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A Hit or Miss- Can residential hall experience impact university students' development?

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Abstract

Residential halls are an important component of college education, with its benefits towards holistic personal development as documented by previous research. (Kuh et al., 2006; Pascarella et al., 1994). While previous research vastly focused on western universities, the current research aims to assess students' academic, social, and independent developments. A total of 1904 participants from universities in Hong Kong were recruited to participate in a self-assessed questionnaire measuring various aspects of students' development. Comparing students living in Hong Kong residential halls with those who were not residents, results revealed that students living in halls significantly outranked in five aspects of development (i.e., peer-group interaction and communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness) but not on other aspects such as academic developments. These results imply that there is still improvement needed on students' residential hall experiences to facilitate students' personal development.

Keywords: college student, hall residence, academic development, social development, independent development

Introduction

Unlike academic classes, which aimed at delivering one of the major aims of education – intellectual development (Whitehead, 1967), residential halls are the ideal places where college students grow and develop in areas of practical knowledge, values, maturity, and citizenship (Blimling, 2014). These are echoed from Blimling's (2001) four communities of practice constitutes of student development, student learning, student administration, student services. Residential halls are not solely considered as dormitories which provide spaces for sleeping, but

they are also major social and recreational platforms where students learn and grow outside classrooms (Ong & Chu, 2020). The importance of learning communities in the hall was highlighted by Astin (1991), "*the potential for their success is significantly enhanced by making use of a location where a majority of freshman spend most of their time – the residence halls*" (p. 21). It is clear that residential halls are the bridges for students to integrate their curricular and co-curricular experiences and hence this is how residential education takes place (Graham et al., 2018). Residential education is a term to describe education provided in a setting where students both live and learn outside their family homes and classrooms.

Some of the well-established models have demonstrated many positive educational outcomes from living in residential halls (Kuh et al., 2006; Pascarella & Terenzini, 2005). For example, the *model of multiple intelligences* by Gardner (2000) suggests that living in halls contributes most directly to intrapersonal and existential development (which are collectively referred to independent developments) and interpersonal development (which is referred to social developments). Another example is Astin's (1984) *involvement theory*, students living in residential halls learn and develop actively through their intermediate system (i.e., interaction with other hall residents, social rendezvous, deliberate and inadvertent experiences, and circumstances for probing interests; Blimling, 2014). These models lend support for scrutinizing the unique role of residential halls on student development in terms of three major developments (academic, social, and independent).

Academic impacts include striving for excellence in academic studies, enthusiasm for further learning, higher academic achievements, intellectual stimulation, and analytical skills (Chu et al., 2019). In past literature, when compared to those who had no hall experience, students who lived in residential halls learned more, were less likely to dropout, and were more likely to graduate

from college (Gellin, 2003; Schudde, 2011). When controlling previous academic performance and socioeconomic variables, however, students who lived in residential halls did not show any significant difference in academic performance when compared to students not living in residential halls (Blimling, 2014; Pascarella & Terenzini, 2005). Social developments may include peer-group interaction and communication skills, cultural exchanges, and global/social awareness and empathy. Apart from better comprehension and interpretation of emotions of others, hall experiences were found to be beneficial to students living in residential halls as students living in residential halls encountered others with various ethnic, racial, or cultural backgrounds, which contributes to diversity awareness and openness to experiences (Crisp & Turner, 2011; Pascarella, 1996).

From trial and error, students living in residential halls self-monitor by learning what to disclose and what not to disclose to articulate their images, even when being compelled to disclosure. Thus, students living in residential halls acquire self-control skills at the same time. Moreover, students living in residential halls were found to engage in intellectual discussions or even debates on moral, ethic, sociopolitical, or religious issues, as well as topics related to purposes and meanings of life and personal missions as they advance their epistemological judgment and metacognitive skills (Blakemore, 2012; Cullum & Harton, 2007).

Aims and objectives

Although the existing body of literature has explored the outcomes, and the respective practices of living in residential halls, there is insufficient comparison made between the development of students living in residential halls versus students not living in residential halls. In addition, previous research vastly examined only a few aspects (e.g., self-acceptance, academic

performance, Shook & Clay, 2012; Shook & Fazio, 2008), resulting in a lack of comprehensive research contrasting the academic, social, and independent development of students. Previous research on residential education mostly focused on western universities, which makes generalization difficult to a different culture such as Asia. With the residential culture in Hong Kong remains unclear, this study will explore and answer what are the specific benefits of the residential culture in Hong Kong. Taken from this, the study aims the development of academic, social, and independent of students living in residential halls and students not living in residential halls. Given the outcomes found in previous literature, it is hypothesized that students living in the residential halls would outperform students not living in halls in all aspects of development.

Methodology

Participants

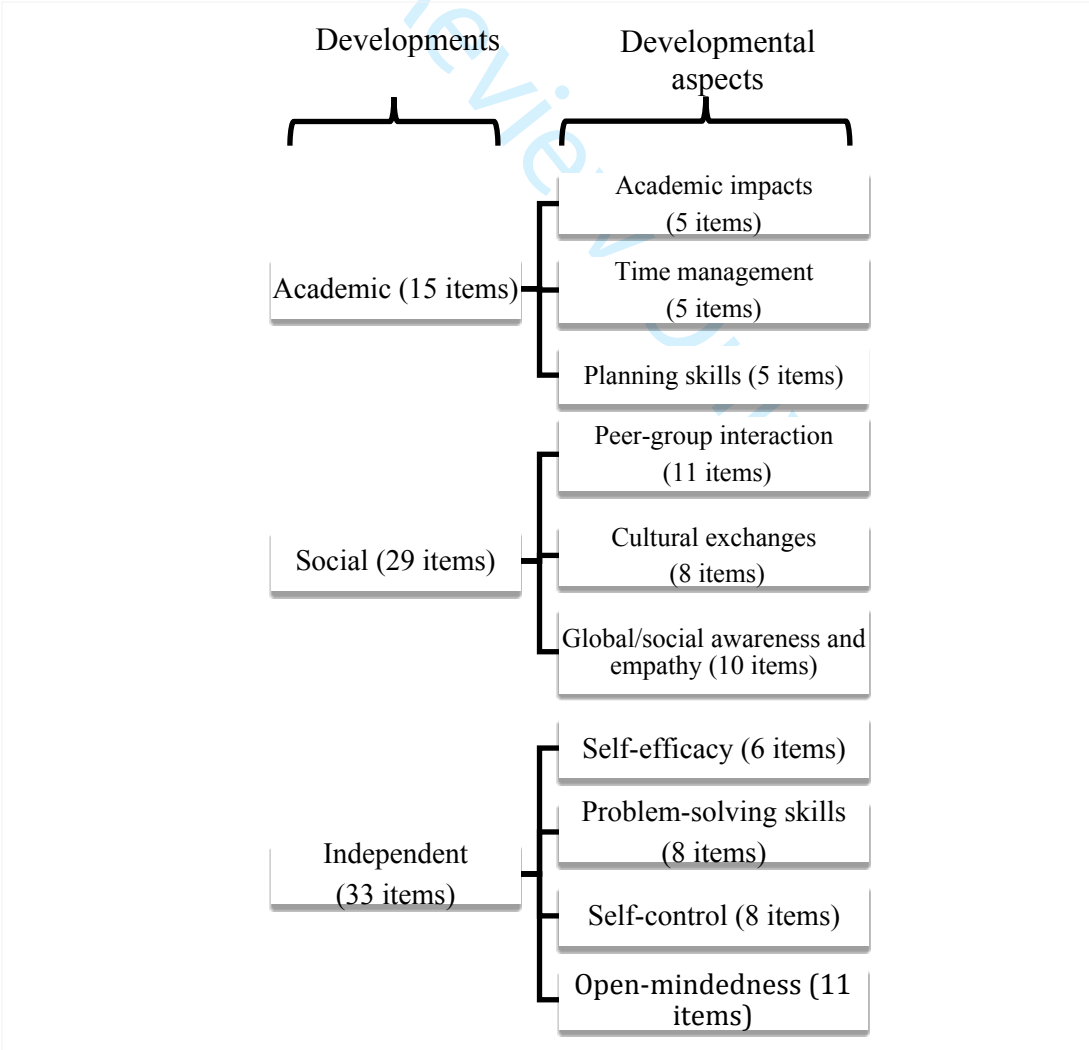
The research team has recruited 1904 hall residents in four Hong Kong universities to participate in the study, 1359 participants were female (71.4%) and 545 participants were male (28.6%). 1390 of them were local (73.0%), and 504 of them were non-local (26.5%). The majority of the participants were undergraduates (N = 1635; 85.2%), and the majority were currently residing in halls (N = 1128; 59.24%). For students living in residential halls, their mean duration of hall living experience was 12.3months.

Measures

The online questionnaire consisted of demographic information and impact of hall experience on students. The impact of hall experience consisted of 77 self-report items that tapped onto assessment of academic, social, and independent aspects (see figure 1 for sub-categories and

number of items for each aspect). Ratings were evaluated on a seven-point Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Questions about academic impacts were adapted from a recent study conducted by Chu et al. (2019) while questions about time management and planning skills were adapted from the Behavior Rating Inventory of Executive Function - Adult Version (Isquith et al., 2006). Higher scores indicated higher proficiencies in the aspects. In this sample, internal consistencies of the three aspects were good (Cronbach's αs > .8).

Figure 1 shows the number of items for measuring each developmental aspect in the questionnaire (77 self-report items)



The impact of hall experience on the students' social developments was evaluated on a seven-point Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Questions on peer-group interaction and communication skills were adapted from The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) and revised version of the Institutional Integration Scale (Pascarella & Terenzini, 1980), eight items in cultural exchanges, and ten items in global/social awareness and empathy. Higher scores indicated higher proficiencies in the aspects. In this sample, internal consistencies of the three aspects were excellent (Cronbach's αs > .9).

The impact of hall experience on students' independent developments was evaluated on a seven-point Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Questions on self-efficacy were adapted from the Generalized Self-Efficacy scale (Schwarzer & Jerusalen, 1995), problem-solving skills and self-control were adapted from the Behavior Rating Inventory of Executive Function - Adult Version (Isquith et al., 2006), open-mindedness was adapted from The Big-Five Inventory (John & Srivastava, 1999). Higher scores indicated higher proficiencies in the aspects. Internal consistencies of the four aspects were acceptable (Cronbach's αs > .7).

Procedures

All students from one of the four local universities were invited to participate in the study in exchange for a drink coupon of small monetary value (HK$20). Recruitment methods included sending mass emails, poster recruitment or direct approach during high table dinners/ hall activities. The online survey was examined students' hall life including the impacts of hall experience on the three developments.

Results

Students living in halls significantly outranked themselves in five aspects of development than their non-hall-living counterparts, more specifically, peer-group interaction and communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness. Moreover, students not living in halls outranked themselves in academic impact than students living in halls. To test these apparent effects, the data were analyzed using independent-samples t-tests and the results are represented in Tables 1, 2, and 3.

Academic Developments

Students living in residential halls reported significantly lower levels of academic impact when compared to students not living in residential halls, t (1879) = -2.371, p = .018. However, there was no significant difference between students living in residential halls and those who do not for time management, t (1878) = 1.381, p = .167, and for planning, t (1877) = 1.535, p = .125.

Table 1. The Impact of Hall Experience on Students' Academic Developments

	Hall resident		Non-hall resident				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
1. Academic impact	4.62	1.02	4.76	1.03	-2.37	.018*	-0.14
2. Time management	4.89	1.05	4.81	1.08	1.38	.167	0.08
3. Planning	4.94	1.02	4.84	1.12	1.54	.125	0.09

* $p < .05$.

Social Developments

Compared with students not living in residential halls, students living in residential halls reported significantly better performance in peer group interaction and communication skills t (1832) = 2.50, p = .012, and slightly more cultural exchanges, t (1832) = 1.92, p = .055. However, there was no significant difference in students' global/social awareness and empathy between students living in residential halls and those who do not, t (1832) = 1.44, p = .148.

Table 2 The Impact of Hall Experience on Students' Social Developments

	Hall resident		Non-hall resident				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
4. Peer-group interaction and communication skills	4.97	1.02	4.82	1.06	2.51	.012*	0.15
5. Cultural exchanges	4.92	1.05	4.80	1.08	1.92	.055†	0.11
6. Global/social awareness and empathy	5.01	0.98	4.92	1.02	1.44	.148	0.09

* $p < .05$. † $p < .10$.

Independent Developments

As shown from the data represented in Table 3, compared to those who do not live in residential halls, hall residents reported significantly higher self-efficacy, t (1785) = 2.348, p = .019, higher problem-solving skills t (1784) = 2.510, p = .012, and better self-control t (1902) = 3.437, p = .001. Furthermore, students living in residential halls reported higher open-mindedness than those who do not live in residential halls, t (1785) = 3.560, $p < .001$. Particularly, open-mindedness met the minimum threshold (Cohen's d = .2) of small effect sizes, Cohen's d = .209, demonstrating that the effect of the difference observed between students living in residential halls and students not living in residential halls is small.

Table 3 The Impact of Hall Experience on Students' Independent Developments

	Hall resident		Non-hall resident				
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
7. Self-efficacy	4.91	0.97	4.77	1.07	2.35	.019*	0.14
8. Problem-solving skills	5.00	0.96	4.85	1.14	2.51	.012*	0.14
9. Self-control	4.17	1.25	3.90	1.61	3.43	.001**	0.18
10. Open-mindedness	4.90	0.89	4.70	0.98	3.56	<.001***	0.21

* $p < .05$. ** $p < .01$. *** $p < .001$.

To further examine how student's hall experience may impact the three different aspects of student's development, multiple regression was run to predict each developmental aspect from two variables: level of participation in hall events and activities, and years of hall living experience. The assumption of normality was met, as assessed by a histogram and the P-P plot. The multiple regression model statistically significantly predicted all three aspects of students' development, F (3,742) = 129.50, $p < .001$, adj. R2 = .66, explaining 66% of the total variance (a large effect size). Both variables added statistically significantly to the prediction, $p < .001$.

Discussion

In awareness of the limited research assessing the academic, social, and independent development of students living in residential halls, the present study examined students living in the residential halls and how they compared with those not living in halls on different aspects of developments.

Academic Developments

When compared with students not living in residential halls, students living in residential halls reported similar levels of time management and planning skills. University students may need to deal with competing priorities (e.g., planning for family and occupational affairs), students living in the halls are required to effectively manage the use of time and arrange their schedule for hall-related activities, this may challenge their time management by utilizing their out-of-class time to do things such as organizing ball games, cultural events, inter-hall events; (Clark, 2005; Dusselier et al., 2005; Kaufman, 2010). Despite the additional engagement, they may not have sufficient training on advanced planning skills to arrange and deal with hall and campus affairs (Lezak, 1995; Meltzer, 2018), this may also affect their academic development. The suggestion is supported by the current findings whereby students living in residential halls demonstrated significantly lower levels of academic performance when compared to students not living in residential halls.

There is existing body of literature (Crisp & Turner, 2011; Graham et al., 2018; Pascarella, 1996) have reported non-significant difference in terms of academic performance between students living in residential halls and students not living in residential halls. One explanation is that the current residential education places much emphasis on non-academic skills, in particular, social and affective skills, instead of academic skills (Savitz-Romer et al., 2015). Students living in residential halls are more likely to face hall-specific stressors (e.g., arguing with floormates, studying in noisy apartments) that might indirectly affect their academic achievements (Graham et al., 2018; Renn & Arnold, 2003).

Social Developments

Students living in residential halls have reported having better social developments such as peer-group interaction and communication skills. There skills are polished under residential hall's emphases on interpersonal cooperation, which can be manifested from various group-based activities. For example, through daily interaction with different parties, including roommates, floormates, and teammates who are of various ages, nationalities, ethnic origins, and cultural backgrounds, students can improve their interpersonal communication skills such as active listening, affect recognition, verbal and non-verbal communication, emotion regulation and expression, and conflict resolution (McKay et al., 2009). Moreover, although students in university would be exposed to daily interaction with these diversities of people regardless of their living experience, physical proximity is a crucial factor that significantly predicts students' social interactions (Cullum & Harton, 2007). It was found that students living in residential halls tended to interact with their fellow hall mates face-to-face and share more similar attitudes to those living closest to them (Cullum & Harton, 2007). It was argued that roommates and other peers in halls play a significant role in students' decision in taking part in social groups or events (Eisenberg et al., 2014; Foster, 2006). Apart from that, peer and social group attachment allows for emotional bonding among students living in halls so that halls serve as a safe haven for students to explore in larger college communities.

Global awareness and global citizenship have become formal educational and learning outcomes of colleges in the face of sociopolitical, economic, cultural, and technological globalization (Werner & Case, 1997), and students living in residential halls should ideally have more opportunities in gaining global awareness as they are in close proximity with people from other cultures. However, the results in the current study showed that students living in residential

halls did not differ significantly from students not living in residential halls in global/social awareness and empathy. Although some local residents may be exposed to current foreign affairs through interacting with their non-local counterparts, some other local residents might be confined by their indigenous social circles, and thus, have little motives to get to know more about the current issues abroad from other non-local residents in hall settings. Flaherty (2009) claimed that intercultural communication competence is to be flexible and respectful when interacting with people who come to have different cultures, behaviors, values, and opinions. Such conflicts between residents from different countries may arise from their lack of intercultural communication competence but being exposed to this experience and challenges through hall living experience may have helped to train students to improve on this aspect of cultural exchange.

Independent Developments

Compared with the other two developments, independent developments are one that revealed most significant development among students living in halls. Students living in residential halls reported to have had better self-efficacy, problem-solving skills, self-control, as well as open mindedness than students not living in residential halls

The findings support previous studies (Zimmerman, 2000) that students living in the halls were more likely to have confidence in their own abilities and perceive themselves as more self-efficacious than students not living in residential halls. Students living in residential halls may gain mastery experience by goal-directed persistence and overcoming difficulties through participating hall activities (e.g., drama competition, mass dance, swimming gala) which might not be available to students not living in residential halls. Moreover, students living in residential halls may gain vicarious experience by learning from their peers, shadowing, and modeling; which may improve

self-efficacy (Bandura, 1977; Bandura, 1982). Strong networking of hall residents also provides students with mentoring and coaching opportunities such that they can learn from each other thereby enhancing their self-efficacy. This way, students may become more self-efficacious due to persuasions from their peers (Bandura, 1977).

During the transition into a new living environment, students were expected to resolve their own problems (e.g., adjustment issues, daily chores, financial problems, interpersonal problems, etc.), and family members were not always available to offer help (i.e., less parental control and parental support; Mattanah et al., 2004). As they encountered more problems away from family support, they may improve their problem-solving skills and self-control. This may include better emotional regulation and impulse control in the face of desires and temptations, Baer et al. (1991) explained that self-control enables students living in residential halls to self-monitor, oversee their own desires and impulses, evaluate alternative behaviors, and avoid committing certain aggressive behaviors (e.g., bullying, fighting, arguing, drinking). Students living in residential halls are also able to self-discipline themselves by exerting willpower (Terenzini et al., 1994). This might be partly due to the fact that students living in residential halls might be under constant psychosocial evaluation by their peers in daily hall life as well as in post-event evaluation hall meetings, thereby fostering students living in residential halls to exert self-control on their own behavior in order to build or maintain a good impression to others (Tangney et al., 2018). Another possible explanation is that news and information regarding individuals' behavior spread rapidly and extensively. So, students living in residential halls have to act well and conform to the hall norms. Students living in residential halls need to employ self-control during critical times (e.g., final week) so that they can balance between their academic and non-academic lives (Trope & Fishbach, 2000).

Living in residential halls may broaden open-mindedness as it provides a common place for students with diverse backgrounds to interact, which is not commonly institutionalized elsewhere in the college campus. This argument is supported by both the current findings and previous studies whereby students living in residential hall were more aware of their own biases and heuristics and more tolerant to different opinions as well as people holding different ideas than the latter (Hare, 1993). With more positive interaction experiences with diverse peers of different races, nationalities or ethnicities, students living in residential halls have more opportunities to become open-minded to new experience and diverse opinions than students not living in residential halls (Antonio, 2004; Laird, 2005).

Limitations and future directions

The current study is one of the biggest quantitative study conducted in Hong Kong to investigate various developments of university students. Due to its large scale of data collection and a long list of questions, it did not take students' previous academic performance and socioeconomic factors as control variables. Further replication research might take these factors into consideration to investigate if the significant difference still exists. Although the current findings have provided useful information regarding to areas of development students need strengthening in, a mixed method approach may help to tap onto the underlying mechanisms of residential hall education in terms of how these students interact in halls and what do they think about their overall progression on communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness during their years of living experience.

The current findings in planning among hall residents demonstrates the necessity to strengthen time management and planning skills among students living in residential halls. Future

hall education may focus more on training and help planning through organically incorporating life planning into training curricula. In the life planning curriculum, coaching could be provided to students living in residential halls. Students living in residential halls get to prioritize what is important to themselves, figure out what do they see themselves in the future, how to organize, self-monitor, self-regulate and reflect on their progress to make adjustments. Coaches could be professionally trained coaches, alumni of halls or hall tutors. Thus, it is hoped that through learning planning skills in coaching programs, students living in residential halls can do life planning in accordance with their passion, mission, profession, and vocation (Miralles & Garcia, 2017). Hall tutors can also teach necessary time management strategies that facilitate and lead to residents' final production. Thus, by applying the strategies they learned in the preparation process, residents are likely to feel competent through enactive mastery experience.

In order to develop students living in residential halls with positive and beneficial cultural exchange during their hall life, not only should inter-cultural activities be held, but evidenced-based psychoeducational programs (e.g., imagined intergroup contact) can be implemented to celebrate and embrace diversity, to facilitate the acceptance of differences, as well as to take an active role to befriend with each other (Vezzali et al., 2015). Similarly, in order to enhance global awareness, Social inclusion programs can be implemented to help students living in residential halls grasp the construct of empathy. The programs can help translate students' skills to strengthen empathetic and pro-social behaviors throughout hall life.

Conclusion

The current study provided a comprehensive analysis of the impact of hall education on academic, social, and independent developments of college students. The results of the study lent

partial support to the hypothesis, as students living in the residential halls outperformed students not living in halls in a total of only five aspects of development (i.e., peer-group interaction and communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness). However, students living in halls did not significantly outperform their non-hall-living counterparts in four aspects (i.e., time management, planning, cultural exchanges, and global/social awareness and empathy). The only aspect that students not living in halls outperformed their hall-living counterparts was academic impact. The data collection has been done in various quantitative and qualitative data method, namely self-report questionnaires, individual and focus group interviews, site visits, laying the groundwork for future research.

References

Antonio, A. L. (2004). When does race matter in college friendships? Exploring men's diverse and homogeneous friendship groups. *The Review of Higher Education, 27*(4), 553-575.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 25*(4), 297-308.

Astin, A. (1991). Achieving educational excellence. Jossey-Bass.

Baer, J. S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol, 52*(6), 580-586.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.

Blakemore, S. J. (2012). Development of the social brain in adolescence. *Journal of the Royal Society of Medicine, 105*(3), 111-116.

Blimling, G. S. (2014). *Student learning in college residence halls: What works, what doesn't, and why*. Hoboken, NJ: John Wiley & Sons.

Bronfenbrenner, U. (1989). Ecological systems theory. In R. Vasta (Ed.), *Annals of child development: Six theories of child development: Revised formulations and current issues* (pp. 187-249). London, UK: JAI Press.

Bronfenbrenner, U. (2009). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Brown, A. L. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65-115). Hillsdale, NJ: Lawrence Erlbaum Associates.

Chu, S., Chau, A., Chung, R., Chong, E., Ong, E., & Tam, A., (2019). A Comparison of Residence Hall Experience for Students of Different Backgrounds. *Journal of Student Affairs Research and Practice,* 56:3, 326-339, doi: 10.1080/19496591.2019.1582428

Clark, M. R. (2005). Negotiating the freshman year: Challenges and strategies among first-year college students. *Journal of College Student Development, 46*(3), 296-316.

Crisp, R. J., & Turner, R. N. (2011). Cognitive adaptation to the experience of social and cultural diversity. *Psychological Bulletin, 137*(2), 242-266.

Cullum, J., & Harton, H. (2007). Cultural evolution: Interpersonal influences, issue importance, and the development of shared attitudes in college residence halls. *Personality and Social Psychology Bulletin, 33*, 1327-1339.

Dusselier, L., Dunn, B., Wang, Y., Shelley, M. C. II, & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health, 54*(1), 15-24.

Eisenberg, D., Golberstein, E., & Whitlock, J. (2014). Peer effects on risky behaviors: New evidence from college roommate assignments. *Journal of Health Economics, 33*, 126-138.

Foster, G. (2006). It's not your peers, and it's not your friends: Some progress toward understanding the educational peer effect mechanism. *Journal of Public Economics, 90*, 1455-1475.

Flaherty, B. E. (2009). *Cultures in Residence: Intercultural Communication Competence for Residence Life Staff*. (Master's thesis). Retrieved from Graduate Student Theses, Dissertations, & Professional Papers, Bridget Eileen Flaherty, University of Montana. (Accession No. 284).

Gardner, H. E. (2000). *Intelligence reframed: Multiple intelligences for the 21st century*. New York, NY: Hachette.

Gellin, A. (2003). The effects of undergraduate student involvement on critical thinking: Meta-analysis of the literature 1991-2000. *Journal of College Student Development, 44*(6), 746-762.

Graham, P., Hurtado, S., & Gonyea, R. (2018). The Benefits of Living on Campus: Do Residence Halls Provide Distinctive Environments of Engagement?. *Journal of Student*

Affairs Research and Practice, 55(3), 255-269. https://doi.org/10.1080/19496591.2018.1474752

Hare, W. (1993). *Open-mindedness and Education*. Kingston, ON: McGill-Queen's University Press.

Isquith, P. K., Roth, R. M., Gioia, G. A., & PAR Staff. (2006). Behavior rating inventory of executive function - Adult version (BRIEF-A). Interpretive Report. PAR *Psychological Assessment Resources, Inc. Lutz, FL.*

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.

Kaufman, C. (2010). *Executive Function in the Classroom: Practical Strategies for Improving Performance and Enhancing Skills for All Students*. Baltimore, MD: Brookes Publishing Company.

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature. Commissioned report for the national symposium on postsecondary student success: spearheading a dialog on student success*. Washington, DC: National Postsecondary Education Cooperative.

Laird, T. F. N. (2005). College students' experiences with diversity and their effects on academic self-confidence, social agency, and disposition toward critical thinking. *Research in Higher Education, 46*(4), 365-387.

Lezak, M. (1995). *Neuropsychological Assessment*. New York, NY: Oxford University Press.

Mattanah, J. F., Hancock, G. R., & Brand, B. L. (2004). Parental attachment, separation-individuation, and college student adjustment: A structural equation analysis of mediational effects. *Journal of Counseling Psychology, 51*(2), 213.

McKay, M., Davis, M., & Fanning, P. (2009). *Messages: The communication skills book*. Oakland, CA: New Harbinger Publications.

Meltzer, L. (Ed.). (2018). *Executive function in education: From theory to practice*. New York, NY: Guilford Publications.

Miralles, F, & Garcia, H. (2017). *Ikigai: The Japanese Secret to a Long and Happy Life*. London, UK: Penguin.

Pascarella, E. T. (1996). On student development in college: Evidence from the national study of student learning. *Improve the Academy, 362*, 17-29.

Pascarella, E. T., & Terenzini, P. T. (2005). *How College Affects Students: A third decade of research* (Vol. 2). Hoboken, NJ: John Wiley & Sons.

Pascarella, E. T., Terenzini, P. T., & Blimling, G. S. (1994). The impact of residential life on students. In C. C. Schroeder & P. Mable (Eds.), *Realizing the educational potential of residence halls* (pp. 22-52). San Francisco, CA: Jossey-Bass.

Renn, K. A., & Arnold, K. D. (2003). Reconceptualizing research on college student peer culture. *The Journal of Higher Education, 74*(3), 261-291.

Savitz-Romer, M., Rowan-Kenyon, H. T., & Fancsali, C. (2015). Social, emotional, and affective skills for college and career success. *Change: The Magazine of Higher Learning, 47*(5), 18-27.

Schudde, L. T. (2011). The casual effect of campus residency on college student retention. *Review of Higher Education, 34*(4), 581-610.

Schroeder, C. C., & Mable, P. (1994). *Realizing the Educational Potential of Residence Halls. Jossey-Bass Higher and Adult Education Series*. San Francisco, CA: Jossey-Bass.

Schroeder, C. C., & Mable, P. (1994). Residence halls and the college experience: Past and present. In C. C. Schroeder & P. Mable (Eds.), *Realizing the educational potential of residence halls* (pp. 3-21). San Francisco, CA: Jossey-Bass.

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON.

Tangney, J. P., Boone, A. L., & Baumeister, R. F. (2018). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. In R. F. Baumeister (Eds.), *Self-Regulation and Self-Control* (pp. 181-220). Abingdon, UK: Routledge.

Terenzini, P. T., Rendon, L. I., Upcraft, M. L., Millar, S. B., Allison, K. W., Gregg, P. L., & Jalomo, R. (1994). The transition to college: Diverse students, diverse stories. *Research in Higher Education, 35*(1), 57-73.

Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality and Social Psychology, 79*(4), 493-506.

Wang, Y., Davidson, M. M., Yakushko, O. F., Savoy, H. B., Tan, J. A., & Bleier, J. K. (2003). The scale of ethnocultural empathy: Development, validation, and reliability. *Journal of Counseling Psychology, 50*(2), 221-234. doi:http://dx.doi.org/10.1037/0022-0167.50.2.221

Werner, W., & Case, R. (1997). Themes of global education. In A. Wright & A. Sears (Eds.), *Trends and Issues in Canadian Social Studies* (pp. 176--193). Vancouver, BC: Pacific Educational Press.

Whitehead, A. N. (1967). *Aims of education*. New York, NY: Simon and Schuster.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. Contemporary Educational Psychology, 25(1), 82-91.

Zimet, G.D., Dahlem, N.W., Zimet, S.G. & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment, 52, 30-41.

Hit or miss – Does living in residential halls impact university students' development?

Abstract

Residential halls are an important component of college education, and the benefits for holistic personal development have been documented by previous research The majority of studies, however, have focused on Western universities. The current research therefore assessed the academic, social, and independent development of students attending universities in Hong Kong. A total of 1,904 students completed a self-report questionnaire measuring various aspects of their development. The students living in residential halls scored significantly higher than those not living in halls on five aspects of development – peer group interactions and communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness – but not on other aspects such as academic development. The results imply that improvements to students' residential hall experiences are needed to facilitate their personal development.

Keywords: college student, hall residence, academic development, social development, independent development

Introduction

One of the major aims of education is to foster intellectual development through classroom learning (Whitehead, 1967). Residential halls, in contrast, are the ideal place for college students to grow and develop practical knowledge, values, maturity, and citizenship (Blimling, 2014). These attributes echo Blimling's (2001) four communities of practice: student development, student learning, student administration, and student services. Residential halls are not only dormitories that provide space for sleeping; they are also major social and recreational spaces where students can learn and grow outside the classroom (Ong & Chu, 2020).

The long history of campus residency in Western countries and the concept of the residential university have become increasingly popular in Asia. In 1912, the University of Hong Kong established a residential-based university using the Oxbridge model as a reference. Each residential hall requires all full-time academic staff members to commit to resident development services, such as providing support for student learning beyond the classroom and organising activities that challenge students to take responsibility (Chen, 2017). In 2008, The National University of Singapore (NUS) promoted the nexus of living, learning, and working in residential colleges by creating a new University Town consisting of a cluster of both residential spaces and learning facilities (Chan & Ng, 2008). This system differs from conventional residential halls in Singapore, which generally contain minimal learning activities. Similarly, the University of Macau transformed itself into a residential college university in 2014, providing all undergraduate students with at least one year of residential experience.

In 2011, a partnership between Yale University and the NUS gave rise to Yale-NUS College. The college has incorporated Singaporean and South East Asian contexts into its curriculum. Importantly, the residential college system mirrors that of Yale and other leading universities in the United States, as it effectively infuses liberal arts and science education into residential living (Bailyn et al., 2012). The Yale-NUS College creates 'nested communities' that support lifelong learning in liberal arts and sciences by combining academic, intellectual, social, cultural, athletic, and artistic aspects of life. It encourages students to pursue a co-curricular life by participating in student government, clubs, and organisations to develop leadership, independence, agility, and strength of mind.

Despite the establishment of residential education in various universities, few studies have examined the outcomes of residential education for students. The majority of these studies have

focused mainly on Western universities, and their findings are only generalisable to the specific residential hall cultures in these countries (Crisp & Turner, 2011; Graham et al., 2018; Pascarella, 1996). As suggested by Ting et al. (2016), the residential culture in Hong Kong is a mixture of Western and Chinese styles, which also encourages residential students to be fully involved in hall activities. Hall education in Hong Kong provides abundant opportunities, social and cultural activities, and career-oriented campaigns, but the specific benefits of the residential culture in Hong Kong are ill-defined. More research examining residential education in Hong Kong universities is needed to provide a complete perspective on the benefits and shortcomings of residential life.

Astin (1991) highlighted the importance of learning communities in student halls, stating that '*the potential for their success is significantly enhanced by making use of a location where a majority of freshman spend most of their time – the residence halls*' (p. 21). It is clear that residential halls serve as a bridge for students to integrate their curricular and co-curricular experiences, which is how residential education takes place (Graham et al., 2018). Residential education is a term to describe education provided in a setting where students both live and learn outside their family homes and classrooms.

Some well-established models have demonstrated many positive educational outcomes of living in residential halls (Kuh et al., 2006; Pascarella & Terenzini, 2005). For example, the *model of multiple intelligences* by Gardner (2000) suggests that living in halls contributes most directly to intrapersonal and existential development (collectively referred to as independent development) and interpersonal development (referred to as social development). Another example is Astin's (1984) *involvement theory*. Students living in residential halls learn and develop actively through an intermediate system involving interactions with other hall residents, social rendezvous,

deliberate and inadvertent experiences, and opportunities to explore their interests (Blimling, 2014). These models suggest that it is worthwhile to scrutinise the unique influence of residential halls on student development in terms of three significant aspects of development: academic, social, and independent.

Academic development includes striving for excellence in academic studies, enthusiasm for further learning, higher academic achievement, intellectual stimulation, and analytical skills (Chu et al., 2019). Studies have shown that compared with those with no hall experience, students who live in residential halls learn more, are less likely to drop out, and are more likely to graduate from college (Gellin, 2003; Schudde, 2011). However, in studies that controlled for previous academic performance and socioeconomic variables, students who lived in halls had similar academic performance to students not living in halls (Blimling, 2014; Pascarella & Terenzini, 2005). Social development may include peer group interactions and communication skills, cultural exchanges, and global/social awareness and empathy. Apart from better comprehension and interpretation of others' emotions, hall experience has been found to be beneficial to students as they encounter others with diverse ethnic, racial, and cultural backgrounds, which contributes to diversity awareness and openness to experience (Crisp & Turner, 2011; Pascarella, 1996).

Through trial and error, students living in halls self-monitor by learning what to disclose and what not to disclose to articulate their self-image, even when they are compelled to disclose (Kuh et al., 2006; Pascarella et al., 1994). Thus, students living in halls acquire self-control skills. Moreover, students living in halls have been found to engage in intellectual discussions or even debates on moral, ethical, sociopolitical, and religious issues, as well as topics related to the purpose and meaning of life and their personal missions as they advance their epistemological judgement and metacognitive skills (Blakemore, 2012; Cullum & Harton, 2007).

Aims and Objectives

This study explore the specific benefits of residential hall culture in Hong Kong and compared the academic, social, and independent development of students living in versus not living in residential halls. Given the outcomes reported in the literature, it was hypothesised that students living in residential halls would outperform students not living in halls in all aspects of development.

Methodology

Participants

The research team recruited 1,904 participants from four Hong Kong universities to participate in the study; of these, 1,359 were female (71.4%), and 545 were male (28.6%). The four universities have been anonymized as BU, CU, EU, and HU. There were 762 (40.0%) students from HU, 270 (14.2%) from CU, 441 (23.2%) from BU, and 431 (22.6%) from EU. In terms of the students' cultural background, 73.0% were local (n = 1390) and 26.5% were non-local (n = 504). The majority of the participants were undergraduates (n = 1635), and the majority were currently residing in halls (n= 1,128; 59.24%). The mean duration of living in halls was 12.3 months. To be included, the participants a) had to be enrolled as full-time students in the university at the time of the recruitment and b) to be categorized as hall residents, participants had to be undergraduate or postgraduate students having lived in a residential hall for at least one semester.

Table 3. Participants' demographic information (N = 1904)

Demographics of study participants

N = 1904	Number	%

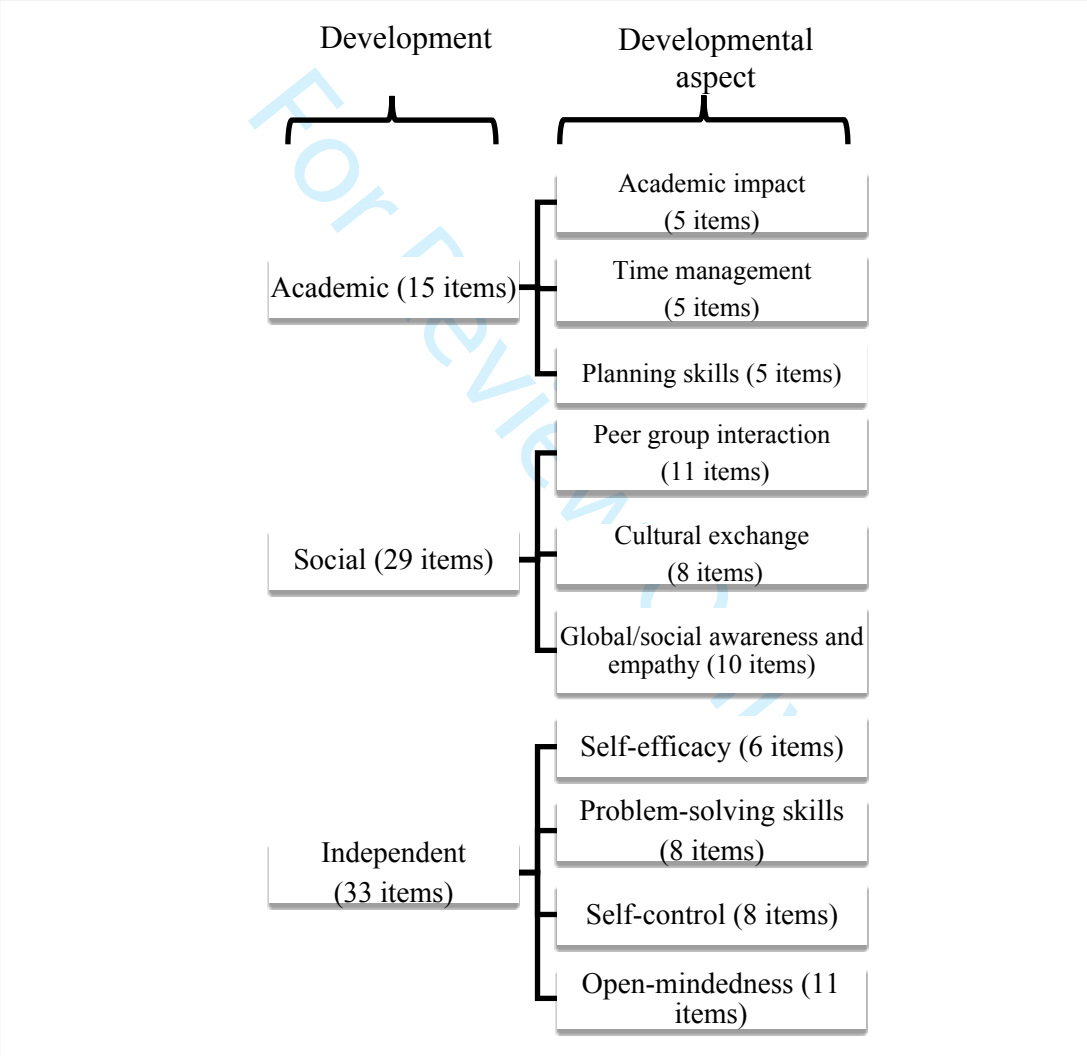
Gender	Male	545	28.6
	Female	1359	71.4
Cultural background	Local	1390	73.0
	Non-local	504	26.5
	Unknown	10	0.5
Year of study	1	579	30.4
	2	432	22.7
	3	413	21.7
	4	381	20.0
	5	75	3.9
	6 or above	11	6.0
	Alumni	13	0.7
Hall residents	Yes	1128	59.24
	No	776	40.76
	Undergraduate	1635	85.9
	Postgraduate	262	13.8
	Unknown	7	0.4
University	BU	441	23.2
	CU	270	14.2
	EU	431	22.6
	HU	762	40.0

Measures

The participants completed an online questionnaire consisting of demographic information and 77 self-report items that measured three aspects of students' development – academic, social, and independent – to assess the impact of hall experience (see Figure 1 for the sub-categories and number of items for each aspect). The items were evaluated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The questions about academic aspects were adapted from a recent study conducted by Chu et al. (2019), and questions about time management and planning skills were adapted from the Behavior Rating Inventory of Executive Function – Adult Version (Isquith et al., 2006). All of the questions were selected, with the wording of items and

language remained unchanged. Higher scores indicated higher proficiencies. In this sample, the internal consistencies of the scales measuring the three aspects were good (Cronbach's αs > .8).

Figure 1 shows the number of items used to measure each aspect of development (77 self-report items).



The impact of hall experience on the students' social development was evaluated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Questions on peer group

interactions and communication skills were adapted from The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) and a revised version of the Institutional Integration Scale (Pascarella & Terenzini, 1980), with 8 items focusing on cultural exchanges and 10 items focusing on global/social awareness and empathy. In this sample, the internal consistencies of the three scales were excellent (Cronbach's αs > .9). Higher scores indicated higher proficiencies.

The impact of hall experience on students' independent development was evaluated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Questions on self-efficacy were adapted from the Generalized Self-Efficacy Scale (Schwarzer & Jerusalen, 1995), questions on problem-solving skills and self-control were adapted from the Behavior Rating Inventory of Executive Function – Adult Version (Isquith et al., 2006), and questions on open-mindedness were adapted from The Big-Five Inventory (John & Srivastava, 1999). The internal consistencies of the four scales were acceptable (Cronbach's *α*s > .7). Higher scores indicated higher proficiencies.

Procedures

All students from four local universities were invited to participate in the study in exchange for a drink coupon of small monetary value (HK$20). Mass emails were sent to the students by the administrator in the Faculty of Education of each university. Additional mass emails were also sent to all hall residents by the warden and hall manager of each university.

Results

Compared to non-hall-living students, hall residents have reported significantly higher level of impact on five aspects of development: peer group interactions and communication skills,

self-efficacy, problem-solving skills, self-control, and open-mindedness. However, there was greater academic impact among non-hall residents as revealed by their higher scores. . To test these apparent effects, the data were analysed using independent-samples t-tests, and the results are presented in Tables 1, 2, and 3.

Academic Development

The students living in halls reported significantly lower levels of academic impact than the students not living in halls, t (1879) = -2.371, p = .018. However, there was no significant difference between them in terms of time management, t (1878) = 1.381, p = .167, or planning, t (1877) = 1.535, p = .125.

Table 1. Impact of Hall Experience on the Students' Academic Development

	Hall residents		Non-hall residents				
	M	*SD*	*M*	*SD*	*t*	*P*	Cohen's *d*
1. Academic impact	4.62	1.02	4.76	1.03	-2.37	.018*	-.14
2. Time management	4.89	1.05	4.81	1.08	1.38	.167	.08
3. Planning	4.94	1.02	4.84	1.12	1.54	.125	.09

* $p < .05$.

Social Development

The students living in halls reported significantly better peer group interactions and communication skills, t (1832) = 2.50, p = .012, and had slightly more cultural exchanges, t (1832) = 1.92, p = .055, than those not living in halls. However, there was no significant difference in the students' global/social awareness and empathy, t (1832) = 1.44, p = .148.

Table 2 Impact of Hall Experience on the Students' Social Development

	Hall residents		Non-hall residents				
	M	*SD*	*M*	*SD*	*t*	*P*	Cohen's *d*
4. Peer group interactions and communication skills	4.97	1.02	4.82	1.06	2.51	.012*	.15
5. Cultural exchanges	4.92	1.05	4.80	1.08	1.92	.055†	.11
6. Global/social awareness and empathy	5.01	0.98	4.92	1.02	1.44	.148	.09

* $p < .05$. † $p < .10$.

Independent Development

As shown in Table 3, the hall residents scored significantly higher on self-efficacy, t (1785) = 2.348, p = .019, problem-solving skills t (1784) = 2.510, p = .012, and self-control, t (1902) = 3.437, p = .001, than those not living in halls. Furthermore, the hall residents reported greater open-mindedness than the non-hall residents, t (1785) = 3.560, $p < .001$. However, the difference was quite small, meeting the minimum threshold (Cohen's d = .2) for a small effect size, d = .209.

Table 3 Impact of Hall Experience on the Students' Independent Development

	Hall residents		Non-hall residents				
	M	*SD*	*M*	*SD*	*t*	*P*	Cohen's *d*
7. Self-efficacy	4.91	0.97	4.77	1.07	2.35	.019*	.14
8. Problem-solving skills	5.00	0.96	4.85	1.14	2.51	.012*	.14
9. Self-control	4.17	1.25	3.90	1.61	3.43	.001**	.18
10. Open-mindedness	4.90	0.89	4.70	0.98	3.56	<.001***	.21

* $p < .05$. ** $p < .01$. *** $p < .001$.

To further examine the effects of hall experience, multiple regression was used to examine the effects of two variables – level of participation in hall events and activities, and time spent living in halls – on each developmental aspect. The assumption of normality was met, as assessed by a histogram and the P-P plot. The multiple regression model significantly predicted all three aspects of the students' development, $F(3,742) = 129.50$, $p < .001$, adj. $R^2 = .66$, and explained 66% of the total variance (a large effect size). Both variables made statistically significant contributions to the prediction, $p < .001$.

Discussion

Given the limited research assessing the academic, social, and independent development of students living in residential halls, this study examined how various aspects of development differed between students living in and not living in halls.

Academic Development

Students living in and not living in residential halls reported similar time management and planning skills. Living in halls did not seem to have any significant impact on academic development overall. A possible reason for this is that all university students may need to deal with competing priorities (e.g., family and employment issues), but students living in halls are also required to effectively manage their time and arrange their schedules for hall-related activities such as organising ball games, cultural events, and inter-hall events, which may challenge their time management by taking up their out-of-class time (Clark, 2005; Dusselier et al., 2005; Kaufman, 2010). Despite their additional engagement, they may not have sufficient advanced planning skills

to arrange and deal with hall and campus affairs (Lezak, 1995; Meltzer, 2018), which may in turn affect their academic development.

Previous studies (Crisp & Turner, 2011; Graham et al., 2018; Pascarella, 1996) have reported non-significant differences in academic performance between students living in and not living in residential halls. One explanation is that currently, residential education emphasises non-academic skills, particularly social and affective skills, rather than academic skills (Savitz-Romer et al., 2015). Students living in residential halls are more likely to face hall-specific stressors (e.g., arguing with floormates, studying in noisy apartments) that might indirectly affect their academic achievements (Graham et al., 2018; Renn & Arnold, 2003).

Social Development

Three aspects of social development were measured in this study: peer group interactions and communication skills, cultural exchanges, and global/social awareness and empathy. The students living in halls scored better only on peer group interactions and communication skills. It is evident that this aspect was advanced by the residential halls' emphasis on interpersonal cooperation, manifested in various group-based activities. For example, daily interactions with different parties, including roommates, floormates, and teammates of various ages and with people of different nationalities, ethnic origins, and cultural backgrounds, enhance students' interpersonal communication skills such as active listening, affect recognition, verbal and non-verbal communication, emotion regulation and expression, and conflict resolution (McKay et al., 2009). Moreover, although university students, regardless of their living experience, are exposed to daily interactions with a diverse range of people, physical proximity is a crucial factor that significantly predicts students' social interactions (Cullum & Harton, 2007). A previous study

found that students living in residential halls tended to interact with their fellow hall mates face-to-face and shared similar attitudes to those living closest to them (Cullum & Harton, 2007). It has been argued that roommates and other peers in halls play a significant role in students' social group and event-related decision-making (Eisenberg et al., 2014; Foster, 2006). Furthermore, peer and social group attachment allows for emotional bonding between students living in halls, which encourages them to explore their larger college communities.

Global awareness and global citizenship have become formal educational and learning outcomes of colleges in the face of sociopolitical, economic, cultural, and technological globalisation (Werner & Case, 1997). Ideally, students living in halls should have more opportunities to expand their global awareness, as they are in close proximity with people from other cultures. However, the results of this study showed no differences in global/social awareness and empathy between the students living and not living in halls. Although some local residents may be exposed to current foreign affairs through their interactions with their non-local counterparts, other local residents might be more confined by their indigenous social circles and thus have little motive to learn more about current world issues from non-local residents in hall settings. Flaherty (2009) claimed that intercultural communication competence entails being flexible and respectful when interacting with people with different cultural backgrounds, behaviours, values, and opinions. Conflicts between residents from other countries may arise from a lack of competence in intercultural communication, but being exposed to such experiences and the challenges of hall living may help students to improve on this aspect of cultural exchange.

Independent Development

Of the three aspects of development, independent development was the most enhanced among students living in halls. Students living in halls had higher scores for self-efficacy, problem-solving skills, self-control, and open-mindedness than students not living in halls.

The findings support those of Zimmerman (2000), who found that students living in halls were more likely to have confidence in their own abilities and perceive themselves as more self-efficacious than students not living in halls. Students living in halls may gain mastery experience through goal-directed persistence and overcoming difficulties while participating in hall activities (e.g., drama competitions, mass dances, swimming galas), which might not be available to non-hall students. Moreover, students in halls may learn vicariously by shadowing and modelling their peers, and thus improve their self-efficacy (Bandura, 1977; Bandura, 1982). Strong networking between hall residents also provides students with mentoring and coaching opportunities through which they can learn from their peers and thereby enhance their self-efficacy.

During the transition into a new living environment, students are expected to resolve their own problems (e.g., adjustment issues, daily chores, financial and interpersonal problems), and family members are not always available to provide parental control and support (Mattanah et al., 2004). Encountering and resolving such problems without family support helps students to improve their problem-solving skills and self-control, which may include better emotional regulation and impulse control in the face of desires and temptations. Baer et al. (1991) explained that self-control enables students living in halls to self-monitor, oversee their own desires and impulses, evaluate alternative behaviours, and avoid engaging in aggressive behaviours such as bullying, fighting, arguing, and drinking. Students living in halls are also able to use their willpower to exert self-discipline (Terenzini et al., 1994), perhaps in part because they are under constant psychosocial evaluation by their peers during daily hall life and in post-event evaluation

hall meetings, which encourages them to develop self-control over their own behaviour to make a good impression on others (Tangney et al., 2018). Another possible explanation is that news and information about individuals' behaviour can spread rapidly and extensively. Students living in halls must therefore act reasonably and conform to the hall norms. They also need to apply self-control during critical times (e.g., finals week) so that they can balance their academic and non-academic lives (Trope & Fishbach, 2000).

Living in residential halls may enhance open-mindedness, as it provides opportunities for students with diverse backgrounds to interact, which may not occur regularly elsewhere on campus. This argument is supported by both the current findings and those of previous studies in which students living in halls were more aware of their own biases and heuristics and more tolerant of different opinions and ideas than non-hall residents (Hare, 1993). With more positive interactions with diverse peers of different races, nationalities, and ethnicities, students living in halls have more opportunities to become open-minded toward new experiences and diverse opinions than students not living in halls (Antonio, 2004; Laird, 2005).

Limitations and Future Directions

This study is one of the largest quantitative studies on various aspects of university students' development in Hong Kong. Because of the large scale of data collection and the length of the questionnaire, students' previous academic performance and socioeconomic factors were not included as control variables. Further replication research might take these factors into consideration to investigate whether the differences reported here still exist. Although some of the results showed significant differences between students living in and not living in halls, it is noteworthy that most of the differences had very small effect sizes (< 0.3).

Although these findings provide useful information regarding the areas of development that need to be strengthened in students, a mixed-methods approach may help to reveal the underlying mechanisms by which residential hall education affects development by exploring how students interact in halls and their perceptions of their overall development of communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness during their hall lives.

The current findings on students' planning abilities suggest that it is necessary to strengthen hall residents' time management and planning skills. Future hall education could focus more on training and planning by organically incorporating life planning into the training curricula. The life planning curriculum could include coaching for students living in halls, helping them to prioritise what is important to themselves, figure out where they see themselves in the future, and discover how to organise, self-monitor, self-regulate, and reflect on their progress to make adjustments. Coaches could be professionally trained mentors, hall alumni, or hall tutors. Hopefully, learning planning skills in coaching programmes would help students living in halls to engage in life planning in accordance with their passions, missions, professions, and vocations (Miralles & Garcia, 2017). Hall tutors could also teach time management strategies to residents' thus, by applying the strategies they are likely to enhance their sense of competence through enactive mastery experience.

To provide students living in residential halls with positive and beneficial cultural exchanges during hall life, evidenced-based psychoeducational programmes (e.g., imagined intergroup contact) could be implemented in addition to inter-cultural activities to celebrate and embrace diversity, facilitate the acceptance of differences, and encourage students to take an active role in befriending each other (Vezzali et al., 2015). Similarly, to enhance global awareness, social

inclusion programmes could be implemented in halls to help students grasp the construct of empathy and harness their skills to strengthen empathetic and pro-social behaviours throughout their hall life.

Conclusion

This study provides a comprehensive analysis of the impact of hall education on college students' academic, social, and independent development. The results only partially support the study's hypothesis, as the students living in halls outperformed those not living in halls in only five aspects of development: peer group interactions and communication skills, self-efficacy, problem-solving skills, self-control, and open-mindedness. The students living in halls did not significantly outperform their non-hall-living counterparts in four aspects: time management, planning, cultural exchanges, and global/social awareness and empathy. The only aspect for which the non-hall students outperformed their hall-living counterparts on academic impact. The data were collected using various quantitative and qualitative methods, namely self-report questionnaires, thus laying the groundwork for future research.

References

Antonio, A. L. (2004). When does race matter in college friendships? Exploring men's diverse and homogeneous friendship groups. *The Review of Higher Education, 27*(4), 553-575.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 25*(4), 297-308.

Astin, A. (1991). *Achieving educational excellence*. Jossey-Bass.

Baer, J. S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol, 52*(6), 580-586.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.

Blakemore, S. J. (2012). Development of the social brain in adolescence. *Journal of the Royal Society of Medicine, 105*(3), 111-116.

Blimling, G. S. (2014). *Student learning in college residence halls: What works, what doesn't, and why*. Hoboken, NJ: John Wiley & Sons.

Bronfenbrenner, U. (1989). Ecological systems theory. In R. Vasta (Ed.), *Annals of child development: Six theories of child development: Revised formulations and current issues* (pp. 187-249). London, UK: JAI Press.

Bronfenbrenner, U. (2009). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Brown, A. L. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65-115). Hillsdale, NJ: Lawrence Erlbaum Associates.

Chan, D., & Ng, P. T. (2008). Developing transnational higher education: Comparing the approaches of Hong Kong and Singapore. *International Journal of Educational Reform, 17*(3), 291-307. https://doi.org/10.1177/105678790801700306

Chen, Haydn. (2017, August 30). *Learning outcomes of the residential colleges at the University of Macau*. The University of Hong Kong. http://www.cetl.hku.hk/conf2016/wp-content/uploads/2016/08/Haydn-CHEN-Learning-Outcomes-of-the-RCs-at-UMac-2016.5.pdf

Chu, S., Chau, A., Chung, R., Chong, E., Ong, E., & Tam, A., (2019). A comparison of residence hall experience for students of different backgrounds. *Journal of Student Affairs Research and Practice,* 56:3, 326-339, doi: 10.1080/19496591.2019.1582428

Clark, M. R. (2005). Negotiating the freshman year: Challenges and strategies among first-year college students. *Journal of College Student Development, 46*(3), 296-316.

Crisp, R. J., & Turner, R. N. (2011). Cognitive adaptation to the experience of social and cultural diversity. *Psychological Bulletin, 137*(2), 242-266.

Cullum, J., & Harton, H. (2007). Cultural evolution: Interpersonal influences, issue importance, and the development of shared attitudes in college residence halls. *Personality and Social Psychology Bulletin, 33*, 1327-1339.

Dusselier, L., Dunn, B., Wang, Y., Shelley, M. C. II, & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health, 54*(1), 15-24.

Eisenberg, D., Golberstein, E., & Whitlock, J. (2014). Peer effects on risky behaviors: New evidence from college roommate assignments. *Journal of Health Economics, 33*, 126-138.

Foster, G. (2006). It's not your peers, and it's not your friends: Some progress toward understanding the educational peer effect mechanism. *Journal of Public Economics, 90*, 1455-1475.

Flaherty, B. E. (2009). *Cultures in residence: Intercultural communication competence for residence life staff*. (Master's thesis). Retrieved from Graduate Student Theses, Dissertations, & Professional Papers, Bridget Eileen Flaherty, University of Montana. (Accession No. 284).

Gardner, H. E. (2000). *Intelligence reframed: Multiple intelligences for the 21st century*. New York, NY: Hachette.

Gellin, A. (2003). The effects of undergraduate student involvement on critical thinking: Meta-analysis of the literature 1991-2000. *Journal of College Student Development, 44*(6), 746-762.

Graham, P., Hurtado, S., & Gonyea, R. (2018). The benefits of living on campus: Do residence halls provide distinctive environments of engagement? *Journal of Student Affairs Research and Practice,* 55(3), 255-269. https://doi.org/10.1080/19496591.2018.1474752

Hare, W. (1993). *Open-mindedness and Education*. Kingston, ON: McGill-Queen's University Press.

Isquith, P. K., Roth, R. M., Gioia, G. A., & PAR Staff. (2006). Behavior rating inventory of executive function - Adult version (BRIEF-A). Interpretive report. PAR *Psychological Assessment Resources, Inc. Lutz, FL.*

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.

Kaufman, C. (2010). *Executive function in the classroom: Practical strategies for improving performance and enhancing skills for all students*. Baltimore, MD: Brookes Publishing Company.

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature. Commissioned report for the national symposium on postsecondary student success: spearheading a dialog on student success*. Washington, DC: National Postsecondary Education Cooperative.

Laird, T. F. N. (2005). College students' experiences with diversity and their effects on academic self-confidence, social agency, and disposition toward critical thinking. *Research in Higher Education, 46*(4), 365-387.

Lezak, M. (1995). *Neuropsychological assessment*. New York, NY: Oxford University Press.

Mattanah, J. F., Hancock, G. R., & Brand, B. L. (2004). Parental attachment, separation-individuation, and college student adjustment: A structural equation analysis of mediational effects. *Journal of Counseling Psychology, 51*(2), 213.

McKay, M., Davis, M., & Fanning, P. (2009). *Messages: The communication skills book*. Oakland, CA: New Harbinger Publications.

Meltzer, L. (Ed.). (2018). *Executive function in education: From theory to practice*. New York, NY: Guilford Publications.

Miralles, F, & Garcia, H. (2017). *Ikigai: The Japanese secret to a long and happy life*. London, UK: Penguin.

Pascarella, E. T. (1996). On student development in college: Evidence from the national study of student learning. *Improve the Academy, 362*, 17-29.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). Hoboken, NJ: John Wiley & Sons.

Pascarella, E. T., Terenzini, P. T., & Blimling, G. S. (1994). The impact of residential life on students. In C. C. Schroeder & P. Mable (Eds.), *Realizing the educational potential of residence halls* (pp. 22-52). San Francisco, CA: Jossey-Bass.

Renn, K. A., & Arnold, K. D. (2003). Reconceptualizing research on college student peer culture. *The Journal of Higher Education, 74*(3), 261-291.

Savitz-Romer, M., Rowan-Kenyon, H. T., & Fancsali, C. (2015). Social, emotional, and affective skills for college and career success. *Change: The Magazine of Higher Learning, 47*(5), 18-27.

Schudde, L. T. (2011). The causal effect of campus residency on college student retention. *Review of Higher Education, 34*(4), 581-610.

Schroeder, C. C., & Mable, P. (1994). *Realizing the educational potential of residence halls. Jossey-Bass higher and adult education series*. San Francisco, CA: Jossey-Bass.

Schroeder, C. C., & Mable, P. (1994). Residence halls and the college experience: Past and present. In C. C. Schroeder & P. Mable (Eds.), *Realizing the educational potential of residence halls* (pp. 3-21). San Francisco, CA: Jossey-Bass.

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON.

Tangney, J. P., Boone, A. L., & Baumeister, R. F. (2018). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. In R. F. Baumeister (Eds.), *Self-regulation and self-control* (pp. 181-220). Abingdon, UK: Routledge.

Terenzini, P. T., Rendon, L. I., Upcraft, M. L., Millar, S. B., Allison, K. W., Gregg, P. L., & Jalomo, R. (1994). The transition to college: Diverse students, diverse stories. *Research in Higher Education, 35*(1), 57-73.

Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality and Social Psychology, 79*(4), 493-506.

Wang, Y., Davidson, M. M., Yakushko, O. F., Savoy, H. B., Tan, J. A., & Bleier, J. K. (2003). The scale of ethnocultural empathy: Development, validation, and reliability. *Journal of Counseling Psychology, 50*(2), 221-234. doi:http://dx.doi.org/10.1037/0022-0167.50.2.221

Werner, W., & Case, R. (1997). Themes of global education. In A. Wright & A. Sears (Eds.), *Trends and issues in Canadian social studies* (pp. 176--193). Vancouver, BC: Pacific Educational Press.

Whitehead, A. N. (1967). *Aims of education*. New York, NY: Simon and Schuster.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82-91.

Zimet, G.D., Dahlem, N.W., Zimet, S.G. & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 52, 30-41.

Responses to the Reviewers' Comments

16th August 2021

Dear Editor and Reviewers,

Thank you for taking the time to read this manuscript and provide detailed and helpful comments. Below is an outline of how I have amended the work according to the comments. All changes are written in green, and where necessary they are marked on the paper in green.

I look forward to your thoughts regarding the changes.

Yours Sincerely,

Elsie Ong

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

The manuscript report on a study that examined the impact of residential hall on university students' development in Hong Kong. Residential hall education has not received sufficient attention but it is an important part of university life. For this reason, I think that the study has potential. However, I also feel that the authors may need to consider the following issues (as I am not convinced by the study's contributions).

1. I think that the authors need to discuss and argue why a study in Hong Kong's universities is important. Not much done on residential hall education in this context? Have similar studies been conducted in similar or related cultural contexts e.g. mainland China?, Japan?

The prior studies on residential education have based themselves in Western universities (i.e. oriented in western culture). There has not been any similar study for Hong Kong or in oriental context so far. Given that the prevalence of residential communities within local universities, it is important to have a research focusing on Hong Kong universities to help the residential staff and university administration developing a better model of residential education.

2. The authors have mentioned this as part of the limitations. Can the authors provide more details on the participants? say where they are from? their linguistic cultural backgrounds?
We did not ask participants to be very specific in answering the two questions listed here, we have only asked if they considered themselves as local versus non-local. Their linguistic cultural background was a very interesting topic we wanted to explore at the beginning of our project but later discovered some dilemma whereby some Chinese migrated back to HK from other countries considered themselves as overseas students, whereas a number of non-Chinese students (e.g. Pakistan students) were born in HK and fluent in Cantonese. They considered themselves as local student.

Probably the authors need to present some background on Hong Kong's campus accommodation. How about government subsidy? Selection process? I am not sure if readers can make sense of the study if they are informed about the unique conditions that these residential halls operate. Of course, there is a very strong hall culture and education program in these residential halls. The issue is also a divisive issue for students (local and nonlocal students alike).

Thank you for your suggestion, regarding your request for more details on the participants, I have now added a table under participant section. In terms of government subsidy for residential living experience, there is a "Bursary Scheme for Accommodating Non-local Undergraduate Students" that was introduced in 2009 to enrich nonlocal students' residential experience. We believe it will serve good educational value for nonlocal students if they live in the community. Students can understand more and be better integrated into the local community. If a few students team up to rent an apartment, they can also learn to take care of and collaborate with one another. Colleagues from CEDARS can assist you in the process such as search for apartment and negotiation with the landlord. Local students are provided by supplementing Government financial assistance schemes, there are a number of bursaries and interest-free loans managed by the University to assist students with financial hardship. These awards, donated by private organisations and individuals, are allocated to full-time local students on the basis of their financial needs.

3. How were the participants sampled and recruited for the study? Was the questionnaire administered in English?
We have now elaborated on the recruitment method in the procedure section, hopefully it is clearer now. Yes, all questionnaires were administered in English

4. Please note that the statistical results. I am happy to see the see effect sizes reported but it looks most of the comparison results do not have large effects, suggesting that the two groups are that different.
Yes, I agree with your claim. The effect size is very small but the difference was significant ($p<.05$). There was also a very unbalanced number of participants in residents versus non-residents groups which may explain this.

5. Considering the effect sizes, I think that the authors should be careful in making claims about the findings. They need to present a convincing argument for the study's contributions.
I think it is a valid point to clarify this when discussing the findings, therefore we have added some information in both results and discussion now.

6. The limitations are well noted but they may reduce the significance of the study, too.

Reviewer: 2

Comments to the Author
This is an important topic to be explored and the findings have potential to enrich the current literature. There are a few key issues that prevent me from recommendation for publication. See comments below.

1. The literature review is too brief and not in-depth enough. What is the theoretical framework? The authors should also conduct a more comprehensive literature review on the same topic in the Asian context.

I agree that the current literature review could have been elaborated in more depth after checking that the overall word count for publishing this manuscript was 6000-7000 words including references and tables. There has not been any research on similar Asian context, hence the literature review is limited to the comparison with existent Western studies. However,

2. There are a lot of information left out in the method section.

a. Participants
i. There were 1,904 hall residents from four Hong Kong universities participating in the study. How many were from each university?
Thanks for requesting this information which is essential. We have added a table to show some demographics of participants including which university they came from

ii. Why were there so many more female participants (71.4%) than male participants (28.6%)? Explain why there is such a big gap between female and male participants.

The uneven distribution of male versus female in this study could be attributed to the origin of this research project which from the Faculty of Education, hence mass emails were sent by the Faculty administrators to all the students. This is a Faculty whereby distribution in female and male was imbalanced. Overall, there is approximately 53% female students and 46% male students in Hong Kong universities but some universities reported only having 23% male students. In the past years, our research team has also noticed more female students signing up as a participant for the research.

iii. What year of studies were these participants because this factor might make a huge difference in their response?

The participants were recruited across all years of study with a small percentage of Alumni (0.7%). Your point was valid in stating that the year of study makes a huge difference in their response, and indeed we have published a paper comparing different years in another peer-reviewed journal in 2019 ‘‘A comparison of residence hall experience for students of different backgrounds’’

iv. Why mixed undergraduate and graduate students together? They were quite different in many ways.

The number of graduate residents are trivial (i.e. <10%). Hence, i) mixing it together would not really affect the overall analysis and ii) singling out the graduate student is not particularly conducive in building a residential education which targets undergraduate students.

v. What about the non-hall residents? There is no information about this group. How many of them and how were they selected?
Thanks for requesting this information and we have added this to a table to show whether the participants were hall residents or not.

b. Measures
i. Why the authors chose these instruments?

ii. Did the authors use the entire batch of questions from the original instruments? If not, how did the authors select questions from these instruments?
iii. What were the reliability of these instruments?

i. The authors chose these instruments as the study was part of a three-year internationally collaborated project. The choice of measures and instruments were decided by the principal investigators and the co-investigators based on their related investigations on residential education.

iii. To test the internal validity of these aspects using Cronbach's alpha[1], it is evident that all items of the impact of hall experience on academic aspects appeared to be worthy of retention except one of the items in the first sub-aspect – academic impacts. The internal consistence for the academic impacts was lower than expected, $\alpha = .689$. If the fifth item that *My analytical skills in my work/assignment have not improved* was removed, the internal consistence for the academic impacts will turn to a satisfactory level, $\alpha = .877$.

Both of the items in the subsequent sub-aspects, time management and organizing skills as well as planning skills, have high internal consistence, $\alpha = .876$ and $\alpha = .887$. All items of the impact of hall experience on interpersonal relationships were worthy of retention, with $\alpha = .944$ for the peer-group interaction and communication skills and with $\alpha = .917$ for the cultural exchanges and with $\alpha = .940$ for the global/social awareness and empathy. All items of the impact of hall experience on intrapersonal aspects appeared to be worthy of retention but one of the items in the third sub-aspect – self-control – has to remove for the better internal consistence. The self-control sub-aspect was lower than expectation, $\alpha = .735$. If the first item in the self-control sub-aspect was removed, the internal consistence was then become satisfactory, $\alpha = .774$. All items in the rest of sub-aspects were worthy of retention, with $\alpha = .917$ for self-efficacy and with $\alpha = .944$ for problem-solving skills and with $\alpha = .905$ for open-mindedness.

[1] Cronbach's alpha is a convenient test used to estimate the reliability, or internal consistency, of a composite score

ii. please see the full set of questions asked in the current study.

Items for each sub-aspect listed in the impact of hall experience on academic aspects

Academic impacts	
1	I strive for excellence in my academic/professional studies.
2	My enthusiasm for further learning has been stimulated.
3	I have higher achievement of my academic goals.
4	I have obtained much intellectual stimulation.
5	My analytical skills in my work/assignment have not improved.
Time management and organizing skills	
1	My time management skills have improved.
2	I am good at dealing with large and complicated tasks.
3	I can easily change from one activity or task to another.
4	I am able to finish a task on my own.
5	I am good at organizing work/ activities.
Planning skills	
1	I am good at prioritizing activities.
2	I often start tasks (such as cooking, projects) with the right materials.
3	I often plan ahead for future tasks/ activities.
4	I have realistic goals.
5	I have good ideas and I can get them on paper.

iv. Please provide some sampled questions.

Table 2

Items for each sub-aspect listed in the impact of hall experience on Students' Social Development

Peer-group interaction and communication skills	
1	My interpersonal relationships with students have positively influenced my intellectual growth and int in ideas.
2	My personal relationships with other students have positively influenced my personal growth, values, attitudes.
3	The student friendships I have developed have been personally satisfying.
4	I have developed close personal relationships with other students.
5	My skills in social communication have been improved.
6	I am more able to communicate my ideas with people.
7	Many students I know would be willing to listen and help me if I had a personal problem.
8	Most students at this University have values and attitudes similar to mine.
9	I am able to discuss ideas and topics I learn in class with other students who live in my residence hall.
10	I often leave my door open and interact with other students living in my residence hall.
11	I often interact with other students in my residence hall through planned movie nights, game nights, discussions, and other activities planned by my resident tutor.
Cultural exchanges	
1	I understand how the various cultures of this world interact socially.
2	I have developed a better understanding of people of different cultural and ethnic backgrounds.
3	The overall relationship between the local and nonlocal students in my hall is good.
4	It is important to have a close relationship with students from different cultural backgrounds.
5	It is important to have a good cultural exchange between local and nonlocal students in the halls.
6	It is important to have a good intellectual exchange between local and nonlocal students in the halls.
7	I have a strong desire to promote exchange between the local and nonlocal students in my hall.
8	I have learned a lot through interaction between students from different cultural backgrounds.
Global/social awareness and empathy	
1	I am able to empathize with people from other countries.
2	It is easy for me to put myself in someone else's shoes regardless of what country they are from.
3	I am more aware of the thoughts and feelings of other people.
4	I am more able to see things from other people's points of view.
5	I am able to perceive new information and ideas from different perspectives.

6	Living on campus has allowed me to get more involved in the community.
7	Being actively involved in global issues is my responsibility.
8	It is my responsibility to understand and respect cultural differences across the globe to the best of my abilities.
9	I am more aware of my role as a responsible global citizen.
10	I am more able to see things from a global perspective.

Table 3

Items for each sub-aspect listed in the impact of hall experience on Students' Independent Development

Self-efficacy	
1	I can usually handle whatever comes my way.
2	If someone opposes me, I can find the means and ways to get what I want.
3	It is easy for me to stick to my aims and accomplish my goals.
4	I am confident that I could deal efficiently with unexpected events.
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.
6	I can remain calm when facing difficulties because I can rely on my coping abilities.
Problem-solving skills	
1	I can generate a number of ways to solve problems.
2	I have learned more about how to identify a problem and tackle it.
3	I can stay calm (optimistic) when facing problems.
4	I feel more confident about tackling unfamiliar problems.
5	I can positively search for ways to solve problems.
6	I can always manage to solve difficult problems if I try hard enough.
7	When I am confronted with a problem, I can usually find several solutions.
8	If I am in trouble, I can usually think of a solution.
Self-control	
1	I am good at resisting temptation.
2	I have a hard time breaking bad habits.
3	I say inappropriate things.
4	I wish I had more self-discipline.
5	Pleasure and fun sometimes keep me from getting work done.
6	I have trouble concentrating.
7	I am able to work effectively toward long-term goals.
8	I often act without thinking through all alternatives.

Open-mindedness	
1	I feel more confident when I am put in a new situation.
2	I have cultivated a more inquisitive mind.
3	I see myself as someone who is original, comes up with new ideas.
4	I see myself as someone who is curious about many different things.
5	I see myself as someone who is ingenious, a deep thinker.
6	I see myself as someone who has an active imagination.
7	I see myself as someone who is inventive.
8	I see myself as someone who likes to reflect, play with ideas.
9	I see myself as someone who prefers work that is routine.
10	Living on campus has allowed me to attend more cultural, art or sporting events.
11	Living on campus has allowed me to be more involved in extracurricular activities.

3. Why not use some qualitative data to support the quantitative data?

The data in the current study was a part of a large-scale mixed method research which involved 1904 quantitative data from four universities followed by 125 interviews. We have considered how to publish the findings together and have decided it is best to focus and split the data into publishing two separate papers.