Playing remotely: The COVID-19 pandemic and mobile locative gaming in Northeast Brazil

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Abstract
Mobile locative games consist of a subset of mobile games that encourage players to go outside, by promoting outdoor activities and physical meetings. Because of this, their gameplay breaks the core of social distancing strategies implemented since the beginning of the COVID-19 pandemic. However, developers implemented changes in their locative games supported by the mobile game revenue model, which enabled a strategy called “playing remotely” that encourages the players to spend their money with microtransactions. This study analyses the impacts of the COVID-19 pandemic in mobile locative gaming, by examining the preferences and behavior of players from the Northeast Brazil, a region with socioeconomic inequalities and urban violence, among other issues that shape mobility practices.

Accordingly, we pose a research question: how do players living in Northeast Brazil manage the mobile game revenue model for playing remotely during the COVID-19 pandemic? With this in mind, we have conducted an online survey among communities of players located in Northeast Brazil, by sharing a questionnaire with 21 questions. Seventy-four players from the region responded to our survey. The sample’s age was from 16 to 58 years old, and they lived in seven of the nine states that form Northeast Brazil. We have found that players’ preference is to invest their time in gathering resources by playing the game, instead of spending their money in microtransactions for playing remotely. Moreover, we have found that mobile communication plays a significant role in keeping...
players in touch during the COVID-19 pandemic, allowing players to expand their networks to other cities and countries. We have concluded that playing remotely represents an important strategy to support the development of locative games and other location-based applications, which can help us to prepare for the next pandemic.

**Keywords**
Mobile communication, locative games, mobile revenue model, COVID-19, pandemic issues

**Introduction**
The rise of mobile locative games occurred in May 2000, when the United States government removed the restriction for civilian access to the Global Positioning System (GPS). Then, people began to evaluate the accuracy of their GPS receivers, including game designers, and in a couple of days the first locative game, called Geocaching (Groundspeak, 2001), was released in that country (Farman, 2009).

After Geocaching, other mobile locative games emerged worldwide. For instance, Mont’Alverne (2010) compiled 73 projects released up to 2008, two of them developed in Brazil. This period was the “first phase of location-based gaming”, because it involved projects created before the rise of smartphone apps. At this point, people often played locative games by using custom devices and GPS receivers. The “second phase of location-based gaming” started in 2008 with the release of mobile operating systems iOS and Android; since then, locative game designers have made this shift from custom devices to smartphone apps and the games have been available as mobile applications (Leorke, 2019).

Nowadays, it is possible to download many mobile locative games from App Store and Google Play Store, both independent (indie) games and the so-called AAA, which are developed by major studios with higher budgets, such as Ingress Prime (Niantic Labs, 2012); Pokémon GO (Niantic Labs, 2016); The Walking Dead: Our World (NextGames, 2018); Harry Potter: Wizards Unite (Niantic Labs, 2019), which ended in January 2022; Jurassic World Alive (Ludia, 2021); and Pikmin Bloom (Niantic Labs, 2021), among others. Along with their history, mobile locative games have built a strong player base around the world and received significant attention from the academic community; however, the majority focus solely on Global North contexts (De Souza e Silva et al., 2021a).

Mobile locative games consist of a subset of mobile games, which is to say, games for mobile operating systems that use locative media as a resource for game design. Consequently, the urban space turns out to be a support for players’ interaction, and the location of each player is a form of input that influences the game world (Andrade, 2016, 2019; Laato et al., 2020a). By integrating game-playing into everyday routines, mobile locative games are more likely to alter the players’ routes, encourage them to visit novel places, and understand their environments differently, thanks to the mediation of a location by the game (Saker & Evans, 2021).

Unfortunately, mobile locative gaming breaks the core of social distancing strategies implemented since March 2020, because it motivates players to go outside, by
encouraging outdoor activities and physical meetings. Accordingly, players and developers have become worried about events that require outdoor play, such as the Community Day on Pokémon GO, Ingress First Saturday on Ingress Prime, and so forth. However, developers were quick to react and promote changes in their locative games, although they also advised players to stay at home. At the beginning of the COVID-19 pandemic, those events were canceled; then developers released resources that enable playing remotely.

We call playing remotely the strategy implemented by game developers during the COVID-19 pandemic, which enables people to play mobile locative games at home or anywhere following the purchase of special items. It is supported by the mobile game revenue model, which encourages players to spend their money with in-game microtransactions for acquiring those special items. Initially, there are two alternatives for playing remotely: the players can use their own money in the game; or they must play the game for gathering credits to use in microtransactions.

This paper aims to analyze the impacts of the COVID-19 pandemic in mobile locative gaming, by examining the preferences and the behavior of players from Brazil. Our choice was the context of Northeast Brazil, a region with socioeconomic inequalities, poor urban planning, and robbery and thefts, among other issues that shape mobility practices, such as locative gaming. We pose the following research question: how do the players in Northeast Brazil manage the mobile games revenue model for playing remotely during the COVID-19 pandemic? With this in mind, we have investigated players’ preferences and behavior, by conducting an online survey among the communities of players located in the urban sites that form Northeast Brazil.

We have chosen to examine the preferences and the behavior of players from Northeast Brazil by considering some aspects. Despite the beautiful beaches and tourist places, the northeastern part of Brazil is a region with socioeconomic inequalities in comparison with other regions in the country. Additionally, metropolises such as Salvador, Recife, and Fortaleza, have issues regarding public safety and urban mobility. Other cities in the countryside, especially in semiarid territories, lack natural resources, such as drinking water. On the other hand, we live in Bahia, one of the nine federative states that form the Northeast region in Brazil, and we are connected to local communities of players.

In this study, we start by discussing the relationship between mobile locative gaming and the new mobility paradigm. Then, we argue how mobile locative games can shape urban mobility by focusing on the Global South, especially Brazil. In the third section, we present a literature review by considering some research that focuses on the impacts of the COVID-19 pandemic on mobile locative gaming. In the sequence, we show the mobile games revenue model to understand how it supports the changes in mobile locative gaming. After this, we describe our research design and present our findings. For instance, we have found that players from Northeast Brazil do not spend their money on microtransactions in locative games: their preference is to gather resources by playing the game—that is, to invest their time instead of their money. Also, we have concluded that mobile communication plays a significant role in keeping players in touch during the COVID-19 pandemic; as a result, playing remotely allows players to expand their networks to other cities and countries.

Along with the outburst of COVID-19 Pandemic, there is a distinct set of threats for mobile locative gaming in Brazil, such as poor urban mobility, pocketing, theft, violence, and so forth. Certainly, gamers must find new ways to engage in locative gaming during the social lockdown
in Northeast Brazil. In the aftermath of those unforeseen circumstances, developers of mobile locative games have refashioned their projects and released resources that allow playing remotely.

**Mobile locative gaming and the new mobilities paradigm**

As their label suggests, mobile locative games have a close relationship with issues of mobility. These games are mobile activities since players should move around to play the game; they are social activities as well, so cooperation is a crucial part of the process (De Souza e Silva, 2017). Mobile locative gaming implies not only the player’s physical mobility but also the virtual and informational mobilities provided using mobile apps. From this point of view, mobile locative gaming can corroborate a theory from the field of mobility research called the “new mobilities paradigm.”

Sheller and Urry (2006) proposed the terminology “new mobilities paradigm” for conceptualizing how new forms of virtual and imaginative travels are emerging and being combined in unexpected ways with physical mobility. According to the authors, mobile telephony based on many societies jumping directly to such a modern technology seems to involve new ways of interacting and communicating on the move.

Furthermore, Sheller (2014) argued that the new mobilities paradigm encompasses works focused on the spatial mobilities of humans, non-humans, and objects, and the circulation of information, images, and capital, as well as the study of the physical means for movement such as vehicles, infrastructures, and software systems, which enable travel and mobile communication. Thus, the new mobilities paradigm can provide support for understanding some issues connected to mobile locative games, such as the mobilities of players and in-game information, as well as the circulation of money in their revenue model.

On the other hand, Cresswell (2010) pondered two problems connected to the new mobilities paradigm. Firstly, the word “paradigm” suggests a kind of transformation that misses what has been previously discussed. Secondly, there are diverse ways that the terminology “new mobilities” could be read: if the emphasis is on the word “new” then this suggests the existence of an “old mobility paradigm”; if the emphasis is on the word “mobilities” then this suggests that old paradigms were about the immobile or sedentary.

However, Cresswell admitted that, despite all these caveats, there is something new about the ways that mobilities are being approached currently, which distinguishes them from earlier accounts of movement, migration, and transport. Cresswell understood that, in the age of smartphones and mobile apps, the physical mobility of users does not take center stage in mobility studies.

The new mobilities paradigm established a starting point for understanding contemporary societies, which are founded on the movement of people, ideas, information, and objects rather than a fixed set of relations, structures, and institutions (Urry, 2007). Some corporeal self-moving, as in the case of walking; other physical mobilities extended by procedures, such as driving a car or riding a bicycle; and virtual or informational mobilities through mobile communication are intertwined in everyday life (Kellerman, 2006). Substantiating this point of view, Lemos (2009) divided mobility into three levels or dimensions, which can overlap each other: physical mobility refers to the transport of bodies and things over the space; informational mobility relates to the spread of media
by information and communication technologies; and imaginary mobility labels the “mental movement” provided by our imagination, thoughts, and dreams.

It is possible to recognize these concepts in the experience provided by mobile locative games. Physical mobility takes place through the player’s movement, as in the case of walking. Informational mobility consists of mobile communication among the players, by using in-game tools or third-party mobile apps, such as WhatsApp, Telegram, and Facebook, as well as the communication between non-humans, as in the case of the game app and their servers. Imaginary mobility appears in several ways—that is, when players are elaborating their strategy, or even when they relate the game content to its similar available on other media, such as The Walking Dead: Our World to the TV show *The Walking Dead*; Harry Potter: Wizard Unity to J. K. Rowling’s books; Pokémon GO to the universe established by the classic Pokémon game released by Nintendo in the 1990s, and so forth. Thus, the features of the new mobilities paradigm appear when people play on the go, and even spend some time elaborating a strategy to play, remembering something, and so forth.

**Mobile locative games and urban mobilities: an approach to the Global South**

Another way of connecting mobile locative games to everyday life is to consider how they shape urban mobility—that is, the players’ mobility through urban space. Locative applications can affect the mobility of users because they alternatively modulate how space comes into being through a process of reiterative and transformative practices (Kitchin & Dodge, 2014). For instance, playing Ingress Prime can perform prior local knowledge through the player’s everyday practices of urban mobility, such as commuting to and from work, which are transformed into playful practices by locative gaming (Moore, 2015); some characteristics of Pokémon GO and Harry Potter: Wizards Unite can motivate physical activities, setting a gateway towards exercise and social life by providing a healthy and enjoyable social outdoor activity (Laato et al., 2020b).

Other authors provide useful concepts for connecting mobile locative gaming to everyday practices of urban mobility. For instance, Stokes (2020) coined the notion of “local fit” when referring to players’ power for alignment and adaptation of a locative game with the community settled in the area they chose for gaming. The concept of local fit can highlight a kind of relationship between play, the players, and the community that already exists, such as people in the neighborhoods, pedestrians in the square, sellers and customers in the shopping mall, and so forth. Consequently, during the events that promote outdoor play in locative games, such as the Community Day on Pokémon GO and the Ingress First Saturday on Ingress Prime, the players have to consider the everyday social rules for gaming, such as walking on the pedestrian way, the escalator etiquette “stand on the right, walk on the left,” do not block a shop entrance, and so forth.

On the other hand, Hjorth and Richardson (2020) proposed the notion of digital wayfaring for understanding the integral role of mobile digital media in everyday life. Players become digital wayfarers whenever they play locative games, seamlessly combining, sharing, and accommodating both immediate and mediated experiences of the world by using mobile communication. For instance, streamers that often share gaming content on YouTube; for requesting geotags such as a Pokéstop on Pokémon GO or a
Portal on Ingress Prime, players must move physically to the location, for producing and sharing information about there.

However, players from cities in the Global South must negotiate their everyday practices of urban mobility based not only on their strategies but on perceptions of risk and safety as well, choosing how to move around and avoiding areas known for violence and theft (De Souza e Silva et al., 2021a).

By studying Pokémon GO play in Rio de Janeiro, De Souza e Silva et al. (2021a, 2021b) found that players’ mobility is based not only on the gameplay, but on broader safety concerns because locative gaming in Rio includes a great deal of managing everyday life risks, which do not prevent people from playing, but they do influence how players move and how they experience urban spaces. According to the authors, the activity of “managing everyday life risks” also includes collaborating and caring for others during and outside gameplay and adjusting the player’s mobilities to preserve networked connections.

As in Rio de Janeiro, the players in Northeast Brazil should consider some previous conditions in the local context where the game session happens because they must compete with urban risks to successfully play mobile locative games. These practices highlight a kind of creativity exercise called “mobile networked creativity,” which could be useful for avoiding risky situations and overcoming the challenges of urban infrastructure.

De Souza e Silva and Xiong-Gum (2020) proposed the notion of mobile networked creativity for defining an emergent practice that arises from the ongoing relationships among people and technologies; it can be applied to many different situations in which creative exercise emerges as a product of a networked socio-technical process that develops around people and mobile technologies in situations of hardship. Illustrating their concept, the authors presented the example of bus line 581 in Rio de Janeiro. Over the course of a few months in 2018/2019, a fleet of several buses was reduced to one line and users waited over an hour at the bus stops; the only remaining bus driver decided to create a WhatsApp group, which was not officially related to the bus company, for sharing the real-time bus locations, and departure and arrival times. De Souza e Silva and Xiong-Gum realized that, out of the difficulty in urban mobility and lack of public resources, the driver and the users produced a creative exercise to network, repurposing an existing platform (WhatsApp) to replace an inexistent app for improving urban mobility.

As in this situation, we agree that Brazilian players can use mobile apps to improve their communication for locative gaming. For instance, Pokémon GO and Pikmin Bloom lack an effective resource for providing in-game communication, such as a chat or direct messages. Therefore, players can repurpose an existing app platform, such as WhatsApp, Telegram, Facebook, and so forth, to replace the inexistent resource for in-game communication.

On the other hand, Brazilian players sometimes subvert the game rules to achieve safe play—that is, spoofing their location or even driving a car instead of walking during the game sessions (Andrade, 2020). GPS spoofing, or fake GPS, is the most popular subversive practice that happens in all sorts of mobile locative games. It is a method of faking longitude and latitude coordinates to reach distant locations in the game; this eliminates the need for the player to leave his or her position for gaming (De Souza e Silva et al., 2021a).
The COVID-19 pandemic: A challenge for mobile locative gaming

Unfortunately, the COVID-19 pandemic has challenged the core of locative gaming—that is, moving through urban environments and interacting with people. Since the World Health Organization declared the COVID-19 a global pandemic, governments have placed limitations on the physical mobility of their citizens by promoting social distancing strategies and advising people to stay at home. At the same time, some scholars started spending their efforts on understanding the impacts of the COVID-19 pandemic on mobile locative gaming.

Laato et al. (2020a) verified that the developers of mobile locative games can influence player movement during pandemic situations. The results have revealed how game developers seem to be increasingly monitoring the global situation and adjusting their project’s gameplay to consider new situations, such as social isolation. The authors have concluded that it highlights a trend where current mobile locative games are regularly updated and submitted to consequent change and evolution. We agree this trend will prevail even after the COVID-19 pandemic.

Furthermore, Ellis et al. (2020) analyzed the effects of social restrictions on players’ physical and mental well-being if locative games are concerned, specially on Pokémon GO and Harry Potter: Wizards Unite. Ellis and colleagues found that playing those games has been beneficial to players’ mental health during the COVID-19 pandemic, and henceforth they have continued to play locative games while exercising and maintaining social connections. Here, we can realize that some players appreciated the changes in the gameplay of mobile locative games.

Chen et al. (2021) have described the project MeetDurian as a cross-platform mobile application that exploits a locative game to improve users’ hygiene habits and reduce the coronavirus transmission; for instance, players must use a smartphone camera to scan their faces before gaming, ensuring the use of a facial mask. In this case, there was not a change in the gameplay but new game mechanics that improved procedures for avoiding the COVID-19 diffusion.

Reis (2021) investigated how the pandemic has changed the gameplay experience of Pokémon GO players in Brazil, given the lockdown and social distancing strategies. He distributed an online survey and gathered 157 responses from players based in 9 Brazilian states, with no one located in the northeastern region. He realized that players considered useful the new settings introduced by the developers during social isolation.

Despite these helpful results and thoughts, unfortunately those investigations do not examine a key issue for supporting the changes in mobile locative games during the COVID-19 pandemic: the mobile game revenue model.

Mobile games revenue model: A key for locative gaming during social isolation

The research by Leorke (2019) and Paul (2020) provided a useful starting point for understanding how the mobile game revenue model works. Leorke (2019) introduced the notion of app ecology for referring to the system of economic and material infrastructure, as well
as the broader cultures of use, which simplify mobile app creation and distribution. He also established four aspects of app ecology: closed architecture, precarity, microtransaction, and data extraction. For purposes of our research, we focus on microtransaction issues.

The microtransactions allow apps to be downloaded by users for free, but with optional “pay-as-you-go” costs. For this, an in-app purchase is required to access some special items, which range from optional bonus content, such as a special costume for a character, to items that assist players or make it easier to progress throughout the game. The microtransaction revenue model stimulates players to “buy themselves out” of the labor required to progress through the game, by spending real money for gaming (Leorke, 2019).

In this same direction, Paul (2020) used the label “free-to-play” to refer to the mobile games’ revenue model structure. For this author, free-to-play is a model of monetizing that hinges on using the lack of initial costs to encourage more people to try the game and then attempt to convert them into paying players. Instead of having unlimited budgets, the free-to-play games have regular spenders; because of this, many free-to-play games are monetized in a manner that promotes regular and moderate spending.

Paul divided free-to-play into three types of monetization models. First, players have a chance to try the game for free, but it requires payment to fully unlock it. Secondly, games can integrate advertising into the core of the playing experience, forcing players to watch an advertisement to continue. Thirdly, games can offer an alternative for buying optional items, such as a costume for player’s avatar, a special token, some weapons, and so forth.

The third free-to-play monetization model matches the idea of microtransaction. By using this revenue model, developers have found a key for improving locative games during the COVID-19 pandemic. For instance, on the so-called AAA locative games, developers use this kind of monetization model for offering to players some paid and some free items, which enable playing remotely, such as the drone net (Ingress Prime), the remote raid pass (Pokémon GO), and the free roam (Walking Dead: Our World). We agree these items provide a similar effect to GPS spoofing, even though in a lawful way.

Developers increase the effects of other paid items in locative games as well, which players can use for attracting non-player characters to their location, such as the incense on Pokémon GO and the scent capsules on Jurassic Park Alive. On the other hand, developers reduced costs of items on the stores of most locative games and released some packs with a couple of these items for free or at lower prices.

There are few changes on the gameplay as well, which do not need payments. For instance, the range required for some in-game interactions was extended, such as the distance for trading Pokémon (Pokémon GO) and reaching geotags (Pokémon GO, Jurassic Park Alive, Ingress Prime). Also, there is no need for walking a large distance, which is a mandatory game mechanic for interactions such as hatching eggs or joining the player versus player (PvP) and player versus environment (PvE) battles on Pokémon GO (see Nery Filho, 2021).

**Methods**

*Research design*

We started out to follow the changes in mobile locative gaming in March 2020, when developers introduced those settings. During November and December 2021, we distributed a survey among players residing in municipalities all over Northeast Brazil, sharing
an online questionnaire in groups connected to mobile locative gaming: 23 groups on Facebook, six groups on Telegram, and four groups on WhatsApp.

The survey consisted of three topics: (a) players’ profile requiring information about their age, gender, current city, and federative state, as well as regarding the mobile locative game they often play along with their current level on it; (b) issues on players’ preferences for mobile locative gaming during the COVID-19 pandemic; and (c) issues on mobile communication, especially regarding the use of mobile apps for supporting locative gaming during COVID-19 pandemic.

The questionnaire was anonymous, with 21 questions and a consent form. It had open questions and Likert-scale questions with five and 10 levels. Only the first topic had open questions regarding the players’ age, current city, and federative state, and their favorite mobile locative game with their current level on it; there was one multiple-choice question on this topic regarding the player’s gender. On the second and third topics of our survey, there were only multiple-choice questions, some of them with more than one choice. For purposes of our research—that is, to understand how the mobile games monetization model reacted to changes provoked by the COVID-19 pandemic in societal life—the results provided by the second and third topics were prioritized over the first topic.

Our choice for statistical analysis was a complete description of the frequency of the data. Furthermore, we used the mode as a measure of central trends in the data set; the mode could be understood as the element with the highest frequency in each data set—that is, considering the opinion of most respondents.

In the end, we managed to gather 74 responses from players living in the northeastern part of Brazil. Regarding gender, 77% of this sample considered themselves male, 21.6% female, and 1.4% preferred not to declare. Their age ranged from 16 to 58 years old: most (40.6%) were aged between 21 years and 30 years, although 6.8%, of the respondents were aged between 16 and 20 years; 31.3% of our sample were aged between 31 and 40 years; 17.8% were aged between 41 and 50 years, and 2.7% of our sample were more than 51 years old.

Indeed, the informant group was not exceptionally large, and we considered at least three reasons for this result. As we will show in the next section, some players stopped playing locative games or played less than usual during the COVID-19 pandemic; furthermore, the cancelation of the events connected to mobile locative games reduced the possibilities for gathering more detailed data as well.

Without these events, for instance, we had no chance to meet people playing outside, which impacted some useful methods for gathering data and capturing additional emotional and behavioral information, such as participant observation and face-to-face interviews. Thus, the online survey was an optimal method to collect data about the studied phenomena; also, sharing the questionnaire on the Internet was a useful way to reach players at home and even players from other cities in Northeast Brazil.

**Results and discussion**

The players inhabited seven of the nine states that form Northeast Brazil: 43.2% lived in Bahia (BA), 4.1% in Ceará (CE), 8.1% in Maranhão (MA), 10.8% in Paraíba (PB), 10.8% in Pernambuco (PE), 5.4% in Piauí (PI), and 17.6% in Rio Grande do Norte (RN). They lived in different cities throughout those states, such as capital cities João Pessoa (PB),
Natal (RN), Salvador (BA), Recife (PE), São Luís (MA), and Teresina (PI), along with towns and cities in the countryside, such as José de Freitas (PI), Codó, Pedreiras, and São José de Ribamar (MA), São Lourenço da Mata and Petrolina (PE), Parnamirin, Mossoró, Canguaratema, and Caicó (RN), Cabedelo, (PB), Jitaúna, Juazeiro, Igaporã, Feira de Santana, Campo Formoso, Candeias, and Camaçari (BA).

We asked, “What locative game do you often play during the COVID-19 pandemic?” The responses revealed that most played Pokémon GO (81.1%), although 40.5% played Ingress Prime, 8.1% played Harry Potter: Wizard Unite, 8.1% played Pikmin Bloom, 6.8% played The Walking Dead: Our World, 4.1% played Jurassic World Alive, 1.4% played The Witcher: Monster Slayer, and 2.8% played nothing during the pandemic.

Nevertheless, we did not consider the data regarding The Witcher: Monster Slayer (Spokko, 2021) and Pikmin Bloom (Niantic Labs, 2021) because they were released in June 2021 and October 2021 respectively; hence, we understood that those projects do not have any changes to their gameplay provoked by the COVID-19 pandemic. On the other hand, these releases showed that some developers of mobile locative games continued to work on new projects during quarantine and social isolation times.

Subsequently, we asked, “When do you start playing locative games?”, and the responses provided interesting data. Almost half of our sample (50.7%) started playing locative games in 2016, which matches the same year of Pokémon GO’s release, the most popular mobile locative game worldwide, while 13.7% started playing before 2015, 6.8% started in 2015, 5.5% started in 2017, 9.6% started in 2018, and 5.5% in 2019. On the other hand, 8.2% of the respondents started to play mobile locative games

![Figure 1. Results of question about spending time for playing locative games in the COVID-19 pandemic](source: The authors, 2022.)
during the COVID-19 pandemic; it was to get more entertainment during quarantine or because the player felt safer playing at home in a region with considerable urban risks.

We gathered other background information from our sample as well, such as the time they often spent playing in a day and their level in their favorite locative game. The majority consisted of high-level players (78.3%), and we report below (see Figure 1) the time they often spent playing locative games in a day.

According to Figure 1, more than half of our sample (59.7%) played mobile locative games for less than 1 h a day; this data was reflected in the results when we asked, “How often do you play locative games in the COVID-19 pandemic?” For 18.9% of the respondents, they played more than usual, although 16.2% played the same as before the COVID-19 pandemic. On the other hand, 56.8% of our sample played less than usual, and 8.1% stopped playing locative games in the pandemic. These data can justify why a low number of respondents responded to our survey.

Then, we asked, “Where do you often play locative games during the COVID-19 pandemic?” In this case, they were allowed to provide just one answer. For the most part (52.7%), the preference was for playing at home, although 41.7% of our sample played in outside areas, such as their neighborhood, parks, and so forth. Other responses were: played anywhere (2.8%), played on the commute from home to work (1.4%), and played in shopping malls (1.4%).

The next question was, “If you play outside during the COVID-19 pandemic, how do you move for locative gaming?” Here, the players were allowed to choose more than one answer. The preference was for walking (62.2%), followed by driving a car (24.9%); we agree that driving a car could be an alternative for ensuring the player’s safety, because he or she can keep social isolation and avoid urban risks, such as pick-pockets and theft. Other players mentioned riding a bike (20.3%), riding a motorcycle (8.1%), and the metro (2.8%). However, 50% of the respondents reinforced their preference for playing at home instead of outside.

By considering the data we gathered from these two questions, the preference of more than half of our sample was to play at home, although other players preferred to play in safe zones, such as their neighborhood, shopping malls, and so forth. Indeed, when we asked about physical mobility matters for gaming during the pandemic, half of our sample reinforced the preference for playing at home instead of outside areas. This situation can reflect how players from Northeast Brazil approached mobile locative games when surrounding mobilities changed due to social distancing strategies. However, these players must spend some money for playing remotely, which contrasts with the economic profile of most people from Northeast Brazil.

Supported by the new mobility paradigm, we understand that the COVID-19 pandemic affected the players’ physical mobility for locative gaming in outside areas, but the informational mobility enables playing remotely. The preference for playing remotely could be connected to a symptomatic situation of mobile locative gaming with less physical mobility. In a societal context with urban violence and theft, as in the case of Northeast Brazil, the changes implemented due to the COVID-19 pandemic paradoxically allow players to experience the game with more freedom because they were safe at home.

Then, we asked the players if they approved the settings for playing remotely. Just 9.5% of our sample did not approve the changes. On the other hand, 58.1% approved the changes and 32.4% liked them very much. Despite for the most part approving the
changes for playing remotely, the players were divided about the permanence of these settings after the COVID-19 pandemic: 38.5% did not believe in the permanence of the changes in the post-pandemic period, although 62.5% believed in them. This data showed that most players liked the changes on mobile locative games but playing remotely implied spending money; consequently, the players must exercise mobile networked creativity to find ways to spend less money.

Regarding microtransactions and free-to-play matters, most players (79.7%) agreed that developers were profiting from the playing remotely strategies. We asked, “Since the COVID-19 pandemic started, do you spend more money in the game?”

As reported in Figure 2, most of the players from Northeast Brazil (43.2%) did not spend money in the game, although 21.62% decreased their spending and 10.81% stopped spending money in the game. On the other hand, 10.81% started to spend and 13.51% increased their spending money in the game. However, we agree that this data can reflect features of the socioeconomic context of Northeast Brazil, such as economic inequalities and poor incoming distribution, because most of players did not spend their money; also, others decreased or stopped spending their money with microtransactions in the game since the pandemic started.

In the following question, we asked the players about how they gather resources for playing remotely, such as coins, credits, special items, and so forth. For 68.9% of the respondents, the preference was for gathering with interactions in the game, such as by completing game missions, PvP and PvP battles, and so forth. On the other hand, only 2.7% spent their money in the game, and 28.4% of our sample mixed both strategies.

The fact that most players did not spend money in the game and their preference was for gathering credits through game interactions recalled other situations typical of Northeast Brazil, such as economic hardship, poverty, narrow circumstances, and so forth. Thus, the players’ preference was to spend their energy and time on completing game missions instead of spending their money. In other words, despite people having played mobile locative games less than usual during the COVID-19 pandemic, we
found that most of the players from Northeast Brazil did not spend their money with microtransactions. Their preference was for gathering resources by playing the game.

In this way, we found that players preferred to gather resources through interactions, which suggests an increase in the time they spent playing locative games. As a result of the socioeconomic context of Northeast Brazil, the players had to exercise creativity by investing their time in playing remotely instead of investing their money. Thus, this finding revealed how the players of Northeast Brazil approached locative games for playing remotely, by considering their economic situation and the changes in surrounding mobilities provoked by social distancing strategies.

Also, we asked the players about cheating in the pandemic, especially GPS spoofing, as a way for playing remotely and saving money. Here, 80.8% of the players had never cheated, although 17.8% started spoofing their location during the COVID-19 pandemic; only 1.4% confirmed they always cheated in locative games even before the pandemic. GPS spoofing can reflect the new mobility paradigm because it is an informational mobility. Thus, GPS spoofing in mobile locative gaming, which is connected to informational mobility and the new mobilities paradigm, also suggested that players remained more at home and did not spend money on the game.

Regarding mobile communication and locative gaming matters, we asked the players: “How do you communicate with others for gaming during the COVID-19 pandemic?” Seventy-four percent of the players reported that they stayed connected to the same groups on mobile apps, such as WhatsApp, Telegram, and Facebook. Other players joined new groups (39.7%) on these apps, including groups from other cities and countries (13.7%). Several players (17.8%) used streaming services, such as YouTube, Twitch, Zoom, and so forth. Just 1.4% of our sample used mobile apps for remote raids and 1.4% maintained physical meetings. On the other hand, 9.6% of the players said they had never sent messages to other players using social media.

For 93.2% of our sample, mobile apps were particularly useful for improving the communication between the players during social isolation and 2.7% found mobile apps just useful. On the other hand, 4.1% believed that mobile apps did not improve communication among the players in the pandemic. Finally, we asked: “Do you consider that going outside to play locative games during the COVID-19 pandemic is risky?” For 48.6% of our sample, it was very risky, and for 33.8% it was just risky. On the other hand, for 17.6% of the players, there was no risk in playing locative games outside during the COVID-19 pandemic. Here, we found that most players did not ignore the pandemic risks and they followed social distancing strategies. This way, the players from Northeast Brazil had a strategy: to gather resources by playing the game instead of using their proper money for playing remotely.

The use of these mobile apps highlights another occurrence of mobile network creativity. We discovered that mobile communication worked well to compensate for the absence of active player gatherings. Our findings additionally showed that players stayed connected to their local networks using mobile apps, such as WhatsApp and Telegram, and they joined new groups from other cities and even other countries for playing remotely. It could reflect the notion of mobile network creativity as well, once players worked to repurpose an existing platform; for example, the above-mentioned apps replacing a non-existent communication tool in the game, purposely supplying the absence of game events.
Closing remarks

This research discussed how mobile locative games can adapt to allow ludic experiences of mobility that are imagined in response to external factors, such as the COVID-19 pandemic. In this scenario, players and game developers needed to react to changes in societal situations that impacted forms of mobile locative gaming. We provided a theoretical framework that helped to understand how mobile communication played a significant role in supporting game developers, such as the mobile revenue model and the new mobility paradigm, and the players, as in the case of mobile networked creativity.

We have examined the impacts of the COVID-19 pandemic on mobile locative games by considering the preferences and behavior of players from Northeast Brazil for gaming during social isolation. We have also looked at this context of insecurity and risk through the lenses of those players inhabiting a region with severe socioeconomic inequalities, urban violence, and a shortage of natural resources, among other issues.

With this in mind, we started this work by arguing how mobile locative gaming corroborates the new mobility paradigm. Then, we discussed how mobile locative games can shape urban mobility by focusing on the Global South, particularly Brazil. In the third section, we presented a literature review by considering some research that focuses on the impacts of the COVID-19 pandemic on mobile locative gaming. In the fourth section, we showed the mobile games revenue model to understand how it supports the changes in mobile locative gaming. Finally, we described our survey and presented our results.

We have proposed the notion of playing remotely to illustrate the strategy implemented by developers of locative games during the COVID-19 pandemic. Playing remotely enables people to play locative games at home or elsewhere by acquiring special items; it is supported by the mobile game revenue model, also called the free-to-play structure, which encourages players to spend their money with microtransactions in the game. Despite a few changes in locative games that do not require payments, we realized that players should spend resources, that is, their money and their time, in most situations when playing remotely. We found that the mobile game revenue model helped the game developers to react to changes in societal situations, and mobile communication played a significant role in keeping players in touch during the COVID-19 pandemic.

In response to our research question “How do the players in Northeast Brazil manage the mobile games revenue model for playing remotely during the COVID-19 pandemic”, we found two ways of playing remotely: players can use their own money in the game; or they must play the game to accumulate credits for use in microtransactions. We conclude that the preference of players from Northeast Brazil is to spend their time gathering resources by playing the game, instead of spending their money with microtransactions to play.

Also, we found a third and subversive way of playing remotely—that is, GPS spoofing; because it constitutes an illicit procedure in all locative games, we could consider GPS spoofing a subversive alternative for playing remotely. Despite players in Northeast Brazil agreeing that developers made fantastic profits from changing features for playing remotely, they approved those new settings in locative games. However, the players were divided if those settings would prevail after the post-pandemic stage.
Future studies on mobile locative games will have to explore our findings about the players’ behavior. Despite our results indicating that people play less than usual during the COVID-19 pandemic, gathering resources for playing remotely suggested an increase in the time that players spend in locative games. Also, the activity of playing the game for the purpose of gathering credits can reflect a hybridized form of work and play, which deserves a particular and deep analysis. On the other hand, scholars could explore ways of maintaining the playing remotely strategy in the post-pandemic stage.

Finally, playing remotely could be a strategy for playing mobile locative games at certain times that are deemed dangerous, or to allow players with physical disabilities also to take part in locative experiences. We agree that our results are relevant for understanding how mobile communication supports the difficulties and facilities during the COVID-19 pandemic for players in Northeast Brazil, a region with social, infrastructural, and economic inequalities. We also offer a framework for understanding location-based gameplay outside the Global North. Playing remotely represents a new trend in the history of mobile locative games: it is a useful strategy to support the development of locative games and other location-based applications.

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