via social comparison and role modeling (Ibrahim & El Zaatari, 2020; Wentzel et al., 2021). Students frequently derive inspiration and encouragement from their peers' achievements and behavior, fostering a dynamic that strengthens positive attitudes toward academic endeavors within the peer group. Friends' support and praise can have a substantial effect on a student's sense of identity and motivation to learn in school (Ibrahim & El Zaatari, 2020).

Recent studies indicate that peer relationships are vital for building positive school cultures that improve motivation (Eccles & Roeser, 2012; Wentzel et al., 2021). Positive friendships serve as a protective factor against stress and academic challenges, therefore enhancing students' adaptive capacity and commitment (Ibrahim & El Zaatari, 2020). Schools that ensure students have positive interactions with their peers foster a supportive learning environment, which in turn increases students' motivation to learn. I put forth the following hypothesis:

H2: Peer interaction is favorably correlated with motivation.

Teacher-student relationships and motivation

Allen et al. (2021) supposed that many definitions of school belonging encompass positive teacher-student relationships. The significance of both teacher-student and student-student relationships has been highlighted in numerous studies (Allen et al., 2018; Anderman, 2003; Goodenow, 1993; Ibrahim & El Zaatari, 2020; Osterman, 2000; Whiting & Nash, 2023). Recent research underscores the significant influence of positive student-teacher interactions on student motivation in school settings. Consistently, strong and supportive connections between students and their teachers have been associated with increased motivation, engagement, and overall academic success (Allen et al., 2021; Baek, 2023; Ibrahim & El Zaatari, 2020; Lee & Huang, 2021; Scales et al., 2020). These results highlight the significance of fostering positive interpersonal relationships in educational settings. Research indicates that students who perceive strong and positive connections with their teachers are more likely to exhibit higher levels of intrinsic motivation (Allen et al., 2021; Arslan & Allen, 2021; Hafen et al., 2015). When students feel valued, supported, and recognized by their teachers, this nurtures a sense of belonging and emotional safety and serves as a driving force for increased motivation to learn (Allen et al., 2018; Vargas-Madriz & Konishi, 2021; Wentzel, 2016).

The nature of the relationships between teachers and students not only affects the teaching process but also forms the classroom atmosphere, consequently impacting student motivation (Scales et al., 2020). Teachers who cultivate positive connections with their students facilitate the establishment of a supportive and inclusive learning environment (Gopalan et al., 2022), thereby strengthening the essential psychological needs of competence, autonomy, and

connectedness, as identified in Self-Determination Theory (Ryan & Deci, 2000; Scales et al., 2020). When students view their teachers as sources of support and guidance, they are more likely to internalize learning goals, resulting in sustained motivation and active participation in the learning process (Jang et al., 2016; Lee & Huang, 2021; Scales et al., 2020). In schools characterized by high cohesion and belonging, kindness, care, and friendliness among school members are present, contributing to increased motivation (Lee & Huang, 2021). Conversely, a lack of concern, acceptance, and respect from teachers and peers can create obstacles and academic failure (Li et al., 2020).

Promoting academic engagement is a particularly relevant and significant approach to enhancing students' sense of belonging, potentially more effective than attending to their social needs (Baek, 2023). This connection is intricately tied to the relationship with the teacher of a specific subject and the friends with whom the student interacts. Therefore, it is essential to conduct studies on the relationship between students and teachers (Gopalan & Brady, 2020) to establish an environment that fosters students' learning motivation in schools.

I propose the following hypothesis:

H3: Student-teacher relationship is positively associated with motivation.

In general, within the setting of higher education, the impact of a sense of belonging on students' motivation is especially significant, but most research has not yet investigated how specific subconstructs of belonging, for instance, pride in membership, teacher-student relationships, and peer interactions, influence students' academic motivation. This research gap is particularly evident in studies of Vietnamese universities, which have largely neglected the relationship between these subconstructs and motivational factors. Although research on school belonging and motivation has been widely examined in Western cultural contexts (Baumeister & Leary, 1995; Eccles & Roeser, 2012), empirical investigations into the specific elements of school belonging in Vietnamese higher education remain limited. This indicates a significant gap in the current literature that the current study aims to fill.

In Vietnam, where the higher education system has been expanding rapidly, understanding how these subcomponents of belonging affect students' motivation is crucial. A sense of school belonging in Vietnamese universities, formed by factors such as peer relationships and teacher support, might be expressed differently in Western settings because of cultural and social differences. This highlights the importance of investigating how these subcomponents, in particular, impact Vietnamese students' academic motivation, thereby providing a deeper understanding of how cultural and contextual factors can shape student engagement and success in higher education.

METHODOLOGY

The research model

An adapted version (PSM-Pride in Membership; Student Acceptance/Interactions and Teacher Support) of the Psychological Sense of School Membership Scale (PSSM) was used to examine university students' sense of belonging (Goodenow, 1993). Another quantitative instrument is also used: the Motivated Strategies for Learning Questionnaire (MSLQ)(Garcia & Pintrich 1996). The study concentrates on three PSSM subcomponents (Goodenow, 1993): Pride in Membership, Teacher Support, and Student Acceptance/Interactions, to investigate their impact on university students' motivation. These elements were chosen for their significance to higher education: Pride reflects institutional identification, Teacher Support enhances academic guidance, and Peer Interactions promote emotional safety and collaboration. These factors immediately affect intrinsic and extrinsic motivation, in accordance with the MSLQ framework and theories such as Self-Determination Theory (Ryan & Deci, 2000). Focusing on these three provides practical insights while maintaining scope and depth, as broader PSSM variables, such as inclusion and safety, though important, are less directly linked to the study's purpose.

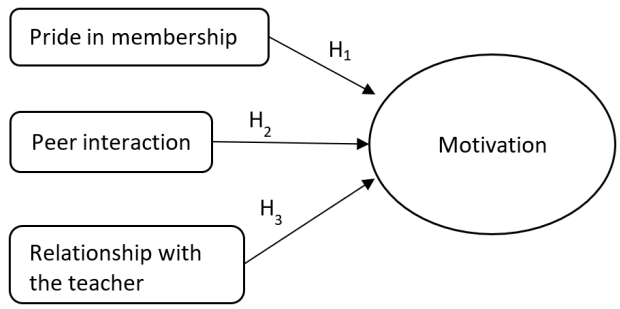

Figure 1 The conceptual model

Mot is the student's learning motivation factor, which is measured by 4 items; PSM is the pride in membership factor, measured by 4 items; Stu is the student or peer interaction element; and Tea is the relationship with teacher-student relation factor, which in turn are independent variables affecting Mot (students' learning motivation). Using the aforementioned research framework, I conducted a study to examine the relationships between PSM factors and students' learning motivation (H1), Stu factor and students' learning motivation (H2), and Tea factor and students' learning motivation (H3). The results from testing these hypotheses will provide significant insights to address the two research questions posed:

RQ1: What are the principal subconstructs of school belonging that affect students' motivation to pursue at university?

RQ2: How do these subconstructs of school belonging influence students' motivation to engage in learning activities?

RESEARCH METHODS

The research sample comprised students from 7 public universities in the fields of education and economics in the Northern region of Vietnam. Stratified sampling (from first-year to fourth-year students) and cluster sampling (taking the number of students by major group) were used. The survey was distributed to students via a Google Form. Participation was voluntary and anonymous. Students' responses may reflect their thoughts about where they are studying. The survey took place and data were collected during the first two weeks of the semester. Of the 7 universities that were sent the survey, I received 365 responses; however, after excluding questionnaires with extra/missing answers and those with only one answer, I retained 337 questionnaires for data analysis.

Some information about the survey sample is described in Table 1. A notably high percentage of female students completed the poll (87.2%); among the surveyed industry groups, the largest proportion is education (31.8%). There is a large difference in the proportion of women because the majority of students majoring in education are female, and economics is also the major chosen by female students as a university major compared to other majors. The number of 3rd- and 4th-year students is also higher than that of 1st- and 5th-year students. The reason is that 3rd and 4th year students are usually more stable. At this stage, students are familiar with the study schedule, the organization of activities in the school, and can easily access the surveys. On the contrary, 1st year students have not yet stabilized their schedules, while final-year students are often busy with their thesis, internship, or graduation preparation, leading to these two groups participating in the survey less.

Table 1

Statistics on characteristics of the study sample

		Genders					
		Male		Female		Total	
		Quantity	Percentage %	Quantity	Percentage %	Quantity	Percentage %
Student year	First year	1	2.3%	49	16.7%	50	14.8%
	Second year	21	48.8%	151	51.4%	172	51.0%
	The third year	14	32.6%	52	17.7%	66	19.6%
	Fourth year	6	14.0%	24	8.2%	30	8.9%
	Fifth year	1	2.3%	18	6.1%	19	5.6%
	Total	43	100.0%	294	100.0%	337	100.0%
Majors group	Economy	15	34.9%	73	24.8%	88	26.1%
	Law	7	16.3%	49	16.7%	56	16.6%
	Languages	11	25.6%	49	16.7%	60	17.8%
	Education	9	20.9%	98	33.3%	107	31.8%
	Health, medical	1	2.3%	25	8.5%	26	7.7%
	Total	43	100.0%	294	100.0%	337	100.0%

Statistical methods in math were used to combine and analyze the survey data, which was processed through SPSS 26 software. Cronbach's alpha was used to check the reliability of the items, and any observed variables that did not meet the requirements were removed. According to Peterson's (1994) criterion, factors with a total correlation coefficient of less than 0.3 were judged unsuitable and eliminated, but scales with a Cronbach's alpha coefficient of over 0.6 were accepted.

Consequently, the exploratory factor analysis (EFA) was used to detect factors removed from the model that met testing standards. The conditions included: (1) factor loading coefficients of identified variables exceeding 0.5; (2) KMO coefficient within the range of 0.5 to 1 (Hair et al., 2019); (3) Bartlett test Sig value below 0.05; (4) accumulated variance or extracted variance higher than 50% (Anderson & Gerbing, 1988); and the Eigenvalue identifying the number of factors extracted, with values exceeding 1.

RESULTS

Testing the reliability of the scale

Three independent factors (PSM, Stu, and Tea) and one dependent variable (Mot) make up the research model. Four to five questions are used to measure each element, corresponding to four to five observed variables. Using the cleaned data set, Cronbach's alpha coefficient was employed in the study to evaluate the reliability of the scale. According to the analysis's findings, there are two observed variables: PSM3 and Tea2, with total variable correlations of 0.166 and 0.153, respectively, both less than 0.3, which do not satisfy the conditions for testing scale reliability. The two variables PSM3 and Tea2 will be removed from the scale. Table 2 displays the findings following the elimination of factors:

Table 2

Cronbach's Alpha coefficient analysis results

No.	Factors	Observed variables	Items	Cronbach's Alpha Coefficient	Min-max total variable correlation coefficient
1	PSM	PSM1	I dreamed of attending this school before I actually attended.	0.909	0.755 - 0.863
		PSM2	I participated in many activities at school.		
		PSM4	I feel proud to be a student of this school.		
2	Stu	Stu1	My friends at school value my opinions.	0.910	0.746 - 0.859
		Stu2	Other students like me for who I am.		
		Stu3	I feel satisfied with the competence of my classmates.		
		Stu4	When I study here, I often spend time discussing and doing homework with a group of classmates or schoolmates.		
3	Tea	Tea1	The teachers at school care about me.	0.893	0.703 - 0.833
		Tea3	The teachers here respect me.		
		Tea4	Whenever I have difficulties, I always find at least one teacher to talk to.		
		Tea5	I respect the teachers at school.		

The PSM, Stu, Tea, and Mot variables all have scales with Cronbach's alpha coefficients that range from 0.893 to 0.910 and are all larger than 0.6, according to Table 2's results. The overall correlation coefficient across the variables detected is greater than 0.3, indicating that the variables observed are consistent across the components. As a result, the factor measurement scale is considered very dependable once variables have been eliminated.

Acceptability of factors and observed variables in the model

After conducting an exploratory factor analysis (EFA) and examining the results in Table 3, it is apparent that the independent and dependent variables have KMO coefficients of 0.862 and 0.824, respectively. These values indicate that component analysis is appropriate for the study data set because they are within the allowable range of 0.5 ≤ KMO ≤ 1. Additionally, the Bartlett test Sig values for both the independent and dependent indicators are 0.000, which is less than 0.05. This determines the statistical significance of the factor examination by showing an association between the observed variables in the factor. The isolation of three independent elements with a 70.76% overall variation and one dependent variable with an 83.287% total variance meets the requirement of above 50% because all eigenvalues are greater than 1. Significantly, no variables are removed because the minimum criterion for retaining observed variables is complied with by the least factor loading value of 0.559.

Table 3

Exploratory factor analysis (EFA)

Parameters	EFA independent variable	EFA dependent variable
KMO value	0.862	0.824
Sig. of the Bartlett test	0.000	0.000
Eigen value	1.100	3.038
Total variance extracted	80.997	75.940

Parameters EFA independent variable EFA dependent variable

The observed variables of the factors converge due to the factors' rotation, as Table 4 below illustrates:

Table 4

Rotated matrix table of factors

Observed variables	Factors		
	1	2	3
Stu2	0.863		
Stu1	0.830		
Stu3	0.816		
Stu4	0.756		
Tea4		0.882	
Tea3		0.856	
Tea1		0.835	
Tae5		0.747	
PSM1			0.870
PMS2			0.868
PMS4			0.807

The four factors (PSM, Stu, Tea, and Mot) that best suit the 15 best-observed variables were identified at the process's end for the EFA. Thus, I create representative factors, do regression analysis and Pearson correlation analysis, and convert the observed variable measurement into a factor measurement to assess the offered hypotheses.

Results of correlation and regression

Between the independent and dependent variables, I ran a Pearson correlation analysis. The variables all have a rather close linear relationship, as indicated by the findings in Table 5 (correlation coefficient is larger than 0), and there is statistical significance (Sig. < 0.05) in the outcome.

I performed Pearson correlation test between independent and dependent variables, the results from Table 5 show that the correlation coefficients of Mot with PSM, Stu, Tea are 0.449; 0.521; 0.501 respectively, all are approximately or greater than 0.5, so the variables have a fairly close linear relationship (Field, 2009). Table 5 also shows that the Sig. of the above correlations all have values of 0.000 < 0.05, so the results are statistically significant.

Table 5

Results of Pearson correlation analysis

		Mot	PSM	Stu	Tea
Mot	Pearson Correlation	1			
	Sig. (2-tailed)				
PSM	Pearson Correlation	0.449**	1		
	Sig. (2-tailed)	0.000			
Stu	Pearson Correlation	0.521**	0.628**	1	
	Sig. (2-tailed)	0.000	0.000		
Tea	Pearson Correlation	0.501**	0.434**	0.506**	1
	Sig. (2-tailed)	0.000	0.000	0.000	

**At the 0.01 threshold of significance, correlation exists. (2-tailed).

The results of Table 6's multivariate regression analysis, which was used to test the three hypotheses inside the theoretical model, indicates that the F-test's Sig. value is 0.000, or less than 0.05. This means that the regression model is appropriate for the acquired dataset and that the regression coefficient is important. Since the Durbin-Watson value of 1.728 is between 1.5 and 2.5, it satisfies the requirement and indicates that the model does not have first-order serial autocorrelation. The regression coefficients' significance test values (Sig. < 0.05) indicates that the independent variables have a big effect on the dependent variable. Moreover, there is no violation of the multicollinearity assumption since all of the independent variables' VIF coefficients are below 2.

The dependent variable is possitively affected by each independent element, as shown by the consistently positive beta standardized regression coefficient values in Table 6. This means that the H1, H2, and H3 hypotheses have been approved. Next, the research model is updated as follows, using the standardized regression equation as a guide:

$$Mot = 0.296*Tea + 0.281*Stu + 0.144*PSM + \varepsilon$$

In this case, ε is the remaining

Having a 0.354 adjusted R^2 value, the equation indicates that 64.6% of the variation in the Mot dependent variable is due to random error and variables outside the model. And 35.4% is explained by the PSM, Stu, and Tea independent variables.

Table 6

Regression results

Variable	SD			
	Std. Error	Standardized Beta Coefficient	sig	VIF
(Constant)	0.187		0.001	
PSM	0.058	0.144	0.012	1.703
Stu	0.062	0.281	0.001	1.856
Tea	0.052	0.296	0.000	1.385
R^2 correction	0.354			
Sig of F-test	0.000			
Durbin-Watson value	1.728			

The degree to which the independent factors affect the dependent variable is also showed in the regression equation above. In particular, the PSM factor has the least influence (beta coefficient of 0.144); the Stu factor has a moderate effect (beta coefficient of 0.281); and the tea component has the most influence (beta coefficient of 0.296). The Tea factor has the most influence, while the PSM factor has the least influence on Mot, meaning that the interaction between students and friends will strongly affect students' learning motivation, while PSM-pride has an impact, but the level of influence is not much.

DISCUSSION

This study examined the relationship between school belonging and academic motivation among university students, focusing on three subconstructs of school belonging: Pride in Membership (PSM), Student-Teacher Relationships (Tea), and Peer Interactions (Stu). The results provide a clear comprehension of participants' motivation and sense of school commitment, while also emphasising the varying levels of impact of these factors on motivation.

Participants showed moderate to high levels of motivation and school dedication, as reflected by the validated scales with strong internal coherence. The results identified a significant positive connection between all three subconstructs of school belonging and scholarly motivation, confirming the core role of belonging in promoting student engagement and academic success. These results correspond with the broader literature, which underscores the importance of school-related factors in forming students' psychological wellness and motivation to learn (Allen et al., 2021; Košir et al., 2023; Zumbrunn et al., 2014). In particular, prior research has demonstrated that school belonging adds to reduced feelings of disengagement, improved academic persistence, and generally well-being (Baumeister & Leary, 1995; Ryan & Deci, 2000; Scales et al., 2020). The study shows that pride in membership, positive teacher-student relationships, and peer interactions enhance significantly to students' academic motivation, although the level of influence differs among these factors.

Regarding H1 (Pride in Membership correlates positively with motivation), the research shows that PSM has the weakest effect on motivation, with a consistent beta coefficient of 0.144. Although statistically significant, this lower influence suggests that while being proud of one's

school can support motivation to learn, it is less powerful than social connections. Pride in membership fosters recognition within the school community, offering a sense of belonging and alignment with organizational values (Goodenow, 1993; Osterman, 2000; Wentzel, 2016). Nevertheless, the findings suggest that this pride alone is insufficient to boost motivation without fostering social interactions. Similar conclusions have been drawn by Yıldırım et al. (2023), who found that pride in membership functions as a foundational construct but is often overshadowed by relational factors in predicting motivation.

H2, which suggested that peer interactions are positively related to motivation, was also supported. The Stu factor showed a moderate effect on motivation, with a beta coefficient of 0.281. This result emphasizes the importance of student connections and supportive peer relationships in creating a collaborative learning environment. Students who feel a sense of fellowship and support from their peers are more likely to participate in academic activities, persevere through challenges, and stay motivated to succeed (Ladd, 1990; Osterman, 2000). Research also indicates that peer relationships improve students' emotional persistence, reduce feelings of isolation, and foster a sense of community that directly boosts academic persistence (Martin & Dowson, 2009; Wentzel & Miele, 2016). In the academic setting, peer interactions often extend outside the classroom through group projects, study groups, and co-curricular activities, further enhancing their impact on learning motivation (Berndt & Keefe, 1995; Ryan & Deci, 2000).

The strongest indicator of motivation was Student-Teacher Relationships (Tea), confirming H3 and emphasizing the vital role of teacher support in encouraging academic motivation. Tea shows that the highest-validated beta coefficient (0.296) shows that positive teacher-student interactions are the most impactful factor in motivating students. Supportive teachers provide academic assistance and foster a sense of integration and belonging, which assists students in overcoming academic and personal challenges (Fukuda, 2020; Ibrahim & El Zaatari, 2020; Whiting & Nash, 2023). Previous studies highlight that teacher-student relationships are essential for meeting students' psychological needs for belonging and competence, which are critical for sustained academic engagement (Goodenow & Grady, 1993; Roorda et al., 2011; Ryan & Deci, 2000). These findings align with recent research showing that positive relationships with faculty strengthen students' sense of belonging within the academic environment, lowering dropout rates and enhancing academic performance (Cornelius-White, 2007).

The main focus for university students often emphasizes the varying influence of different factors. At this stage in their academic journey, students are more likely to prioritize interpersonal relationships with teachers and peers over more conceptual dimensions like institutional pride (Allen et al., 2018; Arslan et al., 2022). The relationship with teachers has the most significant effect because they directly address students' academic and personal needs, providing oversight and feedback essential for success (Roorda et al., 2011; Ryan & Deci, 2000). Peer interactions contribute by fostering collaboration and emotional support, enriching the overall learning experience (Martin et al., 2022; Wang & Eccles, 2013). In comparison, although pride in membership helps foster a sense of university identity, it influences motivation less immediately than relational factors. This suggests that a sense of belonging is most powerful when it arises from meaningful social and academic engagement (Baumeister & Leary, 1995; Scales et al., 2020).

In summary, this research emphasizes the substantial effect of school belonging on academic motivation, showing different levels of impact across its subdimensions. While pride in membership provides a basic sense of identity, the interpersonal connections with teachers and peers have the most direct and meaningful effect on student motivation. The study offers valuable insights for enhancing student engagement and academic success in higher education by confirming the hypotheses and clarifying the relationships among these factors. Institutions aiming to enhance learning outcomes should foster supportive teacher-student relationships, motivate peer collaboration, and strengthen a sense of school identity to create an inclusive and motivating educational environment.

CONCLUSIONS

This paper emphasizes the importance of a sense of belonging in school and its impact on all facets of students' educational experiences. Research shows that a strong sense of belonging at school helps prevent problem behaviors and reduces dropout rates, and is associated with positive outcomes, including enhanced academic achievement and self-concept. These findings enhance existing knowledge about students' psychological well-being and offer valuable insights for school administrators. The study demonstrates that peer interaction, student-teacher relationships, and pride in membership, all elements of school belonging, can significantly influence students' motivation in class. This is shown by exploring how the components of school belonging interact with students' motivation to learn. It highlights the importance of creating positive, inclusive environments that promote a sense of community among students.

Theoretical and practical implications

These findings have important implications for both theory and practice. Conceptually, the study highlights the importance of interpersonal connections within frameworks such as Maslow's hierarchy of needs (Maslow, 1943) and Ryan and Deci's self-determination theory (Ryan & Deci, 2000). Although pride in membership contributes to a sense of belonging, connection through teacher and peer relationships immediately boosts motivation. The results indicate the need to create educational environments that emphasize strong teacher-student bonds and peer collaboration. To strengthen these interactions, universities should consider implementing faculty mentoring programs, peer tutoring, and inclusive enrichment activities. Understanding the varying impacts of impact among these factors can help institutions allocate resources effectively to cultivate a supportive and motivating learning environment (Whiting & Nash, 2023; Zumbrunn et al., 2014).

LIMITATIONS

This research's limited focus on university students is a shortcoming, as it may limit the findings' significance to students of other levels (Goodenow, 1993). Consequently, there may be limitations to the results' wider applicability. A thorough understanding of the respondents' interactions may also be hindered by the study's insufficient disclosure of the participants'

demographic details, such as age or cultural background, which may affect the students' motivation to learn and their sense of school belonging (Ryan & Deci, 2000). Additionally, a quantitative research approach could overlook the qualitative aspects of the motivation to learn and school belonging. Incorporating qualitative methodologies into future research could help build a more comprehensive understanding of these constructs (Creswell & Clark, 2017). The theoretical framework employed in this study includes only three PSSM scale subdimensions, which may not adequately capture the broader dimensions of school belonging that are significant to university students. Prior studies indicate that belonging in higher education is complex, which includes peer support, teacher and student relationships, school commitment, and cultural acceptance. This finding suggests that limited components may overlook critical factors influencing student involvement and adjustment (Allen et al., 2024; Knekta et al., 2020). Therefore, the following research should include more validated dimensions of belonging or combine supporting measures to provide a more comprehensive understanding of belonging across various student groups.

Ethics declarations

The study was conducted in accordance with informed consent, privacy protection, voluntary participation, and university ethical standards. Each participant was informed of the study's aims, the confidentiality of their responses, and their right to withdraw at any time without penalty. All data were used exclusively for academic research, and no individually identifiable information was collected. The university's institutional ethics committee approved the study protocol, which complied with relevant guidelines for studies with human participants.

Conflict of interest

I attest that no monetary, interpersonal, or other connections with other individuals or organizations relevant to the subject matter included in the manuscript present a conflict of interest.

Declaration of AI usage

AI-assisted tools such as ChatGPT and QuillBot were used to improve the clarity of the sentences and paragraphs in this article. These tools were used solely to make the article more transparent, coherent, and academic. I state that all ideas, interpretations, and conclusions remain the author's own work and responsibility.

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