COMPARING THE SENSE OF ONLINE CLASSROOM COMMUNITY BETWEEN STUDENTS FROM URBAN AND RURAL AREAS AT A CHINESE UNIVERSITY

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ABSTRACT

Building a sense of classroom community is essential for online courses, and various factors such as individual characteristics may influence this feeling. Therefore, this study investigated Chinese college students' sense of online classroom community by comparing students from rural and urban areas and their previous online learning experience. A total of 256 students were recruited in a southeastern Chinese university and given a survey to evaluate their classroom connectedness and learning. Results indicated that students from rural areas experience a lower level of connection with the online classroom community. Additionally, students who had previous online learning experiences have a stronger sense of online classroom community.

Keywords: sense of classroom community, rural vs. urban, online learning, Chinese college students

INTRODUCTION

In the spring semester of 2020, universities in China launched courses entirely online for the first time in response to COVID-19. This was the first time that many Chinese college students attended fully online courses. Before the outbreak of the pandemic, even when some instructors offered blended courses, face-to-face instruction was the predominant course delivery in Chinese universities. Therefore, the transfer to online learning has provided an opportunity for Chinese higher education professionals to look at students' learning experiences in a fully online environment. Gillett-Swan (2017) noted that students often face various challenges when attending online courses, including feeling isolated and technology issues. Further, being quarantined at home while taking online courses would amplify students' feelings of isolation. Thus, building a sense of online classroom community is important.

Haar (2018) stated that social support, relationship establishment, online discussion and sharing, and enculturation into the community could influence the sense of online belonging. However, students' characteristics such as their living environments and previous online learning experiences were not investigated much. Therefore, to fill this research gap, our study explored students' living environments and their prior online learning experiences and the effect of both on their sense of classroom community. To be more specific, this study aims to investigate 1) differences in students' sense of online classroom community between those living in rural and urban areas, 2) differences in students' sense of online classroom community between those who had previous online learning experiences and those who did not, and 3) how do living environments and levels of previous online learning experiences influence students' sense of online classroom community. It is expected that this study would rouse Chinese higher education professionals and policymakers to pay attention to the challenges faced by Chinese college students. We hope the findings of this study will provide

suggestions for them to implement strategies in order to establish a supportive online learning environment, especially for students living in rural areas.

LITERATURE REVIEW

Online Education in China

Online learning has been integrated into Chinese higher education for years. A variety of policies and strategies associated with improving online education have been proposed since the 1990s. For example, Tsinghua University called for the development of modern online education in 1996 and launched online postgraduate courses in 1998. Hunan University cooperated with Hunan China Telecom to establish the first online university in 1997. In late 1998, the Ministry of Education of the People's Republic of China named Tsinghua University, Beijing University of Posts and Telecommunications, Zhejiang University, and Hunan University the first four pilot institutions to provide online degree programs. The number of students enrolled in the online programs reached 9,000 that year (Zawacki-Richter & Qayyum, 2019). In September 1999, China Education and Research Network (CERNET), the first nationwide education and research computer network in China, was founded and directed by the Chinese Ministry of Education. This network was constructed and operated by Tsinghua University and other leading Chinese universities to satisfy China's online learning demand by the end of 2000.

With the development of technology and networks, the number of universities that can provide online degree programs expanded to 45 in 2001, increasing student enrollment to 840,000 by 2004 (National Bureau of Statistics of China [NBS], 2005). Sixty-eight universities offered online degree programs in 2013 (Ministry of Education of the People's Republic of China [MOE], 2013). Since then, online higher education has entered an era of burgeoning development in China. According to the statistics report by the Chinese Ministry of Education (Li & Chen, 2019), the total number of college students enrolled in online courses increased from 2.37 million to 6.45 million between 2004 and 2016. The percentage of online learners' in the entire higher education system rose from 11.9% to 17.4% (NBS, 2017). Then in 2020, the Chinese Ministry of Education issued guiding opinions announcing that universities should make full use of online Massive Open Online Courses (MOOCs) and high-quality online course resources at the provincial and university levels. In response to the call of this announcement, local governments have proposed a series of strategies aimed to improve online education, especially during the pandemic. For instance, the Beijing government has provided various open online courses for all college students enrolled in universities in Beijing.

Instructors in Chinese universities usually offered online courses in synchronous, asynchronous, and a blend of both online formats. Synchronous learning refers to the learning activity that students and their instructors engage in simultaneously, usually through video conferencing (Ruiz et al., 2006). On the other hand, asynchronous learning refers to a learning activity that does not happen in real time. Instead, the instructor uses emails and online discussion boards to interact with students (Ruiz et al., 2006). Finally, the instructor designs the course in a blended online class by combining synchronous and asynchronous online learning. This course format integrates the advantages of both synchronous and asynchronous formats and may bring various benefits to student learning (Horvitz et al., 2019). However, regardless of the online course format, in an online learning environment students usually develop a sense of isolation and loneliness due to a lack of interpersonal connections with their instructor and peers, and this feeling may lead to a perceived disconnection from the learning community (Phirangee & Malec, 2017). Additionally, the sense of isolation could further raise the online course dropout rate (Phirangee & Malec, 2017). Therefore, as online learning is becoming more prevalent, reducing isolation and enhancing students' sense of online classroom community is significant and necessary.

Sense of Classroom Community

The feeling of disconnection and isolation in online learning contexts necessitates a strong sense of classroom community to facilitate interactions in the online learning format (Rovai, 2002). Community is the feeling of membership and belonging within a group (Yuan & Kim, 2014). Berry (2017) stated that "in a learning community, students work with peers, instructors, and staff to learn collaboratively and support each other in pursuing academic, social, and emotional goals"

(p. 2). Specifically, building a sense of classroom community is significant in an online learning environment. A sense of online classroom community provides students with a feeling when they get together virtually as though they were in a classroom to share the common goal, expectation, and learning experience. This feeling would create a sense of belonging and connectedness to the virtual class, instructor, and peers, thus reducing isolation and disconnectedness (Phirangee & Malec, 2017). The sense of classroom community can further enhance class participation and students' abilities to manage stress and emotional well-being (Rugel et al., 2019). In sum, students will receive academic and social benefits if they develop a sense of classroom community in an online course.

An online classroom community consists of two factors: a sense of connectedness and a sense of learning (Rovai, 2002). The sense of connectedness refers to the feeling of connectedness among community members. In other words, it is a feeling of duties and obligations to each other as well as the virtual learning class, and learners possess a shared faith that their educational needs will be met through their commitment. In short, Rovai (2002) described it as "a feeling of connectedness, cohesion, spirit, trust, and interdependence" (p. 206). The sense of learning, meanwhile, refers to "the feelings of community members regarding interaction with each other as they pursue the construction of understanding and the degree to which members share values and beliefs concerning the extent to which their educational goals and expectations are being satisfied" (Rovai, 2002, pp. 206–207). It is a feeling of using the online classroom interaction within the community to construct understanding and the extent to which learning goals and expectations are being satisfied within the virtual classroom setting.

The sense of classroom community can be developed through pedagogical strategies. Generally, students will establish a sense of community if their instructor creates a warm and welcoming tone in the classroom and uses technology in various ways to engage them (Berry, 2017). The different strategies that may be applied to build the sense of online classroom community depend on the online learning formats. For example, in synchronous online learning environments, students usually develop a stronger connection to their instructor and peers, and they are more engaged in classroom activities (Yamagata-Lynch, 2014). On the other hand, in asynchronous online learning environments, students usually have the flexibility for learning because they do not have to be online simultaneously as they can self-pace their education (Pang & Jen, 2018). However, since learning does not happen at the same time in this learning environment, the lack of real-time interaction may lead to a sense of disconnection and distance. Therefore, the instructor should provide quick feedback, assistance, and communication to enhance students' engagement and learning (Martin et al., 2018). A blended approach proves to be more efficient in creating a classroom community than a single asynchronous or synchronous teaching method (Xie et al., 2018). In a blended format, the instructor can offer flexibility to the individual student in asynchronous learning (e.g., discussion boards) and to read students' body language to evaluate their understanding in synchronous learning (e.g., lectures) (Horvitz et al., 2019). Thus, a strong connection and trust between the instructor and students are built to alleviate students' distance from their peers and the instructor, and this leads to a strong sense of online classroom community (Francescucci & Rohani, 2019).

As face-to-face instruction was used as the predominant course delivery method in Chinese universities, scholars (Sun et al., 2017; Tao et al., 2020) usually investigated Chinese students' sense of classroom community in a blend of face-to-face and online course formats. However, no study was found to explore these students' sense of classroom community in a fully online environment. Therefore, our study aims to fill this research gap.

Improving Online Education in Rural Areas

Students from rural areas usually face various challenges when studying online courses. First, they may not have sufficient access to online learning before entering college due to the unbalanced development of the economy, technology, and education between urban and rural regions (Camarero & Oliva, 2019). Specifically, 200,000 (55%) of the disadvantaged online education groups are students who live in rural areas and ethnic minority border regions (Zawacki-Richter & Qayyum, 2019). Consequently, the development of rural education has been seriously restricted, and these underprivileged students are usually lacking in digital skills

(Welser et al., 2019). In addition, due to backward economic development and inadequate financial resources, rural regions have a poor technological infrastructure that further results in a lack of highly qualified teachers (Dey & Bandyopadhyay, 2019; Yang et al., 2019). Since the COVID-19 pandemic has forced all college courses entirely online, questions have been raised for students living in rural places due to their limited resources and support.

Yet, to eliminate these digital deficits, educational professionals have made efforts to find strategies to enhance the online learning experience of students living in rural areas. For example, Warren (2007) found that learning support from the instructor has the most significant impact on online learning for underprivileged students. Even though the poor infrastructure in disadvantaged regions has stifled the development of online education, teacher assistance provides students with a similar experience wherever they live (Warren, 2007). Yang et al. (2019) proposed a Blended Synchronous Learning that uses rich-media synchronous technology, such as video or web conferencing, to integrate rural and urban physical classrooms to enable students from rural areas to participate in classes with highly qualified instructors. They believed this method would address digital and educational inequality (Yang et al., 2019). They also concluded that this method could significantly enhance students' online learning performance. Additionally, students study efficiently if they equally receive the instructor's support. Besides, according to Haar's (2018) study, instructors focusing and directing discussions can engage students and promote a sense of online classroom community. Developing an online learning community can also create opportunities for peer support, which would engage students to participate in online collaborative learning activities and increase their online digital skills (Welser et al., 2019). Providing the opportunity to build strong relationships, promote perceived similarity with other classmates, and encourage open expression among memberships are also essential strategies for developing a sense of belonging (Haar, 2018).

Previous Online Learning Experiences

In addition to the environment, previous online learning experiences can contribute to higher online learning satisfaction, positive computer learning attitudes, and more outstanding academic achievements (Hixon et al., 2016). Compared to new online learners (i.e., those who have completed some online courses), students who have had considerable prior experience of online learning show a higher level of comfort and less anxiety when using computers and the internet for online learning (Kuo et al., 2013). Students' readiness to be online learners and their confidence in online learning are also significant components that influence their experiences when taking online courses (Wei & Chou, 2020). For example, Shen et al. (2013) found that students who had taken online courses before expressed higher technology self-efficacy and tended to use more effective online learning strategies.

Further, prior online learning experiences strongly correlate with students' online course success and retention (Abdous, 2019). Students who have no previous experience with online learning are more likely to withdraw from online courses because they are often uncertain about what is expected of them in an online course (Guajardo Leal et al., 2019). In other words, students with prior online experiences are more ready to conduct and complete a course online. These students usually have a high level of self-efficacy and confidence with a low level of anxiety for online learning (Abdous, 2019; Murphy & Stewart, 2017), which leads to successful online courses. However, Pursel et al. (2016) argued that previous online learning experiences do not significantly influence course completion. Some studies have explored the relationship between prior online learning experiences and students' sense of classroom community. For example, Guajardo Leal et al. (2019) indicated that students who have previous online learning experiences are often active participants in the discussion board. Furthermore, these students usually have a high level of course satisfaction and a strong sense of classroom community.

However, no study was found to examine the influence of Chinese college students' living environments and their previous online learning experiences on their sense of classroom community, especially in a fully online learning environment. Therefore, this study explores Chinese college students' sense of classroom community in a fully online learning context, taking students' living backgrounds and previous online learning experiences into consideration. Based on

the earlier studies, our hypotheses include:

H1) Students living in rural areas have a lower sense of online classroom community than students living in urban areas.

H2) Students with no previous online learning experiences have a lower sense of online classroom community than students with prior online learning experiences.

H3) Living environments and previous online learning experiences significantly influence students' sense of classroom community.

METHODS

Participants

Participants of this study were undergraduate students enrolled at a southeastern Chinese university. A total of 256 students participated in the survey with 183 usable responses (usable rate equals 71.5%). Among those who completed the survey, 62 (34%) identified themselves as residents from rural areas and 121 (66%) from urban areas. Additionally, 73 (39.89%) of the participants had previous online learning experiences, while 110 (60.11%) did not take any online courses before transitioning to fully online courses due to COVID-19. Specifically, among students from rural areas, 61.3% of them did not have prior online learning experiences, while 38.7% had taken online courses. Meanwhile, 40.5% of the students from urban areas had previous online learning experiences, while 59.5% had not taken any online courses.

Instruments

The instrument for measuring students' online classroom community was adopted from the Classroom Community Scale (CCS) (Rovai, 2002). The CCS is a 20-item, 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). This survey evaluated students' overall classroom community based on two subscales: connectedness and learning, each with ten items. Connectedness refers to students' feelings of the community "regarding their connectedness, cohesion, spirit, trust, and interdependence" (Rovai, 2002, p. 206). Three items were reversed, and a higher score refers to a higher level of connectedness. The original Cronbach's alpha was .92 (Rovai, 2002). The internal reliability was adequate with the current sample (Cronbach's alpha =

.72). Learning means "the feelings of community members regarding interaction with each other as they pursue the construction of understanding and the degree to which members share values and beliefs concerning the extent to which their educational goals and expectations are being satisfied" (Rovai, 2002, pp. 206–207). Seven items of this subscale were reversed, and a higher score refers to a higher level of interaction with other community members when sharing the understanding of the course content. The original Cronbach's alpha was .72 (Rovai, 2002), and the Cronbach's alpha was .81 in this study.

Procedure

The anonymous survey was distributed through email. Students clicked on the survey link provided in the invitation emails, read the informed consent, and decided whether they were willing to participate in the study. This anonymous survey took approximately 8–10 minutes to complete. Students were able to withdraw from doing the survey anytime by closing the website. The original items were in English and needed to be translated into Chinese. A standard translation and back-translation procedure was used to guarantee the validity of the Chinese version of the measure (Hambleton & Patsula, 1998). This study was approved by the Institutional Review Board.

Data Analysis

The listwise deletion method was used, and data were analyzed via SPSS 27. A 2×2 Factorial MANOVA was conducted to examine the hypothesis. The dependent variables were the sense of connectedness and the sense of learning. The independent variables were students' living environments (rural vs. urban) and their previous online learning experiences (with prior online learning experience vs. without prior online learning experience). The preliminary assumption was tested to examine normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. The alpha level was set at .05.

RESULTS

A 2×2 Factorial MANOVA was conducted to examine the hypotheses. A statistically nonsignificant Box's M test (p > .05) indicated equality of variance-covariance matrices of the dependent variables across levels of the independent variables.

Thus, Wilk's l was used. Bartlett's test of Sphericity showed sufficient correlation between the dependent measures to proceed with the analysis, χ^2 (2) = 126.92, p < .001.

H1: Students living in rural areas have a lower sense of online classroom community than students living in urban areas.

First, the main effect of the living environment was examined. Results indicated that the dependent variate was significantly affected by the main effect of students' living environments (rural-urban living status), Wilk's l = .959, F(2, 178) = 3.85, p = .023, with a small to moderate effect size, partial η^2 = .041. As the effect was statistically significant, the assessment proceeded with an inspection of Levene's Test of Equality of Error Variances to examine whether the error variance of the dependent variable was equal across groups. A nonsignificant value of Levene's test based on mean indicated no sufficient evidence to say that the variance in the sense of online classroom community between the two groups was significantly different, pconnectedness = .408, plearning = .054. Thus, the assumption of performing ANOVA was met. Therefore, a follow-up Univariate ANOVA was conducted on these two variables separately. Results showed that students' living environments statistically significance affect their sense of connectedness, F(1, 179) = 6.69, p = .011, with small effect size, partial η^2 = .036 (see Table 1). Therefore, we failed to reject the H1, indicating that students living in rural areas have a lower level of sense of online classroom community than students living in urban areas. Specifically, students from urban areas have a higher level of sense of connectedness (M = 3.25) compared to their counterparts living in rural areas (M = 3.07) (see Table 2).

H2: Students with no previous online learning experiences have a lower sense of online classroom community than students with prior online learning experiences.

The multivariate main effect towards the levels of previous online learning experiences was examined. The results demonstrate that students' sense of online classroom community was significantly affected by their previous online learning experiences, Wilk's l = .958, F(2, 178) = 3.91, p = .02, with a small to moderate effect size, partial η^2 = .042. Again, Levene's test based on mean indicated that the two groups had equal variances, and the assumption of performing ANOVA was met. A follow-up Univariate ANOVA was conducted on each dependent measurement. The results demonstrated that students' previous online learning experiences only statistically significantly influence their learning F(1, 179) = 4.39, p = .038, with small effect size, partial η^2 = .024 (see Table 1). Therefore, we failed to reject the H2, meaning that students who do not have previous online learning experiences have a lower level of sense of online classroom community than students who have previous online

Table 1. Tests of Between-Subjects Effects

	Dependent Variable	df	Mean Square	F	Sig.	Partial Eta Squared
Living environments	Sense of Connectedness	1	1.037	6.685	0.011	0.036
	Sense of Learning	1	0.276	1.124	0.290	0.006
Previous online learning experiences	Sense of Connectedness	1	0.002	0.013	0.908	0.000
	Sense of Learning	1	1.077	4.387	0.038	0.024

Table 2. Means and Standard Deviation of Rural-Urban Categories on Sense of Classroom Community

	Rural		Urban	
	M	SD	M	SD
Sense of Connectedness	3.07	0.38	3.25	0.40
	Without Online Learning Experience		With Online Learning Experience	
	M	SD	M	SD
Sense of Learning	3.19	0.47	3.32	0.54

learning experiences. An inspection on the means of students' levels of previous online learning experiences showed that students who have previous online learning experiences reported a higher level of sense of learning (M = 3.32) compared to those without previous online learning experiences (M = 3.19) (see Table 2).

H3: Living environments and previous online learning experiences significantly influence students' sense of classroom community.

Lastly, the multivariate interaction effect was produced, Wilk's l = .985, F(2, 178) = 1.32, p = .27, with a small effect size, partial $\eta2$ = .015. Results reveal that the multivariate interaction effect of living environments and previous online learning experiences do not account for a significant proportion of the variance (p = .27). Thus, we rejected the H3. In other words, living environments and previous online learning experiences together do not affect students' sense of online classroom community.

DISCUSSIONS AND IMPLICATIONS

This study explores students' sense of community in online learning environments at a Chinese university between those from different living backgrounds (rural vs. urban) and with different previous online learning experiences. Overall, students from urban areas reported higher levels of connectedness than their counterparts from rural areas. In other words, students from rural areas feel less connected in an online learning environment. This finding in some way reflects on the previous conclusion that due to the backward economic development and inadequate financial resources, rural areas in China have poor technological infrastructure and inadequately qualified online learning (Dey & Bandyopadhyay, 2019). Therefore, students from rural areas are disadvantaged in digital skills, which may influence their experiences when taking online courses (Welser et al., 2019). This finding also aligns with Li and Ranieri's (2013) study that students from rural areas score lower on internet inequality indicators, such as social support. These learners are also less advantaged in internet usage status than their counterparts from urban areas.

Additionally, this finding echoes Peich's (2017) study that the barriers for rural students in online education include disconnection from their faculty,

insubstantial relationships with other students, and unreliable technology access and support. The results also indicate that students who live in rural areas need extra help to get involved in the online learning community. Consequently, it is crucial to help students from rural regions enhance their sense of community in online learning environments. Chinyamurindi et al. (2017) noted that these students' perceived effectiveness of using an online learning community positively relates to the online course design and the online learning community's interface design. Students from rural areas can succeed if appropriate strategies complement the learning situation, context, students' learning interests, needs, and motivation (Irvin et al., 2009). In other words, online education has great potential to contribute equal educational resources and opportunities for students. Meanwhile, higher education professionals should consider ways to balance online learning opportunities and resources between rural and urban areas.

As the poor infrastructure and teacher assistance in disadvantaged rural areas restrict students' access to the internet and learning, which reduce the quality of online education and limit the opportunities for online learning (Warren, 2007; Yang et al., 2019), strategies should be implemented to better prepare students for online learning in rural areas. First, Reimers (2000) stated that socioeconomic status restricts the resources and support of education, indicating that the overall improvement of online education quality may depend on the economic development in the urban areas. As a result, providing sufficient financial support from the government to rural regions is significant to narrow the gap of online education development between rural and urban areas. Second, instructors' quality can make a difference in students' online learning achievement. The disparity of online education development between rural and urban areas is partially attributed to the inferior teacher quality (Yang, 2010). Therefore, the government should recruit and retain qualified instructors with online teaching experiences to improve the development of online education in rural regions. In addition, a practical class design can boost online learning for students in rural areas. As mentioned before, blended synchronous learning, synchronous learning, and discussions significantly prompt disadvantaged students' online learning (Haar, 2018;

Yang et al., 2019). Thus, virtual meetings, blended synchronous learning, and synchronous technologies could be applied to enhance their integration and enable students to participate in online classes with highly qualified instructors and improve these students' online learning achievements. Likewise, previous studies indicated that an online learning community can motivate peer participation to enhance students' online learning performance (Welser et al., 2019). Therefore, online learning communities should be established among rural and urban students to encourage peer relationships, promote perceived similarities, and foster a sense of inclusiveness and connectedness.

This study also indicates that students with previous online learning experiences have a higher sense of learning. This finding, in some way, mirrors the previous conclusion that a connection exists between students' first-time online learning and their overall online learning experiences (Wegner et al., 1999). Specifically, deficiencies in training and ineffective use of technology may occur during their online learning process, leading to a lack of classroom community, especially among first-time online learners, that further impacts their online learning satisfaction (Wei & Chou, 2020). Online learners often express isolation and frustration over a lack of nonverbal cues (Ku & Lohr, 2003). They need assistance for community establishment at the beginning of the class to figure out "who is who" (Song et al., 2004, p. 67). However, after enrolling in online learning for some time, the first-time online learners consider the opportunity to reflect and compose thought-out verbal responses and the self-paced learning format in online learning environments as positive aspects (Ku & Lohr, 2003). In other words, students' previous online learning experiences play a significant role in influencing their sense of online classroom community.

Based on these findings, strategies should be applied to reduce isolation while enhancing the sense of classroom community in online learning environments. First, a solid and active online presence of the instructor can alleviate the sense of isolation. Shea (2006) indicated that the instructor's direct facilitation contributes significantly to students' sense of connectedness. That is, even with limited real-time communication in online courses, once students feel "the instructor is drawing in participants, creating an accepting climate for learning, keeping students on track, and diagnosing student misperception" and "reinforcing student contributions, injecting their knowledge, and confirming student understanding" (Shea, 2006, p. 41), they will grow a sense of learning community naturally. Moreover, researchers have used asynchronous videos to provide feedback to reduce students' feelings of isolation in online courses (Lowenthal et al., 2020). This method would develop students' perceptions of the instructor and peer social presence because the asynchronous videos allow the instructor to convey verbal and nonverbal instructor immediacy behaviors (Borup et al., 2011). The use of asynchronous videos can emphasize student reflection, establish and maintain an emotional connection with their peers and instructors, and promote class interactions where time flexibility is key (Borup et al., 2012; Warr & Sampson, 2020). Furthermore, audio/video feedback can be used to foster a sense of connectedness, as these tools positively build a sense of connectedness and social presence (Lowenthal et al., 2020).

In terms of supporting students from rural areas with online learning, Kim and Lee (2011) examined factors that influence this student population's online education. They found that these students, under the direction of online homeroom teachers (class type), often perform better than those who study independently (self-study type). Thus, a learning support function positively affects these students' learning. In other words, although the poor infrastructure in disadvantaged areas has stifled the development of online education, the instructor's presence and assistance usually lead to the same learning experience among students no matter where they live (Warren, 2007). Further, for students who do not have previous online learning experiences, group discussions between those with and without prior online learning experiences may be effective approaches to encourage interaction and peer help-seeking. In this way, a sense of online classroom community would be enhanced.

Lastly, the Chinese Ministry of Education has proposed the *Guidance on the Organization and Management of Online Teaching in the Higher Education Institutions During Epidemic Prevention and Control Period* (MOE, 2020), which requires national and local governments to support colleges and universities, together with the society, for joint implementation of online

education (Zhu & Liu, 2020). Therefore, the government should continue to propose relevant policies and strategies to facilitate the development of online education in both rural and urban areas to improve online learning conditions, thus supporting more students to access online learning.

LIMITATIONS

Some limitations exist in this study. First, students were recruited from one university in China, which may not represent all Chinese college students. Second, instructors in this university may have different levels of familiarity with online teaching, which would influence the establishment of an online classroom community. In other words, instructors who are more experienced with online teaching would create a more robust online classroom community. Therefore, future studies should take instructors' previous online teaching experiences into consideration. Additionally, this study recruited participants from a university located in a well-developed province. Further research should be conducted in less developed regions to indicate more comprehensive conclusions. Besides, this study examines the hypotheses without dividing the online course formats. Strategies for enhancing students' sense of classroom community would be different in synchronous, asynchronous, or blended online courses. As a result, future studies should look further into the specific course formats.

Moreover, this study compares students who have previous online learning experiences and those who do not. Yet, the different prior online experiences may impact students' sense of classroom community. Previous studies indicated that students who take six online courses have a higher level of self-regulated learning than students with no prior online learning experience (Chumbley et al., 2018). Accordingly, students with one online course experience may have a different sense of classroom community than those who took six online courses. Therefore, future studies should investigate students' sense of classroom community by further dividing their levels of previous online learning experiences.

Finally, the present study only focused on the Chinese student population without considering students in other countries. Previous studies found that the rural learning environment has restricted access to the internet, limiting the quality of education and prior experiences with online education, hence making a difference for students (KewalRamani et al., 2018). Therefore, future studies should explore the relationship between online learning experiences and the living conditions of students in other countries.

CONCLUSION

Using a Chinese university as an example, this study contributes to the current literature regarding factors that influence Chinese college students' sense of classroom community in fully online learning environments. Specifically, this study provides an overview of how Chinese college students' living environments and their levels of previous online learning experiences impact their sense of classroom community in a completely online learning context. It is expected that this study could encourage Chinese higher education professionals and policymakers to better understand students' online learning experiences, thus developing a solid online community and establish a supportive online learning environment. Lastly, we hope this study could encourage global higher education professionals to pay attention to the challenges and issues of online learning among students in rural areas in their own countries and seek ways to improve these students' online learning experiences.

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