

Pi-kaPika: A qualitative study for trainer-owned Pokémon

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Research note

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Abstract

Objective To explore insights of young people's experiences and motivations in Pokémon GO in Hong Kong. The perspectives of young people through qualitative focus group interviews. **Results** Eight focus group discussions with young people (n=45; age from 18-25 years old) recruited in Hong Kong. We analysed the discussions using a thematic approach. Five theme categories emerged from data analysis: missing out or self-regulation, childhood memories of Pokémon, extending virtual-reality exploration, spending more time outdoors for walking and exercise, gathering together and socially interacting with others. This study sets the way for a deeper analysis of motivation factors to young people that indicate the increasing playing location-based game (LBG) via smartphones worldwide among all cohorts of society. This relatively new phenomenon of LBG may impact players' movement, social activity, and behaviour to gain a common goal into the preferences and effects of playing LBG for young people.

Introduction

In the current decade, the use of smartphones became widespread. With the advancement in technologies, the smartphones' prices have become more inexpensive and essential to a significant percentage of the people. Smartphones currently are equipped with advanced mobile operating system as well as the features of a handheld personal computer system [1]. The most common group of smartphone users in Hong Kong is the group of young people. Approximately 91.5% of persons aged 10 and over owned a smartphone in 2019 [2]. Smartphones are generally with multi-functions, from phone call to social connection, playing games, and internet entertainment and service [3–8]. According to previous studies, online games via smartphone has a relatively controversial purpose as there is a common view that it will give great joy although at the same time a negative effect to the players' physical and psychological health [9–15].

Location-based games (LBG), the mobile technologies enable the way people experience pervasive games, allowing game players to enhance a real-world environment make use of a layer of computer-generated illustrations according to the player's location through a digital device [16, 17]. A Japanese Company - Nintendo designed and created Pokémon GO is a virtual game which has engaged augmented reality with LBG [4, 18, 19]. The players of Pokémon GO will participate in virtual environmental through their smartphones and engage in hunting for and catching cartoon characters. The feature of LBG is the association of virtual environment with real-life locations. Various cartoon characters will appear in the virtual environment in different real-life locations. It appeals to young people. Thus, they will be curious to download the app or game, and then begin moving around in their outdoors or neighborhood to search the cartoon characters. This game not only can impact and capture the motivations and interests of a large numbers of people, but it also inspires, fosters, and incentivizes the game players to execute strolling and exercise outdoors while walking around the geolocation. Though, it is seen that prolonged duration in persistently playing LBG or games by smartphone may affect adverse effect on player's mental or physical well-being [3, 12, 17, 19].

The above brings a very interesting as well as worrying concern: would playing LBG bring good or adverse health impact to young people? There are several studies reporting several health consequences regarding game addiction in physical realm: in the psychological area, and/or in social aspects [7, 9, 12, 17, 19–23]. For instance, studies by Alha et al. [9] and Laor [24] stated that it could help to relieve depression. Other studies indicated that playing LBG could help to solve the obesity problem as the playing of the game would demand bodily movement and physical exercise [25–28]. A press release from the University of Leicester [29] also reported that playing LBG could have the benefit of easing the type 2 diabetics' burden by engaging in physical mobility such as walking and standing [29].

The LBG players have sustained duration and spend extreme time in playing LBG trigger to become LBG addiction [30, 31]. In accordance with the Diagnostic and Statistical Manual for Mental Disorders-Fifth Edition (DSM-5) and numerous research showing the diagnostic criteria of addiction in relation to playing LBG [32–34], there are various behavioral observations developed from excessive internet use containing pre-occupation, abandonment, constant overuse, deficit in self-control and curiosity, avoidance of negative moods, and deficit in function from a well-being [35]. The sustained duration and spend extreme time of playing LBG activity are easily and perhaps apparently noticed as cyber relationship addiction.

The players apparently consume a large amount of time that they tried continuously and repeatedly to win LBG has been recognized as a process addiction. This activity always harmful player's health implicated [16, 36]: *"Healthy excessive enthusiasms add to life, whereas addictions take away from it"* [37]. Yet, many games that are beneficial to promote individuals' health will be considered to have a positive impact on personal health [38]. Although there are pros and cons to playing LBG, the benefits are often easier to detect than the problems associated with it.

LBG games have proven that social interaction may help distract patients who are also LBG gamers and promote their recovery from their complaint of pain [4, 39]. It can also support gamers cope with psychological disorders such as social anxiety and depression [40, 41]. Most significantly, Pokémon GO has the feature of motivating well-beings of all ages to move around, increase their physical activity and diminish sedentary behavior [42–44]. There are reports that due to the location-based technology, LBG players go on foot at least 2500 steps daily in playing the game [45, 46].

There is limited study to report the addiction of playing LBG on the socially withdrawn adolescents and on the safety concerns in playing LBG as the players would need to wander around in the community to hunt for the cartoon characters. There is similar concern perceived by the public in Hong Kong regarding the benefit and adverse impact that could be produced in additional behavior in playing the online games like LBG.

Excessive playing LBG should be avoided, particularly if it is for the purpose of casual play. In this respect, this study will possibly serve as one of the pioneer studies exploring the experience of Hong Kong young people playing the LBG and their health effect and influence their social aspects of life. The current study was target to young people as they are the group that is apparently and simply associated with playing online games.

Methods

The use of qualitative methods was intended to deliver an understanding of young people playing the LBG, Pokémon GO. Focus group discussions were used as the data collection method to gain diverse perspectives of participants and generate explanatory insights through group interactions [47]. Ethical approval for the study was obtained from a local academic institution (Number RESC2017003).

Participants

Participants were between 18 and 25 years old in Table 1, and they are recruited using snowball sampling method. The inclusion criterion was selected due to current Pokémon GO players or had recently played the game in Hong Kong. The research team first explained the purpose and methodology of the study, and eligibility criteria for participant selection to these groups, and potential participants were individually contacted to determine their interest in taking part. The research team talked with potential participants to illuminate the study purpose, evaluate their eligibility, and talk about the venue and time for data collection process.

Table 1
Descriptive data of study participants (N= 45)

Measure	Frequency	Percentage %
<i>Gender</i>		
Female	13	29
Male	32	71
<i>Age</i>		
18-19	7	16
20-21	18	40
22-23	15	33
24-25	5	11
<i>Length played on Pokémen GO, month</i>		
1	1	2
2	6	13
3	1	2
4	7	16
5	14	31
> 6	16	36
<i>Average time spent on Pokémen GO per day, hour</i>		
< 1	23	51
1-3	21	47
4-6	1	2
<i>Trainer level on Pokémen GO</i>		
1-5	4	9
6-10	2	4
11-15	3	7
16-20	6	13
21-25	9	20
26-30	18	40
31-35	3	7

Measure	Frequency	Percentage %
<i>Money spent on Pokémon GO, US\$</i>		
0	43	96
1–12	0	0
13–64	0	0
65–130	1	2
> 130	1	2
<i>Venue in played Pokémon GO</i>		
1	4	9
2	4	9
3	2	4
4	12	27
5	10	22
6	2	4
All locations	11	25

Data collection

Eight focus group discussions were held between July 2017- July 2018. Men ($n = 32$) and women ($n = 13$) participated in separate focus groups, and each group consisted of five to six participants, the length of discussion was about 45–60 minutes, and were conducted in Cantonese. The first author (KH) has experience of qualitative health research methods moderated the focus groups. Because she was not Pokémon GO player and we suppose limited inherent bias that might have influenced data collection, analysis, and interpretation. Participants completed a short questionnaire on demographic information, written consent, and playing LBG before the discussion. The first author also recording and taking notes during the interview discussion. The location for these focus group interviews performed in a comfort and quite room at a local academic institution and based on the convenience time schedule to participants.

We developed a semi-structured discussion guide in Table 2, which was developed based on a

Table 2
Interview guide

- Can you describe experiences of playing Pokémon GO outdoors?
- Can you describe the feeling of playing Pokémon GO?
- Which part of the game do you find most appealing to you?
- What is the difference in your social life before and after playing Pokémon GO?
- Can you share your interactions with friends, family or other strangers since you played the game based on your own experience?
- How do your friends or parents rate your Pokémon GO game? What do you think about this?
- If there is no Pokémon GO now, how would you use that time?
- What is your opinion on the importance of being negative and positive when playing Pokémon GO?

review of relevant literature of playing LBG, internet or online games, and related physical and psychosocial health perceptions [4, 23, 48–51], and finalized through review by the research team. A member of the research team (KH) then translated the guide to the Chinese and other researcher (who is granted a translation qualification and not related to this study) cross-checked the translated edition. According to the ecological model of the determinants of physical activity, the research team guided the discussion questions and identified a range of well-being's individual-, environmental-, interpersonal-, policy-, and social-level factors that may foster a well-being's physical activity [52, 53]. Due to the model emphasizes that the affected factors in use at various levels work together to form human behavior and multi-level interventions will be most useful to create continued behaviors change [53].

A pilot focus group was undertaken with a similar group people to ensure that the guideline of group interview had the essential information, and the participants were comfortable with the flow, Cantonese, and questions. The guideline was slightly altered (order of the items) based on the suggestions of participants and the experience of researcher. The participants playing the LBG were also asked to discuss changes in their physical activity, and perceptions after playing LBG. Probing questions were asked for interpretation and to elicit more aspects until all discussion subsided.

There was started with a brief description of the study's purpose, methodology, and risks and benefits of participants of each focus group. Participants were offered the opportunity to raise questions before the consent process. All participants signed the written consent, and the focus groups were audio recording with their permission. After the consent process and before starting the focus group discussion, each participant was required to give their brief introduction including their name, education, age, marital status, studying status or occupation.

When there appeared data saturation that means no new information emerged, as determined by preliminary data analysis performed together with data collection, recruitment for participants and data

collection were came to an end [54].

Data analysis

The audiotaped recordings of focus group discussion were translated in their verbatim into

English and transcribed, as well as then analyzed using a thematic analysis approach [55]. The transcripts were aided by NVivo 12 qualitative software (QSR International, Melbourne, Australia) for initial coding and code refinement.

Moreover, the research team used a deductive process [55], the first author (KH) did the initial

coding after reading and re-reading the transcripts to recognize codes corresponding to each participant and all related factors and influences upon physical activities [52]. Also, the research team analyzed the transcripts for explanatory barriers and facilitators used by an inductive process [55]. Among the whole research team' analysis strategy, the initial codes were discussed with each other to create secondary codes and themes in consistent with the ecological model. The initial coder then noted the manuscript, and the other two members of the research team cross-checked this final coding. Lastly, the audio-recordings and transcripts were coming back to make sure the themes considered all the topics and explanatory reflections delineated by the participants.

Results

We conducted eight focus group discussions involving a total of 45 participants (32 males and 13

females), in 8 groups with 6 - 7 participants per group. Participants were between 18 and 25 years old in Table 1. Most of the participants were students (66%) while others were under employment (34%). Four had acquired trainer level five, three had trainer level between 11-15, six had trainer level between 16-20, nine had trainer level between 21-25, eighteen had trainer level between 26-30, and three had trainer level 31-35 in Table 1. About 96% (43) of the participants reported they never spent money to play Pokémon GO, one spent US\$65-130, and one spent more than US\$130 to play Pokémon GO (see Table 1). The time duration that the players have been playing Pokémon GO was 1 to > 6 months (a mean of 4.7 months). The playing time per day was < 1 hour to 6 hours (mean of 1.6 hours).

Theme 1. Missing out or self-regulation

All participants felt some potential negative impact might be resulted from playing the game if the players could not manage themselves well: examples like bumping into unaware obstacles in the street hurting themselves or others, social disturbance, and addiction.

“Such as in Morse Park, many players rushed to the park to hunt for new species. But there may be some people playing football and they didn't know the players were rushing in, so that they may bump into the

player..."

Many participants reported that they had similar experiences as they reflected on their perceptions of the occurrence of accidents when players were focusing on hunting Pokémon. Due to their enthusiastic involvement, they recognised that they may disturb others when indulging in the game in public areas.

"Crossed the road without looking ... bumping into something or somebody or took a wrong step".

"Many people had already blocked the road because of the appearance of Gyarados. Then, I might feel that they seemed to really cause an obstruction."

"Some complaints towards us came from disturbing other's jogging activities, as joggers claimed that there would be nowhere for them to jog if many people were jammed in there."

Some conflicting opinions appeared concerning the lack of self-control of the players. Apart from mobility and improved sociability, number of participants as a loyal fan of Pokémon GO.

"Much money was spent compared with other games. During this time, two thousand dollars (US\$ 258) was spent swiftly like pouring water from a bucket, one splash and it's a lot of water. Also, lots of time was spent on the street; therefore, energy was lacking for doing other things. The state of exhaustion made me sleep immediately after I got back home."

Some of them also reflected that this uncontrollable behaviour affected their job performance.

"We have been too concentrating on this game, obviously, our working efficiency was downgrading."

"Some people might say it was too addictive or improper in time management, but I thought everyone could adjust by themselves."

Theme 2. Childhood memories of Pokémon

All the participants typically described the attraction to play the game was the retrieval of their childhood memories of watching the Pokémon cartoon on TV. They derived the fun of playing the game by actually participating in the pursue of Pokémon in the virtual world through the use of their smartphones. In essence, it is a connection of their fond memories through the virtual world in the real-life locations. Pokémon GO appealed to the participants as it was one of the most popular TV series in their childhood. Half of the participants shared the same reason for engaging in playing the game.

“Pokémon held a special place in my heart.”

“While you’re playing Pokémon GO, you’re required to have the first-hand experience in the game - when walking to the certain location yourself, then Pokémon will appear in front of you - at that moment, you seem you were Ash Ketchum (main character in Pokémon animation) in the Pokémon movie.”

Many participants took that Pokémon was real in their living world because the cartoon characters would appear on the street when the smartphone camera was on; then they would need to, in the virtual world, throw a ball at it for catching it.

“Compared with other games, it’s more realistic and closer to the reality. During gaming, none other than Pokémon GO could be realised and incorporated in your real life.”

Theme 3. Extending virtual-reality exploration

Numerous participants reported that Pokémon GO can shape the connection between the virtual world and real life. Players will need to look for Pokémon in the community in Hong Kong. Some legendary Pokémon characters may be found in specific famous locations in different countries of the world. As a result, all participants would have opportunities to navigate some place new in the local community or even to other countries.

“I hang out more around the neighbourhood because of Pokémon GO. So, I discovered a place that I don’t know by the picture of the Pokéstop and found out that it’s just nearby my home.”

Some participants were active players whose expressed their enjoyable experience in hunting Pokémon everywhere and aimed to be one of the world’s master trainers. They emphasized that it could be a useful tool for knowing and obtaining in-depth understanding of the geographical and cultural environment of the community.

"I visited Star Ferry Pier, Laguna Park, as well as Victoria Park, and familiarized myself with the surroundings of the places that I travelled. Thus, I would not only focus on game nature itself, but would also go out more and find out more about the nearby district."

Theme 4. Spending more time outdoors for walking and exercise

All participants agreed that LBG encouraged them to increase exercising when participating in this game as it compels them to leave their house, changes their daily walking and living routines for the purpose of hunting the cartoon characters. Most of the participants thought this game may act as an incentive for those who are socially withdrawn. One of participants commented that an autistic child was compelled to step out the door with her mum through the game mode, and this child showed a happy appearance when she got a new character of the game.

"I think the attractive point is that it requires you to play outside, whereas, for most of gaming, you usually stay at home. But this game forces you out to somewhere for hunting Pokémon."

"I can't hatch the eggs while I'm taking the public transport. It'd be difficult to detect new Pokémon, so I chose to walk I really enjoy running with my friends. We always rush for an unknown Pokémon in extremely limited time. And it made me sweat everywhere, including my hands, forearms, and even underarms."

Although everyone has a regular pattern in doing things in their daily routine, some of the participants struggled with changing their daily routines. Most of them explained that they preferred to get off the public transport early or go on foot to certain place as these are the simplest ways to hatch a Pokémon egg or get the Pokéstop. This urged them to increase their exercise amongst different age groups, particularly with their parents, when they were usually typically physically inactive.

"Take my family as an example. My parents would go out, too, which was really shocking. I've never seen my dad do something like that. There were many other middle-aged people on the street. Despite their intention to just play the game, it turned out that they exercised a lot more."

Theme 5. Gathering together and socially interacting with others

All participants commented that this game evoked social interaction among players and presented their experiences in sharing a common goal, gathering with like-minded people, following the crowd, increasing peer interaction, and promoting an inter-generational connection.

"Although I would be seldom chatting with others, 'Oh! Did you play Pokémon GO?' would be asked, and the topic might continue with counting the number of Pokémon, ways of hunting and so on."

"I met him (one of participants) just because of this game, and we always went for Gym battles afterwards."

All participants expressed a common goal when playing was running, with the masses behaving in such a way to prevent any missing chance of hunting Pokémon.

"Suddenly, a kid shouted out that he caught the Ivysaur. Afterwards, everyone nearby took out their phones to catch it at the same time ... When everyone plays, it seems you should follow the trend."

Most of the participants reflected that they shared a common goal amongst them, and it favoured a gathering together or reunion. They felt it can establish better social skills to communicate with other.

"When I'm studying nursing (degree program) and they're studying engineering (degree program), I totally didn't understand what they're talking about when discussing mechanics. However, Pokémon GO became a common topic among us."

"Normally you and your friends won't meet every night for dinner and stuff, but the game gave us a chance to say, 'Hey, wanna catch some Pokémon tonight?', 'Sure, let's go together.'"

Most of the participants noted that a variety of age groups participated in this game. As a common goal, it generated communication and interaction among different generations, especially in the Chinese culture.

"I felt communication with family increased, as I seldom talked with my mum when playing computer games. But sometimes when I returned home after playing Pokémon GO, my grandma, who was playing this game, would ask, 'Where did you catch the Pokémon?'"

Discussion

The LBG is an innovative game mode that could have positive effects on players' daily lives and could impact on their physical, psychological, and cognitive well-being. Their childhood memories were the main reason that altered the participants' willingness and degree of involvement in the game. Pokémon was a popular cartoon in television series and movies since 1996, which animated the stories of fantastic

adventure between Ash Ketchum and his friends [56]. According to the game setting, all the elements were like the journey of Ash Ketchum, like encountering different Pokémon in different cities, battling with others in Gyms, etc [38]. Similar feelings and experiences could be achieved through Pokémon GO. Participants acknowledged that the game aroused them to recall significant Pokémon memories with advanced augmented reality technology and allowed them to become Pokémon trainers in the real world. All participants even claimed that such creation of Pokémon-related memories was more important than the game. This cognitive perspective was influencing them to be highly involved in creating a gaming experience that resulted in behavioural changes to fulfil the game requirements. Physical participation, community integration, and human interaction are the participating characteristics of LBG that could impact on health and well-being.

It is well known that the primary LBG game design is intended to activate the geolocation with certain physical movement with a GPS sensor [57]. In this study, the essential elements related to physical activity were 'walk and run' which matched the basic requirement for treasure-hunting. Subjectively, participants felt they wanted to "*walk more*" than before as it was favourable for hatching eggs or accessing other creatures by feet rather than by transportation. Aligning with studies of Howe et al. [58] and Xu et al., [59] participants reflected that their average daily steps increased in the range of 1,000–2,000 more than before playing the game. Most participants might run to hunt a presenting Pokémon within a limited time, or they might have unintentionally run with a majority of people who all shared the same aim of hunting a Pokémon. Some participants of the study even sweated excessively after running, implying the raised level of physical activity. This finding was like another study that revealed that playing Pokémon GO increased the level of physical activity in moderate to vigorous ranges [60]. The findings promoted these insights: that daily physical activity could be maintained at high level if players could keep playing this game, such physical movement might act as an exercise habit in a daily routine; and the game could motivate those players to walk more than before. Nevertheless, other studies had differing perceptions and negative outcomes related to smartphone users including eye, musculoskeletal discomfort, etc [38, 61]. A significant finding of this study was that the integration of community was established in the context of LBG design. The experience of participants was to explore unfamiliar places from the treasure-hunting feature, which is part of the aim and design of the LBG technology [4, 60, 62, 63]. According to the responses of the participants, they reflected that they were motivated to go to somewhere they would seldom or never go because of a necessity to explore various places. While they kept going out into the community, they might consequentially get familiar to such surroundings. Moreover, it was evident that players could navigate the surrounding places rather than merely focusing on the screen when playing [4, 64].

The human relationship could be strengthened throughout this game. The findings are similar to other studies in that the majority of LBG players responded that they were playing or moving in pairs or groups [3, 4, 65]. In the mode of gameplay, it could facilitate face-to-face social interaction instead of text-based communication in the electronic world. The participants focused on a common topic and goal more easily and without anxiety with others when receiving Pokémon information and battling at the same

geolocation of Gyms. The players also initiated contact with strangers located around the geolocation while attempting to reach their common goal [3, 66].

In the psychological aspect, the finding highlighted the trend of Pokémon GO to be fashionable for those who are fond of online games and hinted that the bandwagon effect may exist in these conditions. The presence of a commonly played game might substantially influence the player's internal attitude and behavioural intention towards the game [67, 68]. The variety of age groups that have been attracted to install this free-to-play game is due to the Pokémon upsurge. LBG is beneficial for maintaining a good relationship with players and their parents due to participating in this game. From the perspective of participants, it altered the generation gap and human relationship through sharing a common topic and goal. Moreover, the playing of LBG-Pokémon GO brought up childhood memories of the participants. The participants would recall, replay, indulge and finally practise in real life what they could remember, enjoy, and retrieve from the memories [69, 70]. Another study indicated that by the sharing of a common and intentional goal among the participants could help to intensify their pursuit of the goal [71].

Pokémon GO achieved record-breaking success globally based on shared memories and created a delightful Pokémon journey for many people. When huge numbers of people rushed into the street for the excitement of gameplay, some dangers and disturbances existed in the community. The study of Colley et al. [4] reported that players were usually distracted from their surroundings when immersed in the game, which meant they encountered an environmental influence involving collision, bumping, and crossing the street without looking. All those game-related dangers were mentioned in the same way.

The findings revealed new phenomena such as, 'acting like in the real situation' and 'being connected'. All these explained a new communication and behavioural pattern between LBG players while playing at the same time or in the same place to pursue a common goal. Nevertheless, in the same way as other things, this is just like a double-edged sword, which can have both favourable and unfavourable consequences, depending upon how you use or control it yourself.

Conclusion

Increasing use of digital and mobile games worldwide, the focus group study investigating new phenomena and motivations of playing LBG on various platforms presents significant and vital insights to researchers as well as policymakers. It includes visual appeal in a reality situation, achievement, and social interaction to illustrated from LBG players' behavioural pattern and experience of playing Pokémon GO among young people in Hong Kong. This new phenomenon of playing Pokémon GO has set for a deeper analysis of motivation factors and correlated concerns amongst several partners of players and has a combination of benefits and risks is undoubtable. The experiences of young people playing LBG made researchers in understanding motivations for play can provide a picture and insight delineating physical and psychosocial perceptions for different kinds of players. Being healthcare professionals never hear about the things that did not happen such as heart attack prevented through more exercise, flashing in the sunshine while playing Pokémon GO in hatching eggs. Most health mobile apps can build

a commercial and health promotion platform, and promoting physical activity often changes users who want to be healthy. Pokémon GO using more innovative techniques that allow researchers to collection new insights via analytic tools to understand players' preferences for and spend more time in walking or running for playing LBG. The possibilities for the location tracker apps to build streets with an active, recovered adventure playground for unified fun are unbounded. This would provide further studies of new technology interact with LBG would enable the impact of health change related to all players.

Declarations

Ethics approval and consent to participate Ethics approval was granted by the Committee on the Use of Human and Animal Subjects in Teaching and Research (HASC) at Tung Wah College (Number RESC2017003). All participants provided written consent. Consent for publication Not applicable. Competing interest The authors declare that they have no competing interests. Author details 1-3 School of Health Sciences, Caritas Institute of Higher Education, Hong Kong, China. 18 Chui Ling Road, Tseung Kwan O, N.T., Hong Kong

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