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An Analysis of Factors Influencing Group-Based Self-Esteem and Sense of Belonging Through Student Association Involvement at Private Universities in Zhanjiang, China

Zhang Yidie*

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Abstract

Purpose: This article aimed to research the critical factors of association activities that significantly impacted student group-based self-esteem and sense of belonging in private universities in Zhanjiang, China. The conceptual framework presented cause-and-effect relationships between social interaction ties, group-based self-esteem, perceived supervisor support, social support, institutional commitment to diversity, cross-cultural interaction, and sense of belonging. **Research design, data, and methodology:** The researcher adopted a quantitative technique (n=500) to administer the questionnaire to students in private universities in Zhanjiang, China. Non-probability sampling included judgmental sampling to select two grades from four colleges, quota sampling to define the sample size, and convenience sampling to collect data and distribute the questionnaires online and offline. The researcher used structural equation modeling and confirmatory factor analysis to conduct the data analysis, including model fit, reliability, and construct validity. **Results:** As an intermediate variable, social interaction ties impacted group-based self-esteem and directly impacted students' sense of belonging. The results showed that social interaction ties significantly impacted group-based self-esteem and sense of belonging. Among the exogenous variables, cross-cultural interaction significantly impacted students' sense of belonging, followed by social interaction ties and institutional commitment to diversity. Institutional commitment to diversity and perceived supervisor support also significantly impacted students' sense of belonging. **Conclusions:** To make the association activities more effective, managers in private universities in Zhanjiang, China, could increase their management through association activities by the factors that affect student group-based self-esteem and sense of belonging.

Keywords: Association Activities, Private Universities, Group-based Self-esteem, Sense of Belonging

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Maslow (1962) proposed the concept of a sense of belonging (BEL). Since 1962, more and more researchers have become interested in belonging and started to study it deeply (Hagerty & Patusky, 1995). Previous research has conceptualized belonging as one of the human motivations that involve the experience of connecting with others (Burger, 2023). Ahn and Davis (2019) believed that belonging is the product of the inner driving force of human beings. It is a healthy human emotion directly related to one's spiritual well-being (Glass & Westmont, 2014).

Baumeister and Leary (1995) believed stable interpersonal relationships can create a sense of belonging. There are many research results on the important impact of belonging on people (Froehlich et al., 2023). For example, Yaw (2021) found that a strong sense of belonging can greatly promote people's work and learning motivation. Some achievements have been made in the research on the factors of students belonging (including students with basic education, high school education, and university education) (Burger, 2023). For example, the research found that college students' strong sense of belonging can help improve their academic and social interaction. (Glass & Westmont, 2014;

*Zhang Yidie, Zhanjiang University of Science and Technology, China. Email: 1060161746@qq.com

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Hagerty & Patusky, 1995).

On September 1, 2021, the law of the People's Republic of China Private Education Promotion Law Implementation Regulations (2021) was formally implemented; it provided important support for the rapid development of private university education by the law. According to China Education Statistics 2023, up to December 2021, there had been 764 private colleges and universities with 9,235,456 students in China. The students in private universities are a large group. However, their belonging has remained the same, resulting in a contradiction with the speed of development of private universities.

Zhanjiang City belongs to Guangdong Province, whose private universities are relatively developed and concentrated in China. However, in the southernmost part of mainland China, Zhanjiang is a relatively backward part of Guangdong Province with relatively few private colleges and universities. Zhanjiang University of Science and Technology is one of the two private universities in Zhanjiang. Since its establishment in 1999, it has developed very rapidly. It has become the only private undergraduate college in Zhanjiang City and even the whole West Guangdong region. Therefore, the university's development has greatly contributed to the higher education and economic development of Zhanjiang City, the west Guangdong region, and even the whole Guangdong Province.

Osterman (2000) believed that association activity is a type of extracurricular activity that is not part of a formal degree course; it is organized voluntarily by university students with the same interests and hobbies (Osterman, 2000). Association activities are helpful to students in university, each with its unique role. Winstone et al. (2020) found that students' participation in extracurricular activities can bring greater belonging and happiness, which play an important role in study and life.

The characteristics of private university association activities in China present the following: 1) There are certain procedures for entering or exiting the association. 2) There is a limit to the number of people in each association. 3) Regardless of grade, major, and department restrictions, based on interests and hobbies as common ground. 4) Most students have some experience of joining associations. 5) The enthusiasm to join the association decreased with improving grades. 6) Voluntary participation is not of political significance. In China, according to the nature of their activities, university associations are divided into academic associations, entertainment associations, and voluntary service associations.

Association activities in private universities have a wide range of benefits for many students. 1) Participating in association activities enables them to gain a wider university experience (Clark et al., 2015). 2) Participation in association activities is thought to have multi-dimensional value for

students, such as giving them academic competence, social competence, and working ability (Stuart et al., 2011). These capacities are considered particularly relevant for students to implement a new program of study (Bohnert et al., 2007). 3) Participating in association activities can provide a structured and supportive environment for students to explore new interests and identities, develop personal competencies, and build interpersonal relationships (Busseri et al., 2010).

In China, according to the nature of their activities, university associations are divided into academic associations, entertainment associations, and voluntary service associations. Academic associations include scientific and technological innovation associations (e.g., robotics Innovation Associations) and professional innovation associations (e.g., History Society and Physics). Entertainment associations include art associations (such as calligraphy and painting associations, dance associations) and sports associations. Voluntary service associations include social service associations (for example, Basic Education Volunteer Groups), student service associations (for example, College Student Counseling Associations), and sports associations (such as football associations and basketball associations).

Although the effect of association activities on student study and life has been emphasized in Zhanjiang private universities, the effect of association activities on their group-based self-esteem and belonging has yet to be fully reflected, which is why the researcher conducted this study. Four main problems exist in private universities in Zhanjiang, China. 1) Among the students who participated in association activities, the students who joined entertainment associations were the most, and those who joined academic associations were the least. 2) The fund for association activities is small. 3) Association activities have the function of political education. 4) The scope of association activities is narrow. Students' safety is the most important concern of private universities. 5) Most of the participants in association activities are marginalized.

According to the research on which association activities impact belonging actively, it is necessary to find the factors of association activities to enhance the student's sense of belonging in private universities in Zhanjiang, China.

2. Literature Review

2.1 Social Interaction Ties

Social identity theory holds that both large social groups and task-oriented teams can provide a common identity for their members and give them self-esteem that distinguishes them from other groups on a group basis (Hogg, 2016). Guo

and Cheng's (2016) study showed that the social interaction of group members has a positive impact on group-based self-esteem. The researcher, therefore, advanced the following hypotheses based on earlier research: Martiny et al. Martiny et al.'s (2011) study supported Social Interaction ties with Group-based Self-esteem.

Cole et al. (2006) studied the tie between individuals' emotional experience in organizations and perceived superior support at work or school; they found that little superior support can lead to negative emotions (e.g., depression, loneliness, and lack of belonging). Dowling and Wittkopp (1982) found that university students' social interaction ties can positively impact their group-based self-esteem. Several studies examined the contingent relationship between social interaction ties and group-based self-esteem, and the hypothesis that social interaction ties have a significant effect on group-based self-esteem was developed, manifested in the following hypotheses. Based on the above literature, the following research hypotheses emerged from this paper.

Kim et al. (2017) indicated that one of the people's fundamental social requirements is social connection. People can seek social interaction ties to reduce loneliness, build friendships, and increase their sense of belonging (Ma & Yuen, 2011). Guo and Cheng (2016) assumed that social interaction represents a kind of social interest and that a close interpersonal connection can meet the strong social needs of individuals. This viewpoint is supported by Hsiao and Chiou (2012). Baumeister and Leary (1995) showed that people are typically willing to interact with others to satisfy the need for belonging; as a result, through association activities, college students can forge and maintain intimate social links with others and enhance their belonging to the institution. The following assumptions are made in this investigation based on the remarks above.

Trice (2004) found that social interaction among college students can produce a positive sense of belonging. Students need more than sharing campuses and classes to generate meaningful belonging (Glass & Westmont, 2014). Hurtado and Carter (1997) proved that social integration is vital for college students to enhance their sense of belonging. Strayhorn (2018) also found that cultivating students' social interaction ability can foster their belonging. Lin and Lu (2011) proposed improving student belonging through social integration. Based on the above literature, the following research hypotheses emerged from this paper.

H1: Social interaction ties have a significant impact on group-based self-esteem.

H2: Social interaction ties have a significant impact on sense of belonging.

2.2 Group-Based Self-Esteem

Kanning and Hill (2012) believed that group self-esteem is an important sign that members think they belong to the social group. Luhtanen and Crocker (1992) argued that group members' group-based self-esteem affects their belonging. Through group membership, people can increase their sense of belonging by seeking out and acquiring good self-esteem (Kember et al., 2001). Pierce (2015) showed that members' satisfaction degree of group self-esteem affects their belonging. Gardner and Pierce (2015) noted that individuals with high collective self-esteem are more receptive to accepting the social identity they value, and collective self-esteem is positively connected with members' sense of belonging.

Guo and Cheng (2016) study results suggested that a person's group self-esteem positively impacts his/her sense of belonging. Consequently, the researcher proposed the following assumptions based on an earlier study. Luhtanen and Crocker (1992) found that individuals can gain a sense of belonging if they feel helpful to the group. Bowling et al. (2010) found that belonging rested on group self-esteem. Based on the above literature, the following research hypotheses emerged from this paper. Kanning and Hill (2012) believed that group-based self-esteem is a form of collective self-esteem that positively impacts the sense of belonging. Pierce and Gardner (2009) found that students' group-based self-esteem and belonging to the group influence each other. Based on the above literature, the following research hypotheses emerged from this paper.

H3: Group-based self-esteem has a significant impact on sense of belonging.

2.3 Perceived Supervisor Support

Murphy and Zirkel (2015) posited that students who feel more supported by educators and institutions (schools) will perform better and have a stronger sense of belonging. They are generally more motivated and more confident in obtaining knowledge. Consequently, they can finally produce superior outcomes. According to these theories, Okolie et al. (2021) found that a supportive learning and working environment can make learners feel a sense of belonging, care, and respect. As noted by Goodenow (1993), learners' feelings of support and belonging are anticipated to boost their confidence in their ability to succeed and help them match their educational and professional goals with institutional and industry norms.

Ilies et al. (2017) believed that college students want to get along well with their teachers, counselors, and classmates because it increases their overall satisfaction and happiness through belonging to the school. Turner et al. (1979) found that students expressed hope for university-style supervision

to enhance their belonging. Mosher et al. (1972) found that college supervision is necessary and effective for students' learning and belonging. Based on the above literature, the following research hypotheses emerged from this paper.

H4: Perceived supervisor support has a significant impact on sense of belonging.

2.4 Social Support

Previous studies showed that the social support felt by group members is an important factor affecting their belonging. Strong interpersonal ties, for instance, might help youngsters realize that they belong (Martin & Dowson, 2009), develop social bonds, provide support (Gray et al., 2018), and fulfill psychological demands (Juvonen, 2006). Goodenow (1993) argued that social support and school climate are crucial to students' belonging to school. According to Napoli and Wortman (1998), university attendance and a sense of belonging can increase for students with strong social support levels. Through empirical research, Pang (2020) discovered a positive correlation between social support and a group member's sense of belonging.

Lin et al. (1979) found that social support helps organizational individuals develop a sense of belonging to an organization. Belanger et al. (2020) found that perceived support from social informs belonging and communicates the known benefits of belonging. Rockhill et al. (2009) also found that social support was positively correlated with the belonging of organization or group members. Jay and D'Augelli (1991) found that high levels of social support were associated with high belonging. Milem and Berger (1997) found that social support helps college students adapt to college life, which may affect students' belonging in college. Conversely, a strong sense of belonging may affect students' perception of social support. As a result, the researcher proposed the following assumptions based on the earlier studies.

H5: Social support has a significant impact on sense of belonging.

2.5 Institutional Commitment

There are various types of institutional diversity, among which informal interaction diversity, structural diversity, and classroom diversity are the main representatives (Bowman, 2010). Freitas and Leonard (2011) found that diversified learning communities, group activities, and commitment can meet some students' psychosocial needs (including belonging). In addition, students' socioeconomic background, cultural background, and transformation process (such as those from towns and rural areas to cities) are crucial to the diversity of university culture and the

construction of university identity. Culture is one of the main components of students' belonging development (Guyot & Seethal, 2007).

Yaw (2021) study showed that the quality of institutional commitment to diversity significantly influenced students' belonging. Mayhew et al. (2005) showed that school commitment to diversity and fulfillment of the promise through diversity activities are the conditions for students to belong to the school. Nora et al. (1997) found that the diversity of institutional commitment is an important factor affecting students' belonging. Museus and Maramba (2010) also showed that institutional commitment to diversity directly influenced students' belonging. By examining fifty-one students from different grades, Strauss and Volkwein (2004) found that diverse university promises and student commitments influence each other. Hausmann et al. (2009) showed that different university commitments directly influence college students' belonging. As a result, the researcher proposed the following assumptions based on earlier studies.

H6: Institutional commitment to diversity has a significant impact on sense of belonging.

2.6 Cross-Cultural Interaction

Jansen (2004) suggested that students should seek out and define shared occurrences among themselves to build conditions for adjusting to the future society and culture, which would be distinct from that on campus. After reviewing the literature, the current study focuses on cross-cultural interaction, which explains the efficiency and effect of interaction between different groups and peers in social and cultural activities on their belonging. Former research demonstrated that students' perceptions of their institution's ability can provide diversity-related aspects of climate that enhance their belonging (Mayhew et al., 2005). Therefore, Yaw (2021) suggested that creating awareness of diverse institutional cultures is crucial to promoting student belonging.

Owusu-Agyeman (2021) found that cross-cultural interaction significantly affected college students belonging. Holt-Lunstad (2018) believed that a poor supportive environment on campus and less cross-cultural interaction have a greater risk of belonging. Bronfenbrenner (1989) found that cross-cultural interaction impacts belonging directly. Museus and Quaye (2009) found that especially in universities, such intercultural interactions aided students in their smooth integration into university life. As a result, the researcher proposed the following assumptions based on the earlier studies.

H7: Cross-cultural interaction has a significant impact on sense of belonging.

2.7 Sense of Belonging

Zhao et al. (2012) defined “a sense of belonging” as the sensation people have when interacting with and going through experiences as an integral part of a group. It is the ability to relate, participate, and serve. Trujillo and Tanner (2014) believed that a student’s sense of belonging is determined by how much they participate in school activities and how much they feel valued, encouraged, and accepted by their classmates and staff. Ryan and Stiller (1994) found that belonging greatly promotes students’ learning motivation. Osterman (2010) emphasized that fostering students’ belonging is indispensable for loving education. Baumeister and Leary (1995) found that college student’s sense of belonging can lower their psychological stress levels. Liu et al. (2018) found that being a part of a particular community, organization, or association can give a person a sense of belonging and make them feel like an important component of the environment and integrity.

3. Research Methods and Materials

3.1 Research Framework

The establishment of this study’s conceptual framework and the development of the research were mainly based on the following theories: Maslow’s Hierarchy of Needs Theory (SMOT), proposed by Maslow (1970); Self-Presentation Theory (SPT), proposed by Goffman (1959); Social Identity Theory (SIT), originally proposed by Turner et al. (1979); and Adler’s Motivation Theory (AMT), proposed by Adler (1970).

Many other related theories were applied in the study, such as Social Cognitive Theory (SCT), used by Okolie et al. (2021); personality Theory (PT), used by Caligiuri et al. (2020); Socio-emotional Selectivity Theory (SST) used by Sandstrom and Dunn (2014), Self-consistency Theory (SCT) used by Gardner and Pierce (1998), Cynicism Theory (CT) used by Cole et al. (2006), Organizational Support Theory (OST) designed by Eisenberger et al. (2002). Multicultural Education Theory (MET), used by Yaw (2021), and Social Learning Theory (SLT), used by Rowe et al. (2023).

On this basis, a conceptual framework was developed for this study, described in Figure 1.

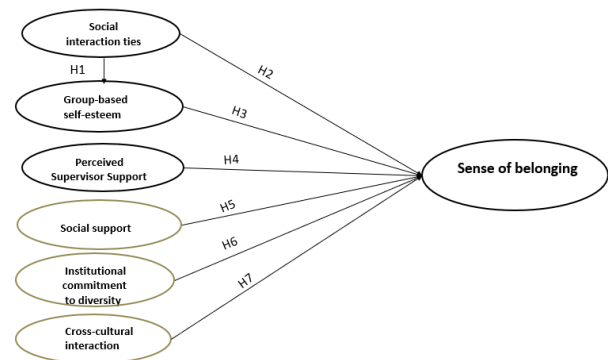


Figure 1: Conceptual Framework

- H1:** Social interaction ties have a significant impact on group-based self-esteem.
H2: Social interaction ties have a significant impact on sense of belonging.
H3: Group-based self-esteem has a significant impact on sense of belonging.
H4: Perceived supervisor support has a significant impact on sense of belonging.
H5: Social support has a significant impact on sense of belonging.
H6: Institutional commitment to diversity has a significant impact on sense of belonging.
H7: Cross-cultural interaction has a significant impact on sense of belonging.

3.2 Research Methodology

A quantitative method of non-probability sampling was adopted in the study. Firstly, the researcher distributed 500 questionnaires to the target population online and offline. The target population for this study was college students from Zhanjiang University of Science and Technology, China. Then, the researcher analyzed the feedback data to explore the critical factors of the association activities in private universities that impact student group-based self-esteem and sense of belonging.

Three sections are contained in the questionnaire. The first section contains two screening questions: “Have you had at least one semester of learning experience at Zhanjiang University of Science and Technology?” The second section was a 5-point Likert scale for seven variables. The researcher designed 28 scale items to measure the seven hypotheses of this study. for example, “I consider myself a member of this university.” By the 5-point Likert, the measurement ranges from “Strongly Agree” to “Strongly Disagree”. The third section consisted of five demographic questions about gender, university, study time, grade, secondary college, and the degree of caring about the university. For example, “Which

college are you at, Zhanjiang University of Science and Technology?”

Firstly, the researcher conducted a pilot test online. To check the value of the reliability analysis of each construct, 40 respondents took part in the pilot test online before the large-scale questionnaires were sent out. Using Jamovi to measure Cronbach's Alpha, the lowest value of Cronbach's Alpha was 0.739 for Perceived Supervisor Support (PSS), and 0.882 was the highest for Internal Social Interaction Ties (SIT). By the standard of Cronbach's Alpha (Hair et al., 2019), the questionnaire survey result for this study passed validity and reliability tests.

3.3 Population and Sample Size

The researcher adopted non-probability, judgmental, and quota sampling. Then, 500 questionnaires were distributed to 500 students who had completed one semester at the university. All of them were from four secondary colleges in Zhanjiang University of Science and Technology.

3.4 Sampling Technique

The 40 questionnaires for the pilot test passed three experts' Item-Objective Consistency Index (IOC) scores. Secondly, the researcher conducted a large-scale test offline. Following the pilot test, the researcher handed out 500 questionnaires to the intended respondents, and 500 responses were satisfactory feedback. Thirdly, the researcher used AMOS to assess this feedback data. Confirmatory factor analysis (CFA) was employed to value the convergence's validity and accuracy. These measurement methods guaranteed the model's validity and dependability.

Finally, based on the above efforts, the researcher adopted structural equation modeling (SEM) to investigate the causal linkages between the variables. The results confirmed that the study's conceptual framework meets the data and the study meets the intended effect. As demonstrated by the specific sampling in Table 1.

Table 1: Sample Units and Sample Size

Secondary Colleges	Population Size	Proportional Sample Size
Management College	960	127
Accounting College	978	129
Foreign Languages College	930	122

Secondary Colleges	Population Size	Proportional Sample Size
Economics and Finance College	930	122
Total	3798	500

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

Demographic information collected was on the gender, grades, and association activities experience of the participants. 500 questionnaires were distributed to students in four Zhanjiang University of Science and Technology secondary schools. Of the 500 respondents, there were 236 males and 264 females, accounting for 47.2% and 52.8% respectively. There were 275 (55%) seniors and 225 (45%) juniors. There were 305 (61%) students who studied for one to two years and 195 (39%) students who studied for three to four years. The demographic information of the specific sampling in Table 2 demonstrates this.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	male	236	47.2%
	female	264	52.8%
Grade	Seniors	275	55%
	Juniors	225	45%
Association Activities Experience	For 1-2 years	305	61%
	For 3-4 years	195	39%

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was adopted to measure each variable of the conceptual framework. The measurement results showed that the 28 scale items for the seven variables were significant. The factor loading values for each scale item were acceptable, indicating that this study's conceptual framework was a good fit. All the study factor loading values were greater than 0.50, all the study p-values were less than 0.05, all the construct reliabilities were greater than 0.70, and all the mean extracted variances were greater than 0.46. Therefore, the estimates were all significant. These values are shown in Table 3.

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

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Social Interaction Ties (SIT)	Guo and Cheng (2016)	3	0.713	0.604-0.765	0.720	0.464
Group-based Self-esteem (GBSE)	Guo and Cheng (2016)	3	0.868	0.811-0.861	0.868	0.688
Perceived Supervisor Support (PSS)	Okolie et al. (2021)	4	0.820	0.551-0.863	0.825	0.549
Social support (SS)	Pang (2020)	4	0.766	0.536-0.819	0.768	0.461
Institutional commitment to diversity (ICD)	Yaw (2021)	4	0.833	0.653-0.816	0.834	0.559
Cross-cultural interaction (CCI)	Yaw (2021)	7	0.912	0.709-0.841	0.912	0.599
Sense of belonging (BEL)	Yaw (2021)	3	0.708	0.553-0.810	0.720	0.468

Table 4 displays the square roots of the level differences extracted, and these values indicate that the correlations between all the variables in this study are appropriate. The CFA test adopted GFI, AGFI, NFI, CFI, TLI, CFI, and RMSEA as model fit indicators.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	<5 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.488
GFI	≥0.85 (Sica & Ghisi, 2007)	0.899
AGFI	≥0.8 (Sica & Ghisi, 2007)	0.875
NFI	≥0.8 (Wu & Wang, 2006)	0.877
IFI	≥0.8 (Bollen, 1989)	0.923
TLI	≥0.8 (Sharma et al., 2005)	0.910
CFI	≥0.9 (Bentler, 1990)	0.922
RMSEA	<0.08 (Pedroso et al., 2016)	0.055
Model Summary		Acceptable Model Fit

Remark: CMIN/DF=the ratio of the chi-square value to the degree of freedom, GFI=goodness-of-fit index, AGFI=adjusted goodness-of-fit index, NFI=normalized fit index, IFI=Incremental Fit Indices, TLI=Tucker Lewis index, CFI=comparative fit index and RMSEA=root mean square error of approximation

Table 5 shows the convergent and discriminant validity of this study. These values were validated to be acceptable. All the measurements validated the validity of the structural model estimated in this study.

Table 5: Discriminant Validity

	SIT	GBSE	PSS	SS	ICD	CCI	BEL
SIT	0.464						
GBSE	0.320	0.688					
PSS	0.308	0.243	0.549				
SS	0.261	0.247	0.457	0.461			
ICD	0.219	0.208	0.183	0.228	0.559		
CCI	0.223	0.363	0.266	0.230	0.194	0.599	
BEL	0.283	0.261	0.246	0.250	0.234	0.257	0.468

Note: The diagonally listed value is the AVE square roots of the variables

Source: Created by the author.

4.3 Structural Equation Model (SEM)

According to Awang (2012), the Chi-square/degrees-of-freedom (CMIN/DF) ratio for model fit measures was less than 5.00, which was also supported by Al-Mamary and

Shamsuddin (2015). Sica and Ghisi (2007) suggested that GFI should be equal to 0.85 or greater and AGFI should be 0.80 or greater. Wu and Wang (2006) suggested that NFI should be equal to 0.80 or greater. Bentler (1990) suggested that the CFI was 0.80 or greater. Sharma et al. (2005) suggested that TLI was 0.80 or greater. Hu and Bentler (1999) suggested that the RMSEA was less than 0.08. The researchers used SPSS AMOS version 26 for the SEM calculations and adjusted the model. The fit index results for this study presented a good fit. CMIN/df=3.402, GFI=0.851, AGFI=0.823, NFI=0.825, IFI=0.870, TLI=0.856, CFI=0.869, and RMSEA=0.069. Table 6. demonstrates these values.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	<5 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	3.402
GFI	≥0.85 (Sica & Ghisi, 2007)	0.851
AGFI	≥0.8 (Sica & Ghisi, 2007)	0.823
NFI	≥0.8 (Wu & Wang, 2006)	0.825
IFI	≥0.8 (Bollen, 1989)	0.870
TLI	≥0.8 (Sharma et al., 2005)	0.856
CFI	≥0.9 (Bentler, 1990)	0.869
RMSEA	<0.08 (Pedroso et al., 2016)	0.069
Model Summary		Acceptable Model Fit

Remark: CMIN/DF=the ratio of the chi-square value to the degree of freedom, GFI=goodness-of-fit index, AGFI=adjusted goodness-of-fit index, NFI=normalized fit index, IFI=Incremental Fit Indices, TLI=Tucker Lewis index, CFI=comparative fit index and RMSEA=root mean square error of approximation

4.4 Research Hypothesis Testing Result

Based on the regression weights and R² variances for each variable, the researcher calculated the significance of the study model. Table 7. presents the results of the calculations. These results supported all the study hypotheses. Social Interaction Ties impacted Group-based Self-esteem ($\beta=0.398$), Social Interaction Ties impacted Sense of Belonging ($\beta=0.197$), Group-based Self-esteem impacted Sense of Belonging ($\beta=0.150$), Perceived Supervisor Support impacted Sense of Belonging ($\beta=0.123$), Social Support impacted Sense of Belonging ($\beta=0.117$),

Institutional Commitment to Diversity impacted Sense of Belonging ($\beta=0.128$), and Cross-cultural Interaction impacted Sense of Belonging ($\beta=0.138$).

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: SIT→GBSE	0.398	6.620*	Supported
H2: SIT→BEL	0.197	2.933*	Supported
H3: GBSE →BEL	0.150	2.458*	Supported
H4: PSS→BEL	0.123	2.306*	Supported
H5: SS→BEL	0.117	2.098*	Supported
H6: ICD→BEL	0.128	2.357*	Supported
H7: CCI→BEL	0.138	2.639*	Supported

Note: * $p<0.05$

Source: Created by the author

As Table 7 shows, the researcher concluded that establishing H1 indicated that social interaction ties were one of the key drivers of group-based self-esteem, with a criterion coefficient value of 0.398 in its structural path. The establishment of H2 indicated that Social Interaction Ties were one of the key drivers of a Sense of Belonging, with a criterion coefficient value of 0.197 in its structural path. The establishment of H3 indicated that Group-based Self-esteem was one of the key drivers of Sense of Belonging with a criterion coefficient value of 0.150 in its structural path. The establishment of H4 indicated that Perceived Supervisor Support was one of the key drivers of Sense of Belonging, with a criterion coefficient value of 0.123 in its structural path. The establishment of H5 indicated that Social Support was one of the key drivers of a Sense of Belonging, with a standard coefficient value of 0.117 in its structural path. The establishment of H6 indicated that Institutional Commitment to Diversity was one of the key drivers of a Sense of Belonging, with a standard coefficient value of 0.128 in its structural path. The establishment of H7 indicated that Cross-cultural Interaction was one of the key drivers of a Sense of Belonging, with a standard coefficient value of 0.128 in its structural path.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

Combining the geographical location of Zhanjiang City and the status of private universities in Guangdong Province, the researcher objectively analyzed the shortcomings of association activities in strengthening students' belonging. On this basis, the researcher combined the researcher's observation and thinking in Zhanjiang University of Science and Technology to determine the research direction.

This study used qualitative and quantitative research to explore the factors that affect students' group-based self-

esteem and sense of belonging in private universities in Zhanjiang, China. This part mainly summarizes the important findings and significance of this research.

The researcher further examined the relationship between the variables through confirmatory factor analysis and constructed equation models. Through factor analysis and correlation regression analysis, the hypothesis proposed by the researcher in the study was verified, the relationship between the seven variables was further determined, and the study results were finally formed.

As an intermediate variable, social interaction ties impacted group-based self-esteem and directly impacted students' sense of belonging. The results showed that social interaction ties significantly impacted group-based self-esteem and sense of belonging. Among the exogenous variables, cross-cultural interaction significantly impacted students' sense of belonging, followed by social interaction ties and institutional commitment to diversity. Institutional commitment to diversity and perceived supervisor support also significantly impacted students' sense of belonging.

In theory, this study aims to explore the factors that affect students' basic self-esteem and sense of belonging through community activities in private universities in Zhanjiang. This study has important theoretical significance and practical value for private colleges and universities to improve students' sense of belonging. Firstly, this study's results help broaden the idea of applying the previous theory. Secondly, the results of this study are helpful to broaden the ways to improve the sense of belonging of college students. Thirdly, the result of this study is conducive to arousing the attention of the academic circle for the belongingness of college students in private universities. Fourthly, the results of this study help the academic community propose specific measures to enhance students' sense of belonging in private colleges and universities.

In practice, this study innovates the path of college students' self-management. It is helpful to the conformance development of Zhanjiang Institute of Science and Technology. This study broadens the path for student management in private universities in Zhanjiang. It broadens the path for private universities in China to enhance students' sense of belonging.

5.2 Recommendation

The statistics supported the seven research hypotheses of this paper. This indicated that this study achieved the research objectives. Therefore, to make the association activities more effective, managers in private universities in Zhanjiang, China, could increase their management through association activities by the factors that affect student group-based self-esteem and sense of belonging.

In China, association activities are important to college students' studies and lives. The administrators of every university should organize and guide the formation of student associations. Compared with public universities, students in private universities in China have their particularities. For example, although their ability to learn knowledge is relatively low, their ability to socialize is relatively strong, and their desire to organize societies and show their various talents is relatively strong. However, China's private university association activities have many relatively low-quality shortcomings, so they cannot meet the needs of students. This study takes students of private colleges and universities in Zhanjiang as the research object and studies the factors that affect students' sense of belonging through association activities. It has important reference value for private universities to organize high-quality association activities to strengthen students' sense of belonging.

Based on the research of relevant literature, this paper combined the function of association activities to screen out six factors affecting the Sense of Belonging (BEL). They are Social Interaction Ties (SIT), Group-based Self-esteem (GBSE), Perceived Supervisor Support (PSS), Social Support (SS), Institutional Commitment to Diversity (ICD), Cross-cultural Interaction (CCI). Then, according to the status quo of private college students' sense of belonging and association activities in reality, the researchers developed six independent variables for this study. In China, private universities can take the initiative to guide students in carrying out association activities to enhance students' sense of belonging, according to the variables in this study. Based on the results of the previous five chapters, the researcher put forward some suggestions for reference only.

Firstly, according to the research result, social interaction significantly impacts group-based self-esteem and sense of belonging through association activities; the researcher suggests that private universities promote students' sense of belonging by guiding interactions within student associations. In private universities, student associations are groups formed according to the hobbies and interests of students. Effective interaction between association members helps improve their social skills and group-based self-esteem. However, in Zhanjiang private universities, some associations' members are too large, so the interaction between members is limited. Therefore, the school should put forward the conditions for the formation of the association, such as the number of members of the association, the frequency of the association activities, the coverage rate of the association activities, and so on.

Secondly, according to the research result, group-based self-esteem significantly impacts the sense of belonging through association activities. The researcher suggests that private universities promote students' sense of belonging by

protecting association-based self-esteem. In line with the characteristics of activities, college student associations can be roughly divided into academic associations, Entertainment Associations, and Voluntary Service Associations. They are different in the characteristics and purposes of activities, but they all have the role of cultivating students' sense of belonging. Students in different associations will develop a corresponding group-based self-esteem for the association, characterized by self-protection and not allowing other groups to discriminate and insult. Therefore, the school should treat different clubs equally and prevent the bad behavior of the clubs from discriminating against each other or attacking each other. At the same time, schools should also take measures to promote different student communities to understand each other and expand the range of communication based on the community to enhance the sense of belonging.

Thirdly, according to the research result, perceived supervisor support significantly impacts the sense of belonging through association activities; the researcher suggests private universities enhance students' sense of belonging by mobilizing administrators and teachers at all levels to participate in student association activities. Although college student association activities are independently established and managed by college students, the school must hold onto it. Compared with students in public colleges and universities, students in private colleges and universities need more guidance, supervision, and support from school administrators psychologically. In the university, the supervisor's support refers to the support (including material support, financial support, and spiritual support) from all the faculty and staff of the school. Only when students feel the support from the school can they develop their love and sense of belonging to the school.

Fourthly, according to the research result, social support significantly impacts the sense of belonging through association activities; the researcher suggests private universities strengthen students' sense of belonging by finding social support for student associations. In China, society usually regards the students of private universities as the group with low learning ability. However, the healthy growth of college students needs the participation and support of society. The encouragement of society can make students feel society's attention so that they can recognize and show gratitude to society. Therefore, schools should act as intermediaries. On the one hand, they should seek more opportunities to participate in social activities. On the other hand, guide social organizations to make students feel respect and recognition from society by funding student associations.

Fifthly, according to the research result, cross-cultural interaction significantly impacts the sense of belonging through association activities in private universities; the

researcher suggests private universities enhance students' sense of belonging by providing an institutional platform for cultural interaction. In line with the study, student sense of being accepted and imitated in cultural interactions increases their sense of belonging. Students in private colleges and universities in Zhanjiang come from many different places; they grew up in different cultures. Although most students come from Guangdong Province, they have different regional cultures and environments. Association activities function by integrating different cultures. Therefore, schools can use association activities to provide students with a platform for cultural interaction and transform different cultures into factors for them to learn from each other.

Finally, according to the research result, institutional commitment to diversity significantly impacts the sense of belonging through association activities; the researcher suggests that private universities boost student affiliation by making good on their commitments to association activities. The degree to which an organization delivers on its promises reflects the integrity of the organization (Nora & Cabrera, 1993). Universities should make appropriate promises to students and fulfill them in practice. For example, the financial support, personnel participation, and material help promised by the university to the association should be fulfilled on time so that students can feel the integrity of the university and enhance their sense of belonging.

5.3 Limitation and Further Study

Based on relevant theories and data, this study adopts the method of combining qualitative and quantitative research. The research results have certain theoretical and practical significance and are worth popularizing. However, due to the limited objective conditions and regulatory conditions, this study also has limitations.

Firstly, the results of this study have time limitations. Traverso et al. (2013) believed that things are eternally developing and that any research results are the unity of finiteness and infinity in time. This study started in October 2022 to search the literature to identify suitable variables. The questionnaire was completed in January 2023, the measurement of expert IOC was passed in March, the pre-test of 30 samples was completed in April, and 500 questionnaires were handed out and collected in June. Although this process is consistent, with the expansion of the scale of Zhanjiang University of Science and Technology, the type, quantity, and quality of student association activities are also undergoing corresponding changes. In all likelihood, the factors affecting students' sense of belonging through association activities may also change.

Secondly, the results have spatial limitations. Snir and Yu (2005) believed that the finiteness of space is universal and that man is the subject of space. There are two private

universities in Zhanjiang: Zhanjiang University of Science and Technology in the city and Lianjiang College of Arts and Sciences in the county. Due to geographical differences, students in the former are more than students in the latter, and their student associations are also different. Although students from the two schools are regarded as the target population, the research samples are from Zhanjiang University of Science and Technology. Therefore, the results of this study may be partially consistent with the factors affecting students' sense of belonging at Lianjiang College of Arts and Sciences and other colleges and universities. So, the result may have some limitations in promotion.

Finally, the research object has some limitations. Zhanjiang University of Science and Technology has ten schools with more than 30,000 students. However, to save on research costs, only 500 questionnaires were distributed in this study. This study only selected juniors and seniors from four schools (Management College, Accounting College, Foreign Languages College, Economics and Finance College), so the samples did not cover all college students. Therefore, important samples may be omitted in this study. On the one hand, all the real data may not be obtained in this study; on the other hand, the study results may not apply to some students.

According to the limitations of the objective statement, the author will conduct a further follow-up investigation, such as a certain amount of questionnaire survey and data analysis every school year, and then revise and adjust the research results based on this study.

References

- Adler, A. (1970). Fundamentals of Individual Psychology. *Journal of Individual Psychology*, 26, 36-49.
- Ahn, M. Y., & Davis, H. H. (2019). Four domains of students' sense of belonging to university. *Studies in Higher Education*, 1-13. <https://doi.org/10.1080/03075079.2019.1624867>
- Al-Mamary, Y. H., & Shamsuddin, A. (2015). Testing of the technology acceptance model in context of Yemen. *Mediterranean Journal of Social Sciences*, 6(4), 268-273. <https://doi.org/10.5901/mjss.2015.v6n4p268>
- Awang, Z. (2012). *Structural equation modeling using AMOS graphic* (1st ed.). Penerbit Universiti Teknologi MARA.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Belanger, A. L., Joshi, M. P., Fuesting, M. A., Weisgram, E. S., Claypool, H. M., & Diekman, A. B. (2020). Putting belonging in context: Communal affordances signal belonging in STEM. *Personality and Social Psychology Bulletin*, 46(8), 1186-1204. <https://doi.org/10.1177/0146167219897181>

- 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>
- Bohnert, A. M., Aikins, J. W., & Edidin, J. (2007). The role of organized activities in facilitating social adaptation across the transition to college. *Journal of Adolescent Research*, 22(2), 189-208. <https://doi.org/10.1177/0743558406297940>
- Bollen, K. A. (1989). *Structural equations with latent variables* (2nd ed.). John Wiley & Sons.
- Bowling, N. A., Eschelman, K. J., Wang, Q., Kirkendall, C., & Alarcon, G. (2010). A meta-analysis of the predictors and consequences of organization-based self-esteem. *Journal of Occupational and Organizational Psychology*, 83(3), 601-626. <https://doi.org/10.1348/096317909X454382>
- Bowman, N. A. (2010). College diversity experiences and cognitive development: A meta-analysis. *Review of Educational Research*, 80(1), 4-33. <https://doi.org/10.3102/0034654309352495>
- Bronfenbrenner, U. (1989). *The developing ecology of human development: Paradigm lost or paradigm regained*. Biennial meeting of the Society for Research in Child Development.
- Burger, K. (2023). Disentangling the interplay of the sense of belonging and institutional channels in individuals' educational trajectories. *Developmental Psychology*, 59(1), 30-42. <https://doi.org/10.1037/dev0001471>
- Busseri, M. A., Rose-Krasnor, L., Pancer, S. M., Pratt, M. W., & Adams, G. R. (2010). A longitudinal study of breadth and intensity of activity involvement and the transition to university. *Journal of Research on Adolescence*, 21(2), 512-518. <https://doi.org/10.1111/j.1532-7795.2010.00685.x>
- Caligiuri, P., DuBois, C. L., Lundby, K., & Sinclair, E. A. (2020). Fostering international students' sense of belonging and perceived social support through a semester-long experiential activity. *Research in Comparative and International Education*, 15(4), 357-370. <https://doi.org/10.1177/1745499920952104>
- Clark, G., Marsden, R., Whyatt, J. D., Thompson, L., & Walker, M. (2015). 'It's everything else you do': Alumni views on extracurricular activities and employability. *Active Learning in Higher Education*, 16(2), 133-147. <https://doi.org/10.1177/1469787415574050>
- Cole, M. S., Bruch, H., & Vogel, B. (2006). Emotion as mediators of the relations between perceived supervisor support and psychological hardiness on employee cynicism. *Journal of Organizational Behavior*, 27(4), 463-484. <https://doi.org/10.1002/job.381>
- Dowling, S., & Wittkopp, J. (1982). Students perceived supervisory needs. *Journal of Communication Disorders*, 15(4), 319-328. [https://doi.org/10.1016/0021-9924\(82\)90044-3](https://doi.org/10.1016/0021-9924(82)90044-3)
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology*, 87(3), 565-573. <https://doi.org/10.1037/0021-9010.87.3.565>
- Freitas, F. A., & Leonard, L. J. (2011). Maslow's hierarchy of needs and student academic success. *Teaching and Learning in Nursing*, 6(1), 9-13. <https://doi.org/10.1016/j.teln.2010.07.004>
- Froehlich, L., Brokj b, L. G., Nikitin, J., & Martiny, S. E. (2023). Integration or isolation: Social identity threat relates to immigrant students' sense of belonging and social approach motivation in the academic context. *Journal of Social Issues*, 79(1), 264-290. <https://doi.org/10.1111/josi.12520>
- Gardner, D. G., & Pierce, J. L. (1998). Self-esteem and self-efficacy within the organizational context: An empirical examination. *Group & Organization Management*, 23(1), 48-70. <https://doi.org/10.1177/1059601198231004>
- Gardner, D. G., & Pierce, J. L. (2015). Organization-based self-esteem in work teams. *Group Processes & Intergroup Relations*, 19(3), 394-408. <https://doi.org/10.1177/1368430215590497>
- Glass, C. R., & Westmont, C. M. (2014). Comparative effects of belongingness on the academic success and cross-cultural interactions of domestic and international students. *International Journal of Intercultural Relations*, 38, 106-119. <https://doi.org/10.1016/j.ijintrel.2013.04.004>
- Goffman, E. (1959). *The presentation of self in everyday life* (1st ed.). Doubleday.
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, 30(1), 79-90. [https://doi.org/10.1002/1520-6807\(199301\)30:1<79::AID-PITS2310300113>3.0.CO;2-X](https://doi.org/10.1002/1520-6807(199301)30:1<79::AID-PITS2310300113>3.0.CO;2-X)
- Gray, D. L., Hope, E. C., & Matthews, J. S. (2018). Black and belonging at school: A case for interpersonal, instructional, and institutional opportunity structures. *Educational Psychologist*, 53(2), 97-113. <https://doi.org/10.1080/00461520.2017.1421466>
- Guo, T. C., & Cheng, Z. C. (2016). Sense of belonging based on novel posting. *Online Information Review*, 40(2), 204-217. <https://doi.org/10.1108/OIR-01-2015-0033>
- Guyot, S., & Seethal, C. (2007). Identity of place, places of identities: Change of place names in post-apartheid South Africa. *South African Geographical Journal*, 89(1), 55-63. <https://doi.org/10.1080/03736245.2007.9713873>
- Hagerty, B. M., & Patusky, K. (1995). Developing a measure of sense of belonging. *Nursing Research*, 44(1), 9-13. <https://doi.org/10.1097/00006199-199501000-00003>
- Hair, J. F., Page, M., & Brunsveld, N. (2019). *Essentials of business research methods* (1st ed.). Routledge.
- Hausmann, L. R. M., Ye, F., Schofield, J. W., & Woods, R. L. (2009). Sense of belonging and persistence in White and African American first-year students. *Research in Higher Education*, 50(7), 649-669. <https://doi.org/10.1007/s11162-009-9137-8>
- Hogg, M. A. (2016). Social identity theory. In *The International Encyclopedia of Communication Theory and Philosophy*. Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8_1
- Holt-Lunstad, J. (2018). Why social relationships are important for physical health: A systems approach to understanding and modifying risk and protection. *Annual Review of Psychology*, 69(1), 437-458. <https://doi.org/10.1146/annurev-psych-122216-011902>
- Hsiao, C. C., & Chiou, J. S. (2012). The effect of social capital on community loyalty in a virtual community: Test of a tripartite-process model. *Decision Support Systems*, 54(1), 750-757. <https://doi.org/10.1016/j.dss.2012.08.017>

- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55.
<https://doi.org/10.1080/10705519909540118>
- Hurtado, S., & Carter, D. (1997). Effects of college transition and perceptions of the campus racial climate on Latina/o college students' sense of belonging. *Sociology of Education*, 70(4), 324-345. <https://doi.org/10.2307/2673270>
- Ilies, R., Wagner, D., Wilson, K., Ceja, L., Johnson, M., DeRue, S., & Ilgen, D. (2017). Flow at work and basic psychological needs: Effects on well-being. *Applied Psychology*, 66(1), 3-24. <https://doi.org/10.1111/apps.12075>
- Jansen, J. D. (2004). Race and education after ten years: Conversations. *Perspectives in Education*, 22(1), 117-128. <https://doi.org/10.1016/j.socsec.2004.01.004>
- Jay, G. M., & D'Augelli, A. R. (1991). Social support and adjustment to university life: A comparison of African-American and white freshmen. *Journal of Community Psychology*, 19(2), 95-108. [https://doi.org/10.1002/1520-6629\(199104\)19:2<95::aid-jcop2290190202>3.0.co;2-2](https://doi.org/10.1002/1520-6629(199104)19:2<95::aid-jcop2290190202>3.0.co;2-2)
- Juvonen, J. (2006). *Sense of Belonging, Social Bonds, and School Functioning* (1st ed.). Handbook of Educational Psychology.
- Kanning, U. P., & Hill, A. (2012). Organization-based self-esteem scale adaptation in an international context. *Journal of Business and Media Psychology*, 3(1), 13-21. <https://doi.org/10.21256/zhaw-3035>
- Kember, D., Lee, K., & Li, N. (2001). Cultivating a sense of belonging in part-time students. *International Journal of Lifelong Education*, 20(4), 326-341. <https://doi.org/10.1080/02601370110037309>
- Kim, B., Jee, S., Lee, J., An, S., & Lee, S. M. (2017). Relationships between social support and student burnout: A meta-analytic approach. *Stress and Health*, 34(1), 127-134. <https://doi.org/10.1002/smi.2761>
- Lin, K., & Lu, H. (2011). Intention to continue using Facebook fan pages from the perspective of social capital theory. *Cyberpsychology, Behavior, and Social Networking*, 44(10), 565-570. <https://doi.org/10.1089/cyber.2010.0085>
- Lin, N., Ensel, W. M., Simeone, R. S., & Kuo, W. (1979). Social support, stressful life events, and illness: A model and an empirical test. *Journal of Health and Social Behavior*, 20(2), 108-119. <https://doi.org/10.2307/2136433>
- Liu, Q., Shao, Z., & Fan, W. (2018). The impact of users' sense of belonging on social media habit formation: Empirical evidence from social networking and microblogging websites in China. *International Journal of Information Management*, 43, 209-223. <https://doi.org/10.1016/j.ijinfomgt.2018.08.005>
- Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin*, 18(3), 302-318. <https://doi.org/10.1177/0146167292183006>
- Ma, W. W. K., & Yuen, A. H. K. (2011). Understanding online knowledge sharing: An interpersonal relationship perspective. *Computers and Education*, 56(1), 210-219. <https://doi.org/10.1016/j.compedu.2010.08.004>
- Martin, A. J., & Dowson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues, and educational practice. *Review of Educational Research*, 79(1), 327-365. <https://doi.org/10.3102/0034654308325583>
- Martiny, S. E., Kessler, T., & Vignoles, V. L. (2011). Shall I leave or shall we fight? Effects of threatened group-based self-esteem on identity management strategies. *Group Processes & Intergroup Relations*, 15(1), 39-55. <https://doi.org/10.1177/1368430211410754>
- Maslow, A. (1962). *Toward a psychology of belonging* (1st ed.). Van Nostrand.
- Maslow, A. H. (1970). *Motivation and personality* (1st ed.). New York: Harper and Row.
- Mayhew, M. J., Grunwald, H. E., & Dey, E. L. (2005). Curriculum matters: Creating a positive climate for diversity from the student perspective. *Research in Higher Education*, 46(4), 389-412. <https://doi.org/10.1007/s11162-005-2967-0>
- Milem, J. F., & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development*, 38(4), 387-400.
- Mosher, R. L., Purpel, D. E., & Morimoto, K. (1972). *Supervision: The reluctant profession* (1st ed.). Houghton Mifflin.
- Murphy, M., & Zirkel, S. (2015). Race and belonging in school: How anticipated and experienced belonging affect choice, persistence, and performance. *Teachers College Record*, 117(12), 1-40.
- Museus, S. D., & Maramba, D. C. (2010). The impact of culture on Filipino American students' sense of belonging. *The Review of Higher Education*, 34(2), 231-258. <https://doi.org/10.1353/rhe.2010.0022>
- Museus, S. D., & Quaye, S. J. (2009). Toward an intercultural perspective of racial and ethnic minority college student persistence. *The Review of Higher Education*, 33(1), 67-94. <https://doi.org/10.1353/rhe.0.0107>
- Napoli, A. R., & Wortman, P. M. (1998). Psychosocial factors related to retention and early departure of two-year community college students. *Research in Higher Education*, 39(4), 419-455. <https://doi.org/10.1023/A:1018789320129>
- Nora, A., & Cabrera, A. F. (1993). The construct validity of institutional commitment: A confirmatory factor analysis. *Research in Higher Education*, 34(2), 243-262. <https://doi.org/10.1007/BF00992146>
- Nora, A., Kraemer, B., & Itzen, R. (1997). *Persistence among non-traditional Hispanic college students: A causal model* (1st ed.). ASHE Annual Meeting Paper.
- Okolie, U. C., Ochianwata, C., Ochianwata, N., Igwe, P. A., & Okorie, G. O. (2021). Perceived supervisor support and learner's career curiosity: The mediating effect of sense of belonging, engagement, and self-efficacy. *Higher Education, Skills and Work-Based Learning*, 11(5), 966-982. <https://doi.org/10.1108/HESWBL-08-2020-0186>
- Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research*, 70(3), 323-367. <https://doi.org/10.3102/00346543070003323>

- Osterman, K. F. (2010). Teacher practice and students' sense of belonging. In T. Lovat, R. Toomey, & N. Clement (Eds.), *International Research Handbook on Values Education and Student Wellbeing* (pp. 239-260). Springer.
https://doi.org/10.1007/978-90-481-8675-4_14
- Owusu-Agyeman, Y. (2021). Formation of a sustainable development ecosystem for Ghanaian universities. *International Review of Education*, 67(3), 333-362.
<https://doi.org/10.1007/s11159-021-09906-0>
- Pang, H. (2020). Examining associations between university students' mobile social media use, online self-presentation, social support and sense of belonging. *Aslib Journal of Information Management*, 72(3), 321-338.
<https://doi.org/10.1108/AJIM-11-2019-0323>
- Pedroso, R., Zanetello, L., Guimarães, L., Pettenon, M., Gonçalves, V., Scherer, J., Kessler, F., & Pechansky, F. (2016). Confirmatory factor analysis (CFA) of the crack use relapse scale (CURS). *Archives of Clinical Psychiatry (São Paulo)*, 43(1), 37-40. <https://doi.org/10.1590/0101-608300000000075>
- Pierce, J. (2015). *Working by not quite working: Resistance as a technique for alternative and oppositional designs* [Doctoral dissertation]. Carnegie Mellon University.
<https://repository.cmu.edu/dissertations/548/>
- Pierce, J. L., & Gardner, D. G. (2009). Relationships of personality and job characteristics with organization-based self-esteem. *Journal of Managerial Psychology*, 24(5), 392-409.
<https://doi.org/10.1108/02683940910959724>
- Rockhill, C. M., Vander Stoep, A., McCauley, E., & Katon, W. J. (2009). Social competence and social support as mediators between comorbid depressive and conduct problems and functional outcomes in middle school children. *Journal of Adolescence*, 32(3), 535-553.
<https://doi.org/10.1016/j.adolescence.2008.06.011>
- Rowe, A. D., Jackson, D., & Fleming, J. (2023). Exploring university student engagement and sense of belonging during work-integrated learning. *Journal of Vocational Education & Training*, 75(3), 564-585.
<https://doi.org/10.1080/13636820.2022.2076762>
- Ryan, R. M., & Stiller, J. D. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence*, 14(2), 226-250.
<https://doi.org/10.1177/027243169401400207>
- Sandstrom, G. M., & Dunn, E. W. (2014). Social interactions and well-being. *Personality and Social Psychology Bulletin*, 40(7), 910-922. <https://doi.org/10.1177/0146167214529799>
- Sharma, G. P., Verma, R. C., & Pathare, P. (2005). Mathematical modeling of infrared radiation thin layer drying of onion slices. *Journal of Food Engineering*, 71(3), 282-286.
<https://doi.org/10.1016/j.jfoodeng.2004.10.041>
- 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. O. Jensen (Ed.), *Leading-edge psychological tests and testing research* (pp. 27-50). Nova Science Publishers.
- Snir, M., & Yu, J. (2005). *On the theory of spatial and temporal locality*. University of Illinois at Urbana-Champaign Technical Report.
- Strauss, L. C., & Volkwein, J. F. (2004). Predictors of student commitment at two-year and four-year institutions. *The Journal of Higher Education*, 75(2), 203-227.
<https://doi.org/10.1353/jhe.2004.0007>
- Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students* (2nd ed.). Routledge.
- Stuart, M., Lido, C., & Morgan, J. (2011). The impact of engagement with extracurricular activities on the student experience and graduate outcomes for widening participation populations. *Active Learning in Higher Education*, 12(3), 203-215. <https://doi.org/10.1177/1469787411415081>
- Traverso, S., Ahmed, M., Garetto, M., Giaccone, P., Leonardi, E., & Niccolini, S. (2013). Temporal locality in today's content caching. *ACM SIGCOMM Computer Communication Review*, 43(5), 5-12. <https://doi.org/10.1145/2541468.2541469>
- Trice, A. (2004). Mixing it up: International graduate students' social interactions with American students. *Journal of College Student Development*, 45(6), 671-687.
<https://doi.org/10.1353/csd.2004.0074>
- Trujillo, G., & Tanner, K. D. (2014). Considering the role of affect in learning: Monitoring students' self-efficacy, sense of belonging, and science identity. *CBE-Life Sciences Education*, 13(1), 6-15. <https://doi.org/10.1187/cbe.13-11-0241>
- Turner, J. C., Brown, R. J., & Tajfel, H. (1979). Social comparison and group interest in ingroup favoritisms. *European Journal of Social Psychology*, 9(2), 187-204.
<https://doi.org/10.1002/ejsp.2420090207>
- Winstone, N., Balloo, K., Gravett, K., Jacobs, D., & Keen, H. (2020). Who stands to benefit? Wellbeing, belonging and challenges to equity in engagement in extra-curricular activities at university. *Active Learning in Higher Education*, 1-16.
<https://doi.org/10.1177/1469787420966926>
- Wu, J. H., & Wang, Y. M. (2006). Measuring KMS success: A respecification of the DeLone and McLean's model. *Information and Management*, 43(6), 728-739.
<https://doi.org/10.1016/j.im.2006.05.002>
- Yaw, O. A. (2021). The relationship between supportive campus environment and cultural diversity in enhancing students' sense of belonging in higher education. *Journal for Multicultural Education*, 15(4), 429-444.
<https://doi.org/10.1108/JME-01-2021-0011>
- Zhao, L., Lu, Y. B., Wang, B., Chau, P. Y. K., & Zhang, L. (2012). Cultivating the sense of belonging and motivating user participation in virtual communities: A social capital perspective. *International Journal of Information Management*, 32(6), 574-588.
<https://doi.org/10.1016/j.ijinfomgt.2012.02.006>