



The Formulation of Hybrid Reality: Pokémon Go Mania

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Abstract. This paper investigates the formulation of hybrid reality via game play experience. The once world popular Pokémon Go is the research context, which is a great example of a hybrid reality game that mixes physical and virtual elements. In order to investigate the complex process of the shaping of hybrid reality, self-ethnology and interpretative phenomenology are used as the research methods. Although rules and goals have been provided by game developers, we found that the actual rules used are co-created by both the designer and individual players. New player experience could be created through “drawing on the spot” and borrowing. Furthermore, organizing resources about the game playing through interaction with other players contribute to the formulation of hybrid reality as well. The findings suggest the system functionality is not the most important element of a hybrid reality game. Game developers should provide flexibility on the storyline, allow the players to further develop their own unique experience. In addition, developers should consider cooperate with third-party application developers to enable rich and diverse hybrid reality.

Keywords: Pokémon Go · Hybrid reality · Player experience

1 Introduction

Pokémon Go is a mobile game featuring location-based technology and augmented reality developed by Niantic. Since the launched of the game in July 2016, the game has broken the record of downloads in the first week on both Apple Store and Google Play. On top of this achievement, Pokémon Go hit the headlines of international and national news media wherever there are players. This game does not only attract one particular type of players, but a group of heterogeneous players. Despite the game system incorporates a set of rules, functionality and storyline, each player seem to be playing and enjoying the game in different ways.

The concept of hybrid reality has been proposed by scholars, including de Souza e Silva [3], de Souza e Silva and Sutko [5], where the elements of physical reality and virtual reality represented in a digital game are intertwined. What players experience in this type of games no longer determined largely by the game designers, but the complex interactions with different spaces that the player situated in. The previous studies endeavored to depict what are different spaces in this hybrid reality, but ignore

the formulation of this reality from a digital game. The purpose of this study is to look at the shaping for the hybrid reality through playing Pokémon Go. To investigate how mobile game players' experience shape their hybrid reality, the current authors adopt self-ethnology as the research method to collect data and use hermeneutic phenomenology as the method to analyze the collected data. The discussion of the results intends to shine a light on the future development of hybrid reality games.

The organization of this paper is as the following. Section 2 reviews the concepts of playability, player experience and hybrid reality in digital games. Section 3 introduces data collection and analysis methods in addition to the research context in this study, Pokémon Go. Section 4 presents the findings of the research. The last section discusses the findings and provides practical implications to game developers.

2 Literature Review

2.1 Playability and Player Experience

For any game developers, it is important to design a game what will attract players and keep the players playing the game. A digital game usually incorporates a set of rules and a storyline designed by the developers. Through the game, the player gain enjoyable experience. To keep the player stick to the game, the game developer must strive to provide appealing experience [7].

Experts in the field of human-computer interface tried to apply the concepts of usability proposed by Nielsen [14] to digital games in order to guide the first few phases of the game development. They quickly realized that the concepts such as “easy to learn” and “efficient to use” might not suitable for every type of games: some games typically attract players who consider themselves tech-savvy [13]. In addition, what have been considered in the usability engineering are insufficient for game assessment, since the main objective of using an information system is to complete a task efficiently and correctly, while game players are seeking enjoyment and entertainment, or in Sánchez et al. [16] words “to make the player feel good when playing it”. The term playability emerges to coin the concept of “a set of properties that describe the Player Experience using a specific game system whose main objective is to provide enjoyment and entertainment, by being credible and satisfying, when the player plays alone or in company” [16]. This definition recognizes elements other than the software program itself, like player's company, as part of the playability. Some of the attributes considered as playability are associated with player experience, e.g. emotion and motivation; others are associated with the design of the game, e.g. learnability and effectiveness. Despite the effort to elaborate what to consider when developing a digital game, Sánchez et al. [16] did not explain how playability affects player experience.

Nacke *et al.* [12] provided another model to analyze player experience. They considered playability determined by the game design and the game itself, and the player experience is derived from the player's interaction with the game. In other words, the game is an object that provides playability through storylines, rules and the functions of the software, and player experience is based on the provided playability. The question is, do players create new properties of playability that are not intended by

the game designers? It is not uncommon to use third-party applications to gain advantage while playing a digital game despite being disapproved by developers in many of the cases, as elaborated by Banks and Humphreys [1]. In addition, the nature of hybrid reality discussed in the next subsection might have contributed to playability that is not designed.

2.2 Hybrid Reality and the Digital Games

The latest technology used in digital games allows players to mix the real environment with digital objects. Scholars refer this broad concept as augmented reality. Milgram and Colquhoun [11] further distinguished three different levels of augmented reality discussed in literatures: (1) using head-mounted or head-up display to see the real world with digital data attached; (2) any case the real environment is augmented by virtual objects, e.g. computer-generated images are superimposed on a real image; (3) cases involving any mixture of real and virtual environment. The broadest definition of augmented reality is coined by Milgram and Colquhoun [11] as “mixed reality”. In the mixed reality, the boarder of real and virtual is blurring, and there is no predominance of either side of the elements. Unlike the first two types of augmented reality where the virtual elements are attached to the real ones, the distinction of real and virtual elements in the mixed reality might easily be ignored by the users or players.

Game players are not always playing alone, and not always playing in the same place, in particular when the use of Internet and location-based technology is ubiquitous. As de Kort and Ijsselsteijn [2] pointed out, player experience is a type of situated experience affected by social and spatial factors. The player experience develops from the hybrid spaces incorporating the connected spaces, mobile spaces, and social spaces, where the connected spaces refer to the connections between the physical and digital spaces, mobile spaces refer to networked social spaces defined by using portable interfaces, and social spaces refer to the communities derived from the game playing [3].

The mixture of the social spaces is particular interesting in the emerging hybrid reality games which contain mobile activities, collaborative actions among many users, and the merge of physical and the digital spaces [5]. This type of games drive digital game players out of the dens where computers or game consoles might be the center of the private rooms and participating different mobile activities and perhaps gain opportunities of face-to-face interactions. In this hybrid reality, players experience the physical reality and virtual reality intertwined [10, 18]. Once the game player experience is no longer confined in the representation of the game design, the players might have different perception of the experience, because the context of the game is more complex than the game system itself [13]. In addition, the player will further influence the context of the game by adding personal experience and preference and make the game customize for him/her which is different from the default storyline and the rules set by the game developers.

3 Methodology

3.1 Data Collection and Analysis

The purpose of this paper is to use Pokémon Go as an example to explore how mobile game players' experiences shape the hybrid reality. We use self-ethnology as the research method to collect data, and use hermeneutic phenomenology as the research to analyze data.

Self-ethnology, also known as auto-ethnology, is a research method requiring researchers acting as participants. Researchers, under these circumstances, immerse in the research context. Hence, it is more suitable for explore the meaning behind experience [6]. As this paper is about the shaping of players' experiences, self-ethnology is a suitable research method to collect data.

The authors start to collect data from August, 2016 until July, 2017 in Taiwan. Both of us downloaded the Pokémon Go game and play it. On the course to become Pokémon Masters, we interacted with other players, observed them, and keep our field notes. Additionally, we produced our self-narrative weekly. We also kept an eye on the Pokémon Go related Internet forums. These sources of data give us a clear view of Pokémon Go communities.

The collected data was then analyzed with hermeneutic phenomenology approach. This approach is developed by Martin Heidegger based on Edmund Husserl's phenomenology. Phenomenology is about the study of lived experience or the life world. In Husserl's view, phenomena appear through consciousness, and minds and objects both occur within experience, thus eliminating mind-body dualism. Like phenomenology, hermeneutic phenomenology is about the life world or human experience as it is lived. However, Compared to Husserl's approach, Heidegger's hermeneutic phenomenology focused on 'Dasein', which is "the mode of being human" or "the situated meaning of a human in the world". Understanding is a basic form of human existence, and interpretation is critical to the process of understanding. Hermeneutics is about human cultural activity as texts, with a view towards interpretation to find intended or expressed meanings [8].

During the analyzing phase, we authors separately read all the field notes, self-narratives, and communications of Internet forums, developed our first-level coding and themes based on the spirit of hermeneutic phenomenology, and then compare our findings, and repeat the process until we both reach agreement.

3.2 Research Context: Pokémon Go

Pokémon Go is a mobile game, licensed by Pokémon Company, and developed by Niantic. This game is based on the Pokémon card game, developed by Nintendo, and its spin-off anime. With the slogan of "gotta catch'em all" and supported by locational and augmented technologies, this game enables players to play the role of trainers, like Ash or Missy. Players may meet different Pokémon in different physical locations (based on locational technology) and see Pokémon mixed with the real world from their screen (based on augmented technology). They could catch these Pokémon with Pokéballs, or use their Pokémon to fight other Pokémon in gym battles.

Pokémon Go was released in New Zealand and Australia on July, 6, 2016 and gradually released in other regions. This game soon became the most downloaded mobile game on Apple's App Store and Google's Google Play. It has been downloaded more than 750 million times until June, 8, 2017¹. In April, 2017, there are around 5 million daily active users and 65 million month active users globally. A high proportion of players are aged between 18 and 35. These players were the audience of Pokémon anime or players of Pokémon Gameboy version². In the meantime, there are a significant number of players with no previous knowledge of Pokémon stories. And the older players, aged above 40 are the die-hard players who continue to play the game one year after the game's release³.

The Pokémon Go game starts with players act as Pokémon trainers searching for Pokémons, wining gym battles, and collecting medals in different physical locations. At the beginning, players will meet three "first" Pokémons – Bulbasaur, Charmander, and Squirtle, see Fig. 1. After he or she catches one of them, their trainer careers begin. Pokémons with different attributes would appear in different types of physical locations. Players could collect different Pokémons by visiting these places and catching them, or by hatching eggs when they walk for a certain distance. When they encounter a Pokémon, they could see this Pokémon on the screen with AR function turned on, as shown in Fig. 2-1. They may also visit some places labeled as gyms to challenge other players and earn some Pokécoins, as shown in Fig. 2-2, the token used in game to exchange for tools. When players complete certain tasks, such as catching a particular type of Pokémons or winning a certain number of gym battles, they could get medals, as shown in Fig. 2-3. Moreover, they could get stardust and candies if they catch Pokémons, win a gym battles, or hatch eggs. Players can also accumulate their experience points by participating in these activities, and level up their status.



Fig. 1. First Pokémons

¹ From <http://expandedramblings.com/index.php/pokemon-go-statistics/>, Accessed August 8, 2017.

² From <http://www.adweek.com/digital/joan-daly-gotham-pr-guest-post-pokemon-go/>, Accessed August 22, 2017.

³ From <https://www.valuesccg.com/knowledge/report/marketing/034/>, Accessed February 23, 2018.



Fig. 2. Screenshots of Pokémon Go. 2-1. Catching Pokémon in AR mode; 2-2. Gym Battle; 2-3. Medals.

4 Findings

4.1 Pokémon Go as a Hybrid Reality Game

Despite of being marketed as an augmented reality (AR) game, Pokémon Go is also a hybrid reality (HBR) game in essence. Hybrid reality is the reality in hybrid spaces. According to de Souza e Silva, Hybrid spaces combine the physical and digital spaces in a social environment. Such a space is enabled by the advent of mobile technology. Hybrid reality is the experience of user in such an environment [3, 5]. From a player's perspective, what he/she experienced is a hybrid reality.

“When I am in this location, I can see the top of gym emitting blue light.”

- Discussion with Player A

Inside the Pokémon Go game, players can see the location of gym or Pokéstop on the map. When a player arrives this location, what he/she actually see is the real scene, but in his/her mind, the scene appears to be the combination of the real world and the digital world, as shown in Fig. 3. The quotation above reflects such an image. In other words, the reality in the player's mind is the hybrid of physical spaces and the digital spaces on his/her mobile phone.

“Where is the Dragonite, did you see it?”

A conversation between the author and Player B

The hybrid reality within a player's mind does not limit to the intersection between physical and digital space: the social environment is blended in. The interesting part of

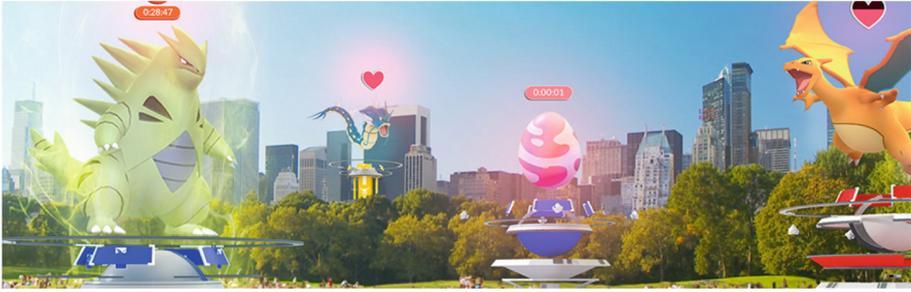


Fig. 3. The hybrid view from a player's perspective Source: <http://ift.tt/2tkrZOM>

this reality is: a player also interacts with other people when playing. The quotation above is a typical example that two players exchange the whereabouts of a rare Pokémon. On the field we also found a group of youngsters meeting in the park everyday, having dinner, and catching Pokémons together. In other words, the image in a player's mind is a hybrid space, composed by physical, mobile, and social spaces, as de Souza e Silva suggested [4].

4.2 The Shaping of Players' Experiences

From a game developer's perspective, he/she may want to create a reality for players to enjoy by applying the state-of-art technology, fascinating graphics, and meticulous game rules. However, such an effort may be in vein because players may not simply follow the rules. Instead, they may set up their own rules to play the game with any tools at their disposal.

4.2.1 Rules of the Game is Co-constructed by Developers and Players

"This game is like the real life. We need to work hard, apart by pure luck. If we do so, we definitely can be great Pokémon trainers."

- From a player reflection on an Internet forum

Although Pokémon Go is based on the story of Pokémon anime, not all players are familiar the story. Some of them may have played the Gameboy version Pokémon, or watched Pokémon anime; others are new to the Pokémon world. The game developer may have some default settings, such as how to create a level system to distinguish trainers, medal system, etc. Players may not simply play for those achievements, and have their own ways to play the game and set their own goals to achieve. The key message we could grasp from the quotation above is the personalized experience. There is no well-defined ending of this game. This allows players to set up their personal goals. Some players want to collect all the available Pokémons; some just want to see all Pokémons in Pokédex without actually catching them; others may just catch Pokémons without real targets and claim he/she is just playing for personal health. Moreover, the personal goal of this game is changeable, as shown in the following conversation.

“Will you keep playing if you catch the remaining two Pokémon?”
“Probably yes. Because I am getting old now, keeping playing can prevent me from developing Alzheimer’s.”

- A conversation between the author and Player C

Apart from setting personal goals, players have many ways to create their personal experiences. First, many Pokémon Go players are not familiar with the Pokémon story. Hence, they use their own way to name their Pokémon. For example, some players named Abra as “Little Fox” because of the appearance. Some players named their Pokémon as Dra_A15D15S14CH to present its attribute levels and skillset in order to choose the most appropriate Pokémon in gym battles.

Second, Pokémon Go players would choose which game function to be on or off when gaming. Despite acclaimed as the best designed AR mobile game, many Pokémon Go players soon turn off the AR functions because it is energy-consuming and not easy to catch Pokémon under AR mode. Players may also use third-party apps to assist the process of game. They may use third-party tools to check the potential of their Pokémon, or use other messaging tools to communicate with other players.

Finally, players may create their own rules. Some players see the nearby gyms as their own turf. If you occupied a gym for a certain period of time, you will be awarded Pokécoins. However, if players always initiate gym battles, no one could accumulate enough time to claim their reward. Hence, some players reach gentleman’s agreement to allocate time slot for players from different teams, as shown in the following dialogue.

“Hi, mate, this is our time slot. You blue team should only battle for the gym AFTER 11pm. Go away!”

- Dialogue of player D

4.2.2 Drawing on the Spot and Borrowing – Ways to Create Experiences

Player’s gaming experience is not affected by how they interact with the game, but also influenced by their life experience [13]. Hence, player experience is personal and could be created through drawing on the spot and borrowing.

Drawing on the spot can be defined as players use tools developed for other purposes in the gaming activities. For instance, they may exchange the locations of some rare Pokémon with existing messaging apps.

Borrowing can be defined as players search for inspiration from other experience in order to solve the problems they encounter in gaming. From the previous sections, we can find that players name their Pokémon based on the appearance of animals they are familiar with. In order to secure the maximum of Pokécoins, they borrow the concept of “turf” like gangsters. These are typical examples of borrowing.

Both “drawing on the spot” and “borrowing” are crucial ways for players to create their gaming experiences. The reality they experienced is not simply as what game developers designed. Rather, it is up to their ingenuity to use what is available to satisfy their needs.

4.2.3 Gaming as Organizing Resources

Although on the screen players could only see themselves, it does not mean they are alone. In the process of the game, players have to organize their resources within their social network. For instance,

“Grandpa, how do you learn to use this app to check the potential of your Pokémons?”

“My grandson taught me. I told him my bag is too small to carry more Pokémons. He just installed this app for me and asked me to check which Pokémons could be deleted on my own”.

- A conversation with player E

In this example, we can see grandson became a resource to solve player E’s issues.

“Where did you find the Snorelax? I cannot find it.”

“Near the 7-11 down there. I have seen Snorelax there several times”

- A conversation with player F

This is another example. Players exchange the whereabouts of Snorelax, a rare Pokémon, when they display their trophies.

These examples demonstrate that players may interact with others to exchange information. Sometimes, they may interact with total strangers in order to achieve certain goals. For instance, it is very common for one experienced player to give “orders” to other players in order to defeat legendary Pokémons.

In short, players need to organize his resources through social interaction when playing Pokémon Go game. It is very similar with de Souza e Silva’s idea of “social spaces” [4].

5 Discussion

The advance of technology has brought many new possibilities to game developers to create games with many fancy functions. For instance, players in the 1990s could only stay in an indoor space to play game on their own. In the 2000s onwards, the diffusion of Internet technology enabled players play game online and interact with each other, and the advent of mobile and location-based technologies further allowed gamer walking on the street and gaming outdoors [9, 19].

In the meantime, how to create a different gaming experience has become a challenge for game developers, even with so many new technologies at their disposal. Nacke *et al.* [12] pointed out that game developer could affect the playability through game design, but game design could not translate into player experience directly. The real experience of a player is the interplay between technical experience, individual experience, and context experience [13]. Hence, gaming experience is a personal experience, and may be out of the hands of game developers.

Pokémon Go is a very good example. Marketed as a mobile game with AR technology, most players do not actually experience its AR functions for most of the playing time. What players experienced is a hybrid reality, which is a reality combined with physical, mobile, and social spaces [4]. As this study showed, players' experiences are not provided by game developer alone. Players actually used their ingenuity to create such a hybrid reality by "drawing on the spot", "borrowing", and "organizing resource socially". In other words, player experience is co-created by players and game developers [1].

Acceptability, accessibility, simplicity, and flexibility may be the good measurement for evaluating game design [7], but these criteria should not be interpreted as functionality. Learning within game is a source of attractiveness of game [17]. The sense of learning is embedded in the storyline of the game [15]. Hence, when creating a game with high playability, a good storyline is necessary.

What is a good storyline of a game? Based on the example of Pokémon Go, it has provided enough space for players to set their personal goals and rules. Moreover, the gaming experience is also affected by players' abilities to "draw on the spot" and "borrowing". How to create an environment for players and third-party app developers is equally important.

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