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BRIEF REPORT



## Role of residential college participation in sense of belonging and academic learning

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### ABSTRACT

**Objective:** The present study examined the relationships among students' participation in Residential College (RC) activities, their sense of belonging, academic engagement, and academic achievement. **Participants:** Two hundred and forty-six undergraduate students from a public university in Macau participated in this study. **Methods:** A set of survey questions were responded by each participant via an online link. **Results:** Participation in RC activities cultivated students' sense of belonging toward RC which in turn contributed to their sense of belonging toward the university. Students' academic engagement mediated the relationship between sense of belonging toward UM and academic achievement. **Conclusions:** These findings confirmed previous studies demonstrating the important role of RC participation in student learning and development, and shed lights on the optimization of RC system in the university as well as student development in higher education.

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Academic achievement; academic engagement; residential college; sense of belonging;

Situated learning theory<sup>1</sup> posited that individual learning should be taken as emergent, involving opportunities for learners to participate in the practices of the community as well as the development of an identity which provides a sense of belonging and commitment. As Lave and Wenger<sup>1</sup> argued, "learning involves the whole person; it implies not only a relation to specific activities, but a relation to social communities" (p. 53). Residential college (RC) constitutes such a microcosm providing a small, cross-sectional community for students within a larger university. This is well captured by the concept of *Communities of Practice (CoP)* – a core concept in situated learning theory – which refers to "groups of people with divergent skills and possibly different departments within an organization that are formed to deal with a complex problem or to generate new knowledge".<sup>2</sup> RC provides more than lodging; it cultivates student personal growth in terms of character and intellect, or to develop the whole-person.<sup>3</sup> By cultivating a safe and supportive atmosphere within a university, RC continually fosters students' development in academic study as well as personal well-being.<sup>4</sup> Through this theory, we can examine the impact of practices and communities of residential colleges on the holistic student experience.

A key assumption in the CoP literature is that participation entails a sense of belonging, mutual understanding, and a 'progression' along a trajectory toward full participation.<sup>5</sup> A promising conceptualization of belonging articulates a participative process as a part of an organization or a group, such as CoP.<sup>2</sup> As Tinto<sup>6</sup> argued, students' perseverance in communities remarked their social engagement and integration when they became part of a group with shared goals. Being part of a cohort or a learning community affords students the ability to overcome adversity and deal

with challenges they confront in college more effectively, which leads to academic excellence.<sup>7</sup> RC is one such community. Participation in RC activities has the potential impact on student's sense of identification with school, a paralleling concept of belongingness,<sup>8</sup> wherein students can foster new relationships, gain acceptance of other members and internalizing sense of belonging.<sup>9</sup>

Wenger<sup>10</sup> considered learning as a key element of work and suggested that social engagement should be at the center of learning processes and knowledge construction. In this sense, CoPs shares a concern or a passion for something the learners do and learn how to do better in their shared activities.<sup>11</sup> RC, by providing stronger social bonds than traditional classrooms do, is thus expected to enhance students in both learning processes and outcomes. There has been limited evidence supporting the positive relationship between participation in RC and academic engagement,<sup>12</sup> because the competence and skills gained from RC activities can also be applied in academic contexts later.<sup>13</sup> The findings on the relationship between academic performance and RC residence were also mixed. Purdie and Rosser<sup>14</sup> found residing in RC had a significant effect on GPA while others failed to replicate such results.<sup>15</sup> Some scholars even argued that participation in RC did not improve grades or the retention rates because its social functions outweighed academic functions.<sup>16</sup>

Despite the theoretical importance and benefit of RC in cultivating student whole-person development within the CoP framework, a lack of empirical evidence is evidenced in recent publications, especially in Asia. RC system has been gradually adopted in Asia, especially in Macau. To adhere to the developmental goals of the university to cultivate well-rounded graduates equipped for the challenges of life emotionally, morally and intellectually, the RC scheme has been considered

as an ideal platform whereby opportunities are provided for RC residents to cultivate skills and sensibilities of responsible citizenship with a heart and character to contribute to their motherland and Macao, as well as the humankind at large. As such, in this study, we sought to provide more evidence by investigating how students' participation in RC was related to their sense of belonging to RC/university and academic development. Specifically, we hypothesized the model (see Figure 1) to examine how RC participation impacted on sense of belonging, which in turn affected academic learning.

**Method**

**Participants and procedure**

A total number of 383 undergraduate students (Year 1 to 4) who were residing in RCs in a public university in Macau participated. This university was chosen because it instituted the most comprehensive RC system in the Asia-Pacific region. RC's communal living and activities helped students develop their skills in service and leadership, teamwork and collaboration while enriching their lives through cultural engagement and healthy lifestyles. The online survey link was delivered through Qualtrics after the participants signed on the consent form. Participation was voluntary, and participants could choose to withdraw from the study at any time. All answers were anonymous and confidential. The responses with missing data (over 10%) were eliminated, which resulted in a final sample size of 246 (female: 65.04%). The mean age was 19.70 years old (SD = 1.41) (Figure 2).

**Measurement**

Participation in RC activities was measured by the frequency of participation during one semester. Based on the introduction of RC System Booklet in the university, nine types of activities were identified and presented with choices ranged from "0 times" to "4 and above times". Scores were then summed to form the participation scores. Sense of belonging toward RC/university was measured by the 16-item Chinese version of the Psychological Sense of School Membership.<sup>17</sup> All items were measured on a 7-point Likert scale, from 1 (strongly disagree) to 7 (strongly agree). RC

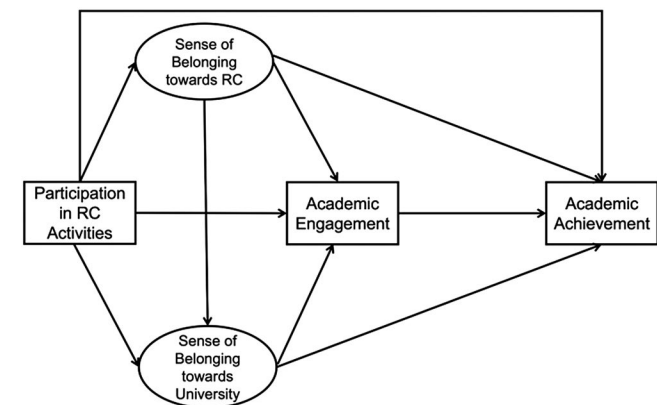


Figure 1. Hypothesized research model.

and the university were used in each item respectively to highlight different contexts. CFA was conducted to validate the measure with an acceptable model fit after removing one item with low factor loading,  $\chi^2 = 165.01$ ,  $\chi^2/df = 2.23$ , GFI=.91, CFI=.93, TLI=.92, RMSEA=.07 (sense of belonging toward RC); and  $\chi^2 = 194.92$ ,  $\chi^2/df = 2.24$ , GFI=.90, CFI=.92, TLI=.91, RMSEA=.07 (sense of belonging toward university). The Cronbach's  $\alpha$  of the whole scale was .90 and .89 for sense of belonging toward RC and university, respectively. Academic engagement was measured by 12 items with highest factor loading in behavioral, cognitive, and emotional aspects from the engagement scale by Wang and others.<sup>18</sup> A standard back-translation process was followed to present the items in Chinese. All items were measured on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The adjusted one-factor model with 7 items with three correlated errors (after removing 5 items with low factor loadings) was acceptable,  $\chi^2 = 26.80$ ,  $df=13$ ,  $\chi^2/df=2.06$ , GFI=.97, CFI=.97, TLI=.95, RMSEA=.07. The Cronbach's  $\alpha$  of the whole scale was .80. Academic achievement was measured in self-reported GPA in the semester.

**Results**

Preliminary analyses showed that the skewness and kurtosis of the main variables ranged from -0.81 to 1.16 and -0.46 to 1.48 respectively, which confirmed the normal distribution of the data. The average frequency count of RC participation was 18.55 (out of 36, SD = 6.71). The bivariate correlations among the main variables (Table 1) showed significant positive relationships between RC participation in the past semester and sense of belonging toward both RC and the university, but not with academic engagement or academic

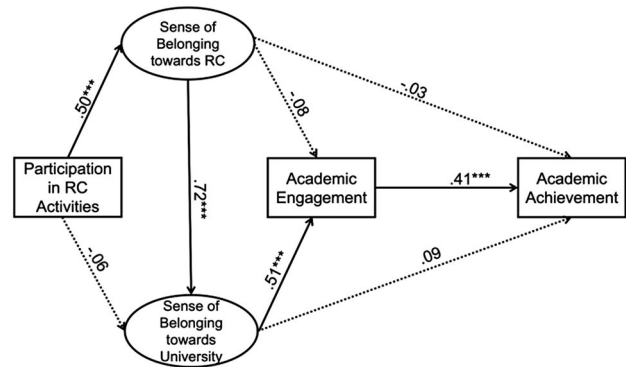


Figure 2. Revised research model.

Table 1. Correlations among the main variables (N=246).

	1	2	3	4	5	6	7
1. Gender	-						
2. Year of study	-.02	-					
3. Participation in RC	-.02	-.38***	-				
4. SB_RC	.06	.01	.42***	-			
5. SB_Uni	.05	.11	.23***	.65***	-		
6. AE	.15*	.10	.07	.30***	.47***	-	
7. GPA	.19**	.32*	.03	.16*	.28***	.44***	-

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ; SB\_RC = Sense of belonging toward RC; SB\_Uni = Sense of belonging toward university; AE = Academic engagement.

performance. Significant positive relationships were also observed among sense of belonging toward RC, sense of belonging toward the university, academic engagement, and academic performance. Gender was found to be related to academic engagement and academic performance, and year of study was related to participation in RC and academic performance.

Subsequent research model testing showed a poor model fit:  $\chi^2 = 131.970$ ,  $df=20$ ,  $\chi^2/df=6.599$ , GFI=.90, CFI=.90, TLI=.82, RMSEA=.151. No significant relationships were found between participation in RC activities and academic engagement as well as academic achievement (GPA). The revised model (Figure 2) after removing these insignificant paths and adding two correlated errors achieved an acceptable model fit:  $\chi^2 = 38.48$ ,  $df=20$ ,  $\chi^2/df=1.90$  GFI=.97, CFI=.98, TLI=.97, RMSEA=.06. Participation in RC activities was positively associated with sense of belonging toward RC ( $\beta = .50$ ,  $p < .001$ ) which positively related to sense of belonging toward the university ( $\beta = .72$ ,  $p < .001$ ). Yet the direct path from participation in RC activities to sense of belonging toward UM remained insignificant. Sense of belonging toward the university was positively associated with academic engagement ( $\beta = .51$ ,  $p < .001$ ) which was positively associated with academic achievement ( $\beta = .41$ ,  $p < .001$ ). Together with the non-significant relationships between sense of belonging toward university and academic achievement, our findings suggested a full mediation model.

## Discussion and conclusion

This study examined the impact of RC participation on students' learning and development, mainly focusing on their, sense of belonging toward RC and university, academic engagement, and academic achievement. The results overall supported the argument that the participation in RC activities was positively related to sense of belonging, which in turn positively related to their academic engagement and achievement. The finding of the positive relationship between RC participation and sense of belonging to RC was consistent with prior studies.<sup>19</sup> As Moore<sup>20</sup> stressed, students felt a part of it simply by being a part of it.

However, several expected direct effects were missing from our data. The lack of relationships between participation in RC activities and sense of belonging toward university suggested the idea of hyperbonding in learning environments wherein students could become too socially close to their peers in RC and rely too heavily on them for their social experiences. This could lead to isolation and the inability to build connections outside of the inner community,<sup>5</sup> which reduced its direct impact on sense of belonging to the larger community (i.e., university). Alternatively, some researchers have also noted that not all CoPs were cooperative<sup>21</sup> (Nagy & Burch, 2009) and power and conflicts were an inevitable part of it<sup>22</sup> (Gherardi, Nicolini, and Odella, 1998). These dysfunctional or counterproductive CoPs, thus, could have weakened the potential impact of RC participation on sense of belonging to the larger community.

The missing direct effect of participation in RC on academic engagement or academic achievement suggested that many RC activities were less academically related<sup>23</sup> and did not necessarily have a direct improvement in students' knowledge and competencies as prior studies stressed.<sup>24</sup> However, the full mediation model in this study confirmed that participation in RC eventually affected students' academic performance through a series of mediators: sense of belong to RC and university as well as academic engagement, consistent with Hurtado et al.<sup>25</sup>'s finding that RC represented an institutional response to improve student learning and development by fostering engagement. The mediation model also helped offer plausible explanations for the findings in past studies.<sup>26</sup>

There were some limitations in the present study. First, the participation in RC activities was measured by the residents' attendance in one semester. The motives behind the participation (volitional or required) could also account for the relationship pattern. Self-determined and controlled behaviors could produce completely different experiential and adjustment outcomes.<sup>27</sup> Further, RC experiences can be accumulated. The measure of RC participation during one semester is unable to capture the possible changes in their sense of belonging, academic engagement and academic performance as a function of RC participation over time. A longitudinal design is warranted in future studies.

Students can benefit a lot from the experience in RC through various paths and participation in RC activities was recognized as the most outstanding one.<sup>24</sup> The present study highlighted the role of RC experience in student learning processes and outcomes. With the belief to enhance students' belonging to and engagement in universities, many universities adopted the RC system.<sup>28</sup> It is thus of great importance to ensure the academic and social integration in RC so as to provide students with necessary academic and emotional support. Universities need to continue identifying strategies in optimizing RC that creates a better, more supportive learning environment to help students persist and succeed.

## Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of Macau and received approval from the Research Ethics Committee of University of Macau.

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