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Third places and national contexts among Generation Z in a mobile game: Quantitatively examining third place characteristics and well-being of players from Brazil, China, and the United States

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Abstract

Youth online engagement and well-being are especially important in emerging countries, but they tend to be understudied. Rather, the existing research tends to be more on the United States. This study examined third place theory of virtual spaces on individual-level well-being among the Generation Z from Brazil and China, especially comparing them to their U.S. counterparts. Well-being, both related to realizing your full potential and lowering psychopathology, is relevant to youth engagement in online spaces, because the spaces can help the youth express their true selves and engage in supportive online communities. The participants were players of a mobile video game whose three months of pre-survey gameplay data and survey data ($N = 986$) were analyzed. We compared countries on several third place characteristics, on well-being, and how the third place characteristics predicted well-being. We found that players from the three countries were significantly different in several third place characteristics (*i.e.*, neutral ground, leveler, and conversation). Well-being was also higher among the Chinese players. Moreover, the leveler characteristic–commonality of game levels among players and their in-game friends–significantly predicted well-being. These findings from a mobile game help better understand youth online perceptions and behaviors in different countries, correlates to well-being, and contribute to the theory development of virtual third places and digital public spheres.

Contents

Introduction

By 2043, the United States population is estimated to be 378 million, but the population of Brazil and China together is estimated to be more than four times higher (U.S. Census Bureau, n.d.). Other than their large population size, Brazil and China will likely have great economic and political influence (Windsor, 2016). By 2043 Generation Z (Gen Z) from Brazil, China, and other emerging countries will have reached middle age and likely be the global decision-makers. For this generation, online engagement in virtual communities — due to having grown up with Internet access, including access via smartphones — is critical (Calderon, *et al.*, 2012; Liu, 2009; Williams and Kim, 2019). Yet, the existing research on virtual communities tends to be U.S.-centric (Langlais and Vaux, 2021; Nguyen, *et al.*, 2019; Turner, 2015).

Gen Z share proximity in terms of day-to-day practices and historical events (Harari, *et al.*, 2023; Turner, 2015). The Pew Research Center in the U.S. defined Gen Z as being born from 1997 to 2012 (Dimock, 2019). The Gen Z are also known as "net-gen" and "digital natives" because of the critical role that the Internet plays in their lives and how they grew up in times of rapid technological advancement (Nigam, 2022; Turner, 2015; Wang, *et al.*, 2022). Because existing literature tends to be more U.S. focused, the literature mentions Gen Z as having experienced critical time periods during the Trump presidential administration (Dimock, 2019) and the 2008 global economic recession (Turner, 2015). More recent literature has noted that Gen Z have also experienced the COVID-19 pandemic during their critical developmental stage (Harari, *et al.*, 2023; Taranto, 2023). Overall, Gen Z are more predisposed to self-actualization and more open to change, but not as engaged in duties (Harari, *et al.*, 2023; Kligler-Vilenchik, 2015).

This study seeks to better understand online engagement of Gen Z mobile game players from Brazil, China, and the U.S. by quantitatively applying Ray Oldenburg's "third places" theory (Oldenburg, 1999). The players are of the massively multiplayer online (MMO) mobile game *Sky: Children of the Light*, which is a globally popular free-to-play smartphone game that encourages social support and de-emphasizes demographic differences. *Sky* is one of several video games that aims to create accessible communities (Huang-Isherwood, *et al.*, 2022), thus, empirically testing how the game characteristics in fact affect player engagement is needed. Note that player engagement is a multidimensional phenomenon that can occur in as varied behaviors, such as teamwork to achieve common in-game tasks (Molyneux, *et al.*, 2015), community building of shared identities (Huang-Isherwood, *et al.*, 2023), and discussion of in-game rules and strategies (Taranto, 2023). Furthermore, player engagement's relationship with more civic behaviors, such as political participation, does not go hand in hand directly. One possible indirect path is that in-game relationships can transform into offline relationships that facilitate political participation (Molyneux, *et al.*, 2015). Moreover, third places is a theory about characteristics in locations that foster engagement and create social- and individual-level well-being (Langlais and Vaux, 2021; Oldenburg, 1999; Parkinson, *et al.*, 2022). Specifically, the study examines how players from the three countries engage in third place characteristics and individual-level well-being, and how player differences contribute to the well-being. This manuscript will proceed by reviewing the literature of third places in the U.S., Brazil, and China, particularly virtual third places.

Virtual third places

Third places concern locations, outside home (*i.e.*, first place) and work/school (*i.e.*, second place), that create communities and raise consciousness. Though Oldenburg (1999) originally focused more on work locations of older adults, for younger adults, school or higher education settings may be more their second place (Woolcock, 2019).

Third places are more than physical spaces (Bosman and Dolley, 2019; Oldenburg, 1999; Woolcock, 2019). Despite initial third place scholars being concerned with the role of mass media and video games (Oldenburg, 1999; Williams and Kim, 2019), later scholars investigated more virtual or digital spaces, meaning the social architecture built by the code of technology. For example, code allows users to fly

together in virtual skies (Fullagar, *et al.*, 2019; Williams and Kim, 2019). Virtual spaces are also mediated by computing devices (Langlais and Vaux, 2021). Thus, Gen Z are especially native to virtual spaces (Turner, 2015).

Before discussing the third place characteristics of interest to this study, it is important to acknowledge that these characteristics are suggestive. The characteristics are not dichotomous "black and white" demarcations, but more "exaggerated and [have a] almost caricatural nature" [1]. Recent scholars have even suggested revisions to third place characteristics for social media platforms (Langlais and Vaux, 2021). Third places is also a theory that differs from public spheres, because the latter is more focused on democracy and discourse that concerns the greater public (De Blasio, *et al.*, 2020; Fraser, 2007; Heggart, 2020).

First, Oldenburg (1999) proposed that a third place should take part in a neutral ground, meaning that participants can join and leave at will. Participants are not required to play host and lack a sense of obligation. Second, leveler means that in the third place there is no difference of status, from low to high, that would be at home, work/school, or society (Oldenburg, 1999; Steinkuehler and Williams, 2006). Third, Oldenburg (1999) proposed that conversation — explained as "idle talk" [2] — is the main activity in third places. Oldenburg (1999) measured up conversation in the U.S. to its counterparts in England and France. Fourth, the final characteristic [3] of *regulars* refers to loyal patrons who dominate third places. The regulars frequently sponsor newcomers and are trusted in the third place community (Oldenburg, 1999).

Ultimately, this study examines the individual-level well-being as an outcome of third places. Individual-level well-being can be understood as a human's multidimensional sense of flourishing and improvement (Diener, *et al.*, 2010; Ryan and Deci, 2001). When expounding on third places, although Oldenburg (1999) focused on societal-level well-being, individual and societal levels are interconnected. Individual-level well-being can benefit from your social networks, such as through making new social connections and building existing relationships (Diener, *et al.*, 2010; Langlais and Vaux, 2021; Oldenburg, 1999). Third places can contribute to eudaimonic well-being related to self-realization and hedonic well-being related to pleasure and happiness (Parkinson, *et al.*, 2022; Ryan and Deci, 2001). Especially for Gen Z online engagement, both eudaimonic and hedonic well-being are relevant. Higher eudaimonic well-being, through partaking and realizing your full potential, such as through youth expressing their true selves (Kligler-Vilenchik, 2015; Ryan and Deci, 2001), can occur in robust online platforms (Valenzuela, 2013). Higher hedonic well-being, related to low psychopathology, such as low depression and anxiety (Harari, *et al.*, 2023; Ryan and Deci, 2001), can come from youth engaging in supportive online communities (Harari, *et al.*, 2023; Langlais and Vaux, 2021).

Virtual third places in the United States

The existing literature on third places is more centered on Western (Nguyen, *et al.*, 2019; Oldenburg, 1999) and Anglophone countries (Bosman and Dolley, 2019; McArthur and White, 2016). Indeed one main point of Oldenburg (1999) is that third places in the U.S. should be more like those in many European countries. Thus, later scholars have criticized third place theory as privileging "white, masculine and largely middle class world view" [4]. Although the influence of Western countries on non-Western countries is undeniable (Maeda and Caldana, 2021; Meiners, *et al.*, 2020; Nguyen, *et al.*, 2019), more research could be done concerning non-Western countries. Especially given that virtual third places are more geographically spread out around the world than physical third places (McArthur and White, 2016; Shaw, *et al.*, 2022).

Each of the third place characteristics in the literature on the U.S. will be discussed below.

Neutral ground

Research on virtual third places in the U.S. have noted the relative ease to enter and leave these virtual spaces, for example, by withdrawing or signing-up to different social media platforms (Stevens, *et al.*, 2017). Still, some platforms may require more user authentication, such as the NextDoor platform connecting physical neighborhoods (Gibbons, 2020). Specifically in MMO games, users have somewhat

more control of their identity. They have more flexibility to mask their identity and maintain anonymity, but also decide the extent to reveal their true identity (Steinkuehler and Williams, 2006). Users may be hesitant to reveal certain aspects of their true identity (*e.g.*, gender) due to fear of harassment (Williams and Kim, 2019).

Leveler

Widespread social inequalities exist in the U.S., especially on race, ethnicity, gender, economic status, and risk to violence. Regarding virtual spaces, while digital divides on access to the Internet have been closing, using the Internet as a source for financial, health, and educational information is still unequal (Gibbons, 2020; Stevens, *et al.*, 2017). In MMO game spaces, there is still some stratification among users about the ability to play the game in question (Steinkuehler and Williams, 2006; Williams and Kim, 2019).

Conversation

Virtual spaces can amplify conversations of conflict and violence of physical places (Stevens, *et al.*, 2017) but also of neighborhood offline socializing (Gibbons, 2020; Shaw, *et al.*, 2022). In MMO games, scholars found conversation to be critical. Players have "constant conversation about the game and topics well beyond it" [5].

Regulars

When examining regulars in MMO games, Steinkuehler and Williams (2006) found that the regulars could be guild members who collaborate in the game and squatters who provide colorful commentary. However, Ducheneaut, *et al.* (2007) cautioned scholars of game players who code looping macros that take advantage of certain features of a game.

Well-being as outcome

Research on social media as virtual third places has examined both negative and positive outcomes (Gibbons, 2020; Shaw, *et al.*, 2022; Stevens, *et al.*, 2017). Overall, Shaw, *et al.* (2022) argued that virtual spaces are neutral tools that can advance positive and negative aims. However, previous games research has been more focused on the negative effects than positive ones such as well-being (Munn, 2023). Still, research on MMO games as third places has found that players can reap benefits from those game social networks (Steinkuehler and Williams, 2006), especially by acquiring new ideas (Granovetter, 1973).

Virtual third places in Brazil

Existing literature on third places in Brazil has examined virtual spaces (Dornelles, 2020; Taranto, 2023), hybrid places such as hospital staff equipped with information communication technologies (Calderon, *et al.*, 2012), and more physical places, such as airports (Maeda and Caldana, 2021), boulevards (Meiners, *et al.*, 2020), and university outreach programs (Morgado, *et al.*, 2022). Each of the third place characteristics in the literature on Brazil will be discussed below.

Neutral ground

Brazil has unique property juridical systems that determine the level of access to places (Meiners, *et al.*, 2020). Unlike the U.S., Brazil has fewer zoning restrictions that divide living, commercial, work, and leisure areas. As such, these areas are more mixed together (Calderon, *et al.*, 2012). Specifically in game settings, in-game partners do not necessarily need to be someone a player knows offline, players may meet potential partners through social media groups, such as Facebook and Discord groups (Dornelles, 2020; Taranto, 2023).

Leveler

Social inequalities are prevalent in Brazil. These inequalities can be at race, gender, socioeconomic status, education, and profession level (Calderon, *et al.*, 2012; Dornelles, 2020; Meiners, *et al.*, 2020; Morgado, *et al.*, 2022). Specifically as it relates to virtual spaces, the inequality translates into unequal Internet access (Dornelles, 2020; Morgado, *et al.*, 2022) and digital illiteracy (Calderon, *et al.*, 2012). Calderon, *et al.* (2012) noted that there is even segregation by social strata in entertainment places. Thus, the leveler characteristic may be especially critical in Brazil.

Conversation

Calderon, *et al.* (2012) found among their participants of hospital staff that they identified Brazilian culture as having an orientation for idle talk, such as teasing. Especially among Brazilian game players, they were found to have a strong preference for instant messaging (Dornelles, 2020). For example, players of the first-person shooter game *Destiny 2* conversed in social media groups on information about the game and also exchanged memes (Taranto, 2023).

Regulars

In Brazil, regulars may have different characteristics depending on the type of games. Female players use slightly more mobile games, though, similarly to the U.S., competitive games are more common among male players (Dornelles, 2020; Taranto, 2023).

Well-being as outcome

Among Brazilian hospital staff, Calderon, *et al.* (2012) found that third places help the staff's own well-being to better provide care to patients. Specifically, well-being was created from an environment of spontaneous and brief social meeting and of teasing and social support. During the COVID-19 pandemic, mental well-being became especially important for Brazilian game players because of the lowered interactions with friends and family (Taranto, 2023).

Virtual third places in China

Existing literature on third places in China has examined virtual spaces (Chan, 2018), hybrid places such as Internet cafés (Liu, 2009), but predominantly physical spaces, such as bookstore-cafés (Nguyen, *et al.*, 2019), children's libraries (Xu, *et al.*, 2020), university courses for seniors (Wu, *et al.*, 2020), and working-class homes (Wang and Lo, 2022).

Especially for virtual spaces, the 'Great Firewall of China' is an influential code that particularly restricts political behavior (Williams and Kim, 2019). Note that political behavior is not limited to abstract political practices, political control exists in personal family planning, sexual mores (Chan, 2018), and stigmatization of video games (Liu, 2009). Still, with a socialist market economy, China has a considerable wave of consumption particularly among the youth (Liu, 2009; Nguyen, *et al.*, 2019).

Neutral ground

More than in the U.S., Chinese youth may have greater interdependence with their family members (Wu, *et al.*, 2020). Gen Z may have no siblings due to the former one-child policy or large age gaps with siblings born after the two-child policy. These family structures especially affect the Gen Z's relationship with their parents and create a need for neutral grounds (Chan, 2018; Dong and Xiao, 2022; Liu, 2009).

Because the rapid urban development in China has created spaces that exclude the youth (Liu, 2009), third places with socially pleasant neutral grounds are especially important (Nguyen, *et al.*, 2019). Furthermore, virtual spaces allow for less social stigma, for example, Chan (2018) found that a young woman felt more comfortable sharing in social media with new acquaintances that she was a single parent.

Leveler

Social inequalities are also prevalent in China. Gender imbalances were created by the one-child policy (Chan, 2018). Furthermore, working-class migrants from more remote parts of China may have fewer residence rights than city locals (Wang and Lo, 2022). Especially for youth, an imbalance exists of academic and career achievement. The youth low in academic and career achievement develop a sense of freedom and resistance against parents and teachers. Places like Internet cafés allow the youth to develop individual and group identities, including through participating in game spaces. Liu (2009) assumed that the youth used Internet cafés because of lack of domestic Internet access, but café users often had broadband Internet access at home. Thus, third places in China are crucial to bring down the barriers of inequality (Liu, 2009; Nguyen, *et al.*, 2019).

Conversation

Third places in China were found to have dialogue happening in conjunction with individuals doing activities together (Xu, *et al.*, 2020). Liu (2009) found talking, laughing, and shouting while gaming with peers present at Internet cafés and peers from games.

Regulars

Third places in China have regulars who can sponsor newcomers and allow them to easily join these places (Xu, *et al.*, 2020). As mentioned earlier, regulars from gaming spaces may particularly be youth resisting their parents and teachers (Liu, 2009).

Well-being as outcome

Similarly to the U.S. literature, social well-being in China has been found to be related to individual-level more subjective well-being (Wu, *et al.*, 2020). Individuals may lack individual-level well-being because their first place (home) is extremely confined. Their homes could be so physically small that they must seek public spaces such as parks and commercial sites (Lyu, 2023; Wang and Lo, 2022). Additionally, some youth may experience high expectations from their parents at home — especially one-child household youth — that they try to find relief in Internet cafés (Liu, 2009; Wang, *et al.*, 2022).

Youth may also find confinement and pressures from their second place (*i.e.*, workplace and schools). At the end of secondary education, youth who are around 18-years-old take college entrance exams that can determine future educational prestige and professional careers (Liu, 2009).

Research questions (RQs)

From this review, it is possible to observe that there is a lack of research on virtual third places comparing the U.S. with Brazil and China. As such, two RQs are proposed:

1. How do third place characteristics and well-being effects differ between Gen Zs from Brazil, China, and the U.S.?
2. How are these characteristics related to these Gen Z's well-being?

Methods

Study context

Sky is a game with affordances of tranquility and social connections. The game has scenes set in natural landscapes, ancient ruins, outer space, etc. The players' main quests entail saving spirits collectively. Furthermore, to deemphasize demographic differences, *Sky* developers coded game avatars to look age-,

race-, and gender-neutral. In-game friendships can be made from avatars encountered in the game or through sharing a quick-response (QR) code through an external communication channel.

For operationalizing and measuring third places, it is critical to explain how levels and chat messages operate in *Sky*. *Sky* has altogether eight levels and players often repeat these levels. That may be because different seasonal events may alter some levels and repeating levels can help collect more in-game currency of candles. Players use candles to unlock or purchase cosmetics, spells, advanced expressions, etc. Moreover, *Sky* only allows chat message communication under certain circumstances. Certain in-game locations allow players to chat with each other or among advanced friendships that have partaken in more lower-level interactions (*e.g.*, holding hands, waving, etc.).

Data collection

In compliance with our university's ethics board and through a data-sharing agreement with *Sky's* company, anonymized survey and gameplay data were collected. The survey data concerns fall 2021 and it centered on participants who were 18- to 24-years-old. Put another way, the participants were born between 1997 and 2003. The survey was conducted in Brazilian Portuguese, Simplified Chinese, and American English. The survey questionnaire was first written in American English and translated and back translated through collaborating with at least two native Chinese and Portuguese speakers.

Randomly selected players who logged on the game in the global thatgamecompany server and had finished the game tutorial were asked to participate. Due to stricter government regulations, Chinese players' default *Sky* experience was on a Chinese server separate from the global server. For the participants' contribution, they received six candles, the in-game currency. After the survey data collection from 28 September to 30 September 2021, we found 1,118 relevant participants: 14 percent of the participants who answered in Portuguese were from Brazil, 34 percent who answered in Chinese were from mainland China, and 52 percent who answered in English were from the U.S. The participants' country locations were found from their gameplay data and were unobtrusively measured by their Internet Protocol addresses. From a longer survey questionnaire, the main questions relevant to this study were those about well-being and participants' demographic information.

After obtaining the survey data, on 10 March 2022, *Sky's* developer studio, thatgamecompany, shared with the researchers anonymized and unobtrusively collected gameplay data about the participants and their in-game friends. Of particular interest for this study were how these players became connected, the number of game levels the players completed, chat messages sent, and estimated playtime. Whenever possible, gameplay data three months before the survey was obtained. The final sample was only of participants with non-missing data according to listwise deletion, that is, 986 players (15 percent from Brazil, 35 percent from China, and 50 percent from the U.S.).

Measures

R version 4.3.1 was employed to calculate the study measures, descriptive statistics, and the analyses to test the RQs.

Neutral ground, which relates to not needing to play host and lacking obligations, was calculated by, three months before the survey, the percentage of in-game friends made on *Sky* over the total number of friends. The total number of friends included the number of friends made in *Sky* and made through external channels. For example, 0 means that all of the respondents' in-game friends were connected by QR code, but 1 means that all of the respondents' in-game friends were made in *Sky* (M = .84, SD = .21).

Leveler, which relates to comparing your level to others in the game, was measured by absolute value of difference of number of levels completed between the participant (i) and their in-game friends (j) by 10 March 2022, and computing a mean per participant (M = 855, SD = 561) as it is displayed in equation (1):

$$\sum_{j=1}^{n} |i-j|/n \qquad (1)$$

Conversation utilized the gameplay data as of 10 March 2022. To protect player privacy, chat messages numbers per in-game friend were not available. However, the total chat message numbers include messages sent in the open chat game locations. To calculate a comparable conversation score, the chat text message number was divided over the number of days the participant had played the game (M = 55, SD = 79).

Regulars, which refers to the proportion of the participants' friends who are frequently in the space, a top 20th percentile of playtime was calculated among the participants' in-game friends. This percentile is based on the widespread Pareto principle (or "80/20" rule) (Zendle, *et al.*, 2023). After calculating the top 20th percentile, a mean was taken of the number of a respondent's in-game friends who were in the 20th percentile (M = 1.80, SD = 2.90).

Well-being, unlike other measures, was measured by the survey. Participants rated how much they agree with eight statements created by Diener, *et al.* (2010) on the perspectives of life such as "I lead a purposeful and meaningful life," "My social relationships are supportive and rewarding," etc. (5-point Likert scale; M = 3.7, SD = .9, α = .88).

Control variables were gender, race, political ideology, and education attained (Dornelles, 2020; Fullagar, *et al.*, 2019; Liu, 2009; Munn, 2023).

Power analysis

G*Power version 3.1.9.6 was employed to calculate sensitive analyses. For the comparative one-way analyses across three countries, with an error probability of .05, power of .80, at least 127 was needed for each country to find an effect size of Cohen's f^2 = .16, which is a small to medium effect size (Selya, *et al.*, 2012). There were at least 127 participants for each country.

For the regression analyses to predict well-being as outcome, up to 10 predictors (*i.e.*, four independent variables, two continuous control variables, and two dichotomous variables), with an error probability of .05, power of .80, a total sample size of 854 was needed. This size could be utilized to find an effect size of Cohen's f^2 = .02, which is a small effect size (Selya, *et al.*, 2012). There were at least 854 participants in total.

Results

Table 1 reports the Spearman correlations of the key variables. Spearman correlations were employed instead of Pearson correlations because most variables did not resemble normal distributions (Field, *et al.*, 2012).

Table 1: Correlations of key variables.
Note: * $p < .001$.

	1	2	3	4	5
1. Neutral ground	—				
2. Leveler	-.18*	—			
3. Conversation	-.27*	.56*	—		
4. Regulars	-.28*	.42*	.44*	—	
5. Well-being	-.03	-.06	-.02	-.02	

Comparisons across the three countries (RQ1)

Neutral ground

The Kruskal-Wallis test was employed instead of analysis of variance (ANOVA) because neutral ground did not resemble a normal distribution (Field, *et al.*, 2012). The Kruskal-Wallis test of neutral ground across the three countries was statistically significant, $\chi^2(2) = 27.26$, $p < .001$. Pairwise comparisons employing a Wilcoxon rank sum test revealed that neutral ground of the U.S. (*Mdn* = .97) was significantly higher than Brazil (*Mdn* = .88; $p < .001$) and the U.S. was significantly higher than China (*Mdn* = .90; $p < .001$).

Leveler

The Kruskal-Wallis test of leveler across the three countries was statistically significant, $\chi^2(2) = 6.08$, $p = .048$. Pairwise comparisons employing a Wilcoxon rank sum test revealed that leveler of Brazil (*Mdn* = 828.90) was significantly higher than China (*Mdn* = 736.67; $p = .045$), but no other pairwise comparisons were significant.

Conversation

The Kruskal-Wallis test of conversation across the three countries was statistically significant, $\chi^2(2) = 10.86$, $p = .004$. Pairwise comparisons employing a Wilcoxon rank sum test revealed that conversation of the U.S. (*Mdn* = 17.46) was significantly lower than Brazil (*Mdn* = 37.15; $p = .026$) and the U.S. was significantly lower than China (*Mdn* = 26.90, $p = .026$).

Regulars

The Kruskal-Wallis test of regulars across the three countries was not statistically significant, $\chi^2(2) = 3.47$, $p = .177$.

Well-being as outcome

The Kruskal-Wallis test of well-being across the three countries was statistically significant, $\chi^2(2) = 8.32$, $p = .016$. Pairwise comparisons employing a Wilcoxon rank sum test revealed that well-being of the U.S. (*Mdn* = 3.63) was significantly lower than China (*Mdn* = 3.85; $p = .015$), but no other pairwise comparisons were significant [6]. Table 2 summarizes the above comparative analyses.

Table 2: Summary of comparative analyses.

Note: Significant differences had a *p* value at .05 or lower.	
Characteristic being compared	**Countries with significant differences**
Neutral ground	United States > Brazil; United States > China
Leveler	Brazil > China
Conversation	Brazil > United States; China > United States
Regulars	Not significant
Well-being	China > United States

Predictors to well-being (RQ2)

Three ordinary least squares regression models were carried out with the countries (U.S. as comparison group, Model 1), with the countries and the control variables (Model 2), and with the countries, control variables, and third places predictors (Model 3) on well-being as the dependent variable. As multicollinearity could have been a concern about the different variables, especially among the different third places predictors, variance inflation factors (VIFs) were calculated for all of the models. The VIFs were well below the level of concern of 10 (Field, *et al.*, 2012), with the highest being 1.49.

Table 3 details the findings of the models. In all models, Chinese participants had significantly higher well-being than their U.S. counterparts (*e.g.*, in Model 3, $B = .15$, $p = .033$), but Brazilian participants' well-being did not significantly differ from their U.S. counterparts. Moreover, in Model 3, leveler significantly negatively predicted well-being ($B < -.01$, $p = .045$), but neutral ground, conversation, and regulars were non-significant.

Table 3: Regression models predicting well-being. Note: * < .05. ** *p* < .001.						
	Model 1		**Model 2**		**Model 3**	
	B	*S.E.*	*B*	*S.E.*	*B*	*S.E.*
Country:						
Brazil (compared to U.S.)	.01	.08	-.02	.09	-.02	.08
China (compared to U.S.)	.15	.06*	.16	.07*	.15	.07*
Control variables:						
Gender (1 = male)			.11	.07	.12	.07
Race (1 = white)			.04	.06	.03	.06
Political identity			.03	.02	.02	.02
Educational attainment			.01	.03	.01	.03
Third places:						

Neutral ground					-.15	.14
Leveler					<-.01	<.01*
Conversation					<.01	<.01
Regulars					-.01	.01
Intercept	3.60	.04**	3.44	.12**	3.67	.18**
Adjusted R^2	.004		.005		.007	

Discussion and conclusion

This study examined a massive multiplayer online mobile game and, conceptualizing the game as a third place and with a special emphasis of well-being as outcome, compared how the game players differed by country (*i.e.*, Brazil, China, and the U.S.). Online games as virtual third places can contribute to youth well-being and then further online and offline participation, such as through creating or strengthening relationships that facilitate political participation (Molyneaux, *et al.*, 2015). Among the several variables studied, there were significant differences across the countries.

First, neutral ground in the game was higher in the U.S. than Brazil and China, possibly because of the U.S.'s position as more well-known global culture. While U.S. players were more likely to befriend other players from the game, Brazilian and Chinese players were more likely to take precautions and befriend players that they had first met through another medium. This could be because U.S. players are more likely to take it for granted that other game players can communicate in English, while Portuguese and Chinese are not as universally spoken. That said, Brazilian and Chinese players do not necessarily need to know the other players from family or offline friendship settings only, previous research suggests that players can connect with others through affinity Facebook and Discord groups (Dornelles, 2020; Taranto, 2023). As investigated in a separate project also with *Sky* players, player transnationality of those who speak English and other languages can occur in different ways. Transnationality can occur when they make in-game friends from other countries, for example, a Chinese player befriending a Sinophone Malaysian player. It can also occur when a migrant player residing in a destination country befriends players from their country of origin, for example, a Chinese migrant player in the U.S. befriending a compatriot player in China (Huang-Isherwood, *et al.*, 2023). Particularly, future studies of non-U.S. players could further investigate how and why players befriend each other from a transnational angle.

Second, leveler in the game was higher in Brazil than China. Put it more simply, Chinese players were more likely to befriend players of similar game levels than their Brazilian counterparts. This is surprising given that previous research suggests that social and economic inequalities are both prevalent in Brazil and China (Dornelles, 2020; Meiners, *et al.*, 2020; Morgado, *et al.*, 2022; Nguyen, *et al.*, 2019; Wang and Lo, 2022). You would presume that leveler would operate similarly in both countries. While some research has found Chinese people to be more competitive than those from the U.S., that is more concerned with status (Wu and Talhelm, 2021), less is known how the Chinese compare with the Brazilians. Due to lack of research comparing Brazilian and Chinese cultures, future studies should continue to decenter the U.S. and Anglophone cultures, and further investigate the differences between more emerging countries.

Third, conversation in the game was lower in the U.S. than Brazil and China. In other words, Brazilian and Chinese players sent more chat messages than their U.S. counterparts. Similarly to the leveler explanation, one reason could be because English is more of a universal tongue and fewer messages had to be sent to overcome language barriers. Alternatively or in conjunction, because the Brazilian and Chinese players

were more likely to know their in-game friends from other contexts, they may have felt more compelled to converse more. This explanation is bolstered by the high positive correlation between the leveler and conversation variables. Moreover, as further discussed below, one interesting implication for the conversation differences is whether higher conversation can correlate with higher well-being. It appears that there is no such positive relationship. Put more simply, the quantity of conversation is not the same as its quality.

Fourth, there were no country differences regarding the prevalence of in-game regulars. In other words, Brazilian, Chinese, and U.S. players had the equivalent number of regulars as their in-game friends. This insight could demonstrate the universality of regulars in different cultures but future research could further validate this finding among players from additional countries and among additional environments. Furthermore, it would be insightful to examine the background of those regulars, for example, their country and language background, as to better understand patterns of transnationality.

Fifth, both from the comparison and regression analyses, this study found interesting insights about well-being. Well-being was found to be higher in China than the U.S. This finding is surprising because previous research suggested that Chinese youth have particularly high home confinement and parental pressures that lower their well-being (Liu, 2009; Wang, *et al.*, 2022; Wang and Lo, 2022). One factor could be the study's data collection time period of summer and fall 2021 when several countries were still healing from the COVID-19 pandemic. Another factor could be that because only more tech savvy Chinese youth could access the global thatgamecompany server, the Chinese sample was made up of youth who had access to more resources.

Note that the regression analyses employing well-being as an outcome found that lower leveler is associated with higher well-being. Thus you could infer that the Chinese players' orientation to befriend players of similar game levels could have contributed to their higher well-being. Extensive prior research has found the salubrious hedonic well-being effects of having more homogeneous social circles because those circles are perceived to provide more social support (Lee, *et al.*, 2018; McPherson, *et al.*, 2001; Noon and Meier, 2019). One way this support can happen is that you feel closer to the individuals from the social circle (Lee, *et al.*, 2018). However, *post hoc* analysis (not shown) testing the interaction between country and leveler did not yield a statistically significant effect on well-being. Thus, it appears that the country and leveler variables independently contribute to well-being. Put more simply, country and leveler uniquely contribute to well-being.

Theoretically, this study provides quantitative evidence to support certain aspects of third place theory. Consistent with Oldenburg's (1999) proposition that leveling in third places is salutary, players whose game levels were more similar to their in-game friends were more likely to report higher well-being. Nevertheless, the analyses did not support the individual-level well-being effects of neutral ground, conversation, and regulars. Future studies could take a more community-level approach, as third places have also been discussed as a more meso-level theory (Calderon, *et al.*, 2012; Oldenburg, 1999; Woolcock, 2019; Xu, *et al.*, 2020).

More concretely, this research made several contributions to cross-country and youth research. For instance, third place theory is less studied among Brazilian and Chinese nationals, as previous research predominantly studied European and North American nationals (Nguyen, *et al.*, 2019; Oldenburg, 1999). This study found differences in third place characteristics and well-being among all three countries. Furthermore, less is known about Gen Z, which may have more extensive connections with video games than prior generations (Nigam, 2022; Turner, 2015; Wang, *et al.*, 2022). For instance, a surprising finding about Chinese youth's higher well-being challenges previous literature about these youth's risk factors (Liu, 2009; Wang, *et al.*, 2022; Wang and Lo, 2022).

This study also provides insights for understanding digital public spheres with gaming. Digital public sphere, which is about the discursive development of public opinion on global Internet and other information technologies (De Blasio, *et al.*, 2020; Fraser, 2007; Heggart, 2020), may not be completely

applicable for a game that is more privately communicated. In *Sky*, opinion tends to be communicated with another player one-to-one or in small groups, and opinion is communicated more anonymously. However, by analyzing the cases from three different countries, observations can be made about digital public sphere characteristics of when the countries' players are alike and different. In all countries, there were an elite group of regulars who dominate the players' social circles. Furthermore, Brazil and China seem to share certain third space characteristics because they are not as historically democratic countries as the U.S. However, because digital public spheres tend to assume democracy as ideal (De Blasio, *et al.*, 2020; Heggart, 2020; O'Sullivan, 2016), it is insightful to observe how Chinese players in a non-democracy have navigated digital access. As mentioned, it is puzzling to observe how only Brazil and China differ in terms of the leveler characteristic. This difference can also have implications for how future studies examine cross-country differences in digital public spheres. Overall, certain researchers of digital public spheres may arrive with normative, preconceived, and outdated concepts of what constitutes civic participation. For example, that the participation must involve governmental institutions and that offline is better than online (Heggart, 2020). This study offers initial evidence that studying games can also inform youth participation in digital public spheres. That said, because of the dominance of competitive and violent games (O'Sullivan, 2016), future research should also replicate this study's findings in games genres that are more competitive and violent.

Methodologically, the study employed both behavioral data and survey to test theory, so it is less prone to self-reporting biases than survey-only data and more reasoned than big data studies that solely rely on unsupervised machine learning. Through the dual data sources, the study could triangulate its findings (Xu, *et al.*, 2020). Namely, triangulate how behaviors from frequenting a third place may be associated with individual-level self-reports and demographic variables.

This study's findings have practical implications for public agencies, nonprofit organizations, and socially responsible companies. Particularly for entities that operate in many different countries, it is important to understand that different countries have varying levels of third place characteristics and characteristics that improve well-being. For example, it may be good practice for a multinational company to allow employees outside of the U.S. to have easier access to socializing and conversation venues.

The findings have special practical relevance for gaming companies. Although many gaming companies have attempted surveys to better understand and improve their player communities (Munn, 2023), the companies' attempts should ensure to concern players from multiple countries and employ methodologies other than surveys. Particularly for companies with more prosocial games, it may be useful to facilitate homogeneous leveling so as to increase player well-being.

Nevertheless, despite this study's multiple contributions, it has important limitations. First, the study did not examine deeply sociodemographic characteristics other than country culture. Third place theory is underdeveloped as it relates to gender, sexuality, race, etc. (Fullagar, *et al.*, 2019). For example, rather than controlling for race as white or not, a more nuanced investigation could evaluate colorism or ethnic nationalism. As another example, measuring educational attainment across countries as broad categories simplifies complex differences in higher education (Fan, *et al.*, 2022) and school responses due to the COVID-19 pandemic (Niemczyk, *et al.*, 2021). Evaluating these characteristics more deeply could help to explain and ameliorate global social inequalities (Calderon, *et al.*, 2012; Dornelles, 2020; Liu, 2009; Nguyen, *et al.*, 2019; Wang and Lo, 2022).

Second, this research had some limitations as to the sample composition. As mentioned, the Chinese players studied possibly had more technological resources to bypass the Chinese online regulations. Moreover, due to ethical guidelines and cognizant of human development, players who were from Gen Z but legal minors could not participate. This means that the sample was only made up of older Gen Z individuals. As variability even exists within a generation (Harari, *et al.*, 2023), this study may not be as generalizable for Gen Zs born from 2004 to 2012. Furthermore, due to regional variability, fewer Brazilian players answered the survey than Chinese and U.S. players. This could have implications for statistical power and the data could not be as sensitive to observe smaller effects among the Brazilian sample (Selya,

et al., 2012).

Finally, also due to ethical guidelines and player privacy, more granular data could not have been obtained to examine the characteristics with more nuance. With more robust informed consent, future studies could attempt to examine text content of in-game conversation, rather than only the number of text messages. Moreover, in-depth examination of specific locations in the game could take place (Ducheneaut, *et al.*, 2007), such as, in *Sky*, the in-game locations where chatting is permitted. Ducheneaut, *et al.* (2007) found that certain in-game spaces can recreate physical urban planning issues. As such, rather than studying the environment of the entire game, zooming in specific gaming sites is also needed.

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Notes

1. Ducheneaut, *et al.*, 2007, p. 141.

2. Oldenburg, 1999, p. 27.

3. Not examined third place characteristics are accessibility and accommodation, low profile, playful mood, and home away from home. The main reasons why those characteristics were not examined were due to lack of relevant data or some of these characteristics being similar to the *Sky* players of different countries (Ducheneaut, *et al.*, 2007; Steinkuehler and Williams, 2006).

4. Fullagar, *et al.*, 2019, p. 24.

5. Steinkuehler and Williams, 2006, p. 894.

6. Although well-being resembled a normal distribution, for consistency with other comparative analyses, Kruskal-Wallis analysis was reported. As additional analyses, ANOVA and *post hoc* Tukey tests were carried out and the U.S. was still statistically lower than China.

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