

The Human-Media Interface Study of Pokémon Go

*Inspiring Future Gaming Experience with a New Attempt to
Map the Human-Media Relation*

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Abstract

Pokémon Go is a Pokémon theme smartphone game released in July, 2016. The game surprisingly created a global boom of 'Pokémon Go gaming engagement' during the second half of 2016. This thesis is interested in the phenomenon, and wants to investigate how the factors including the technology of augmented reality (AR) impact the gaming experience and drive the gaming engagement in this case. The research aims at interpreting the human-media interface design in this game and how it influences the gaming experience. Furthermore, the thesis hopes to come out with a working strategy in bridging humans and media in future gaming for better gaming experience with the research findings. The research uses qualitative interviews to collect first-hand data, and relevant online reports for describing some details in this case. This thesis applies a wide range of academic research including media cultural studies, human-media interface studies and gaming studies.

The analysis structure begins with micro and meso perspectives where the thesis discusses gaming experience in Pokémon Go as well as human-media interface's construction, and ends with macro perspective which concentrates on the topic of future gaming. This thesis is especially curious about gaming experience in the future, and it also comes up with original ideas in optimising the gaming experience which requires humans to redefine their relation to media opposite to anthropocentrism. However, this remains to be discussed due to its appropriateness for humanism in the future throughout this thesis and future research. Pokémon Go's success implies media technology is playing a more crucial role in expanding the gaming market nowadays, and it is valuable work to know how to make best use of media technology to benefit humans in media entertaining area.

Keywords: *Pokémon Go, gaming engagement, augmented reality, human-media interface, human-media relation, gaming experience, future gaming, anthropocentrism, media technology*

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1. Introduction

Pokémon Go is a location-based smartphone game developed by Niantic, Inc. It was initially released in Australia, New Zealand and USA on 6th July in 2016, and in many other countries and regions later on, which led to a global boom for this game during the second half of 2016. The storyline of the game is based on Pokémon's anime story. The story describes that human beings are living in a world together with a large number of mystery creatures called Pokémon¹. In Pokémon game series, players can walk in the map of the gaming world where people can collect, cultivate and use Pokémon for winning a battle in Pokémon gyms. Pokémon Go even empowers players to do all of the things above with real-space sense in gaming. The gaming map is based on the real local geography, and Pokémon gyms for battle competition are local buildings that really exist. Players can try to occupy the gyms through winning the battles against the current gym leaders.

Pokémon Go applies the media graphic technology called augmented reality (AR), and AR is also the biggest selling point for the game. AR 'attempts to seamlessly integrate virtual artefacts into the physical world' (Chastine, 2011: 321). The function of AR is to combine reality and virtuality in our real-time living sphere where we can 'see' the



Image 1

The smartphone screenshot of the gaming effect with and without AR in Pokémon Go (Y. Fang)

virtual elements in our physical world (Azuma et al., 2001, cited in Liestøl, 2011: 311). With the support of AR, Pokémon gamers are experiencing a new way of gaming, where the real and virtual gaming experience is blurred. As *Image 1* shows, the Pokémon 'Marill' looks like showing in the physical world with AR in the left side of the image, and the player can flick the Pokémon ball to

¹ Pokémon is the shorten term for 'pocket monsters', because the trainers use the balls to capture those 'monster creatures', and can collect the balls with monsters in their pockets according to the story.

catch the Pokémon. However, players can also choose to turn off AR, such as is shown on the right side, and play like a common mobile game but still location-based.

This thesis studies the human-media interface in gaming and how its technological aspect impacts gaming experience. The interface is ‘the place where information moves from one entity to another, from one node to another within the system’ (Galloway, 2009: 936, cited in Ash, 2015: 1). The human-media gaming interface is somewhere connecting the gamers to the game space which could be either real space or virtual space (Ensslin, 2012: 130), and researchers suggest the human-media interface study usually needs a combination of sociocultural and engineering study (Mignonneau & Sommerer, 2005). The gaming experience is also an abstract concept which refers to the media experience gamers have through the media entertaining contents. At the same time, it is practical to view gaming as a way of communication for a gaming study (Matsuda, 2005), and it is also suggested Pokémon Go should be viewed as cultural practice rather than only the gaming per se for this case study (Buckingham & Sefton-Green, 2003).

This thesis uses academic sources including Deuze’s (2012) and Jenkins et al.’s (2013) research about human-media relation in contemporary media cultural research area, which explains the trend in bridging humans and media in the future. Meanwhile, Thompson’s (1995) ‘mediated experience’ research helps to understand the gaming experience, and the core for mediated communication through gaming. Besides, some gaming research such as Hjorth and Richardson’s (2014) ‘ambient gaming’ research and Ash’s (2015) ‘gaming interface envelope’ research further explain a new way for gaming experience and human-media gaming interface’s construction separately. Especially, the former reminds gaming researchers what strengths the mobile gaming such as Pokémon Go holds. In the end, Ochiai’s (2016) recent ‘Digital Nature’ study develops the assumption of future AI media’s dominant role for human-media interaction, which is fundamental for inspiring future gaming designing strategy with respect to human-media relation in this case.

The human-media interface study uses qualitative interviews for the first-hand empirical data, and the qualitative content analysis for additional online empirical data which helps describing some details in this case study. In the end, the thesis will

introduce original ideas in inspiring the future gaming experience with the research findings from the case study and discusses the human-media relation in future gaming. The idea is based on Ochiai's (2016) argument for AI's dominance in future society that he believes the innovation can maximise human happiness. However, its feasibility in gaming will be analysed through the thesis.

1.1 Research Aims and Problems

The Pokémon Go boom represents a recent gaming phenomenon, in which the gaming technology plays a dominant role in opening the market. There is no reason not to believe the future gaming will rely more on technology's glamour, but it becomes also significant to know how to utilise the technology in a suitable way for optimising gaming experience. To great extent, the Pokémon Go boom inspires the gaming industry in considering the gaming designing strategy about bridging players and media in the future. This thesis studies the human-media interface in the case of Pokémon Go. It also investigates how AR, as well as similar gaming technological design in the future, can impact the gaming experience. The research aims at interpreting the human-media interface design in this game and especially knowing how it influences the gaming experience. It hopes to come out with a working strategy in bridging humans and media in future gaming for the better gaming experience with the inspirations from the case study.

This case study connects to a wide range of academic research in media cultural study, human-media interface study and gaming study, which support the argument in this thesis. However, the problem is the main arguments from the research above are only convincing in their limited research areas. For example, Deuze's (2012) and Jenkins et al.'s (2013) research do not include much debate on the aspect of gaming. The gaming researches including Hjorth and Richardson's (2014) 'ambient gaming' research do not involve the discussion about human-media relation, and Ash's (2015) gaming interface research primarily focuses on the technological aspect which lacks the sociocultural context. Although Ochiai's (2016) research refers to the sociocultural side of human-media interface, his research target is beyond gaming or media entertainment's field. Besides, his argument is mostly based on his own assumption about AI's mission for

social productions in the future, while the proposal has not been proved to have practical effect yet.

Due to the research problems, this thesis firstly needs to combine the existed research from different specific areas to fill the knowledge gap for studying the case, and then brings out new arguments. As for ‘human-media interface in future gaming’ which few academic sources cover, the thesis will try to develop the analysis for the subject further and present original ideas about inspiring future gaming experience with a new attempt to map the human-media relation. Of course, the discussion involves how to balance the technological side for gaming experience and humanistic concerns in designing the human-media interface for future gaming.

1.2 Research Questions

The research questions are designed based on two themes. The first theme focuses on the present, and the thesis interprets how the human-media interface in Pokémon Go is special for the gaming experience according to the interview data from gamers. The other theme is based on the research outcomes from the first one, and concentrates on the future gaming form. In particular, the second theme is interested in future human-media relation in gaming and the way to inspire the future gaming experience. The research questions are listed below:

1. How is the gaming experience special in Pokémon Go with connecting gamers and gaming contents compared with normal smartphone gaming?
2. What constructs the human-media interface in gaming and how does it reflect Pokémon Go’s gaming experience?
3. In what ways can the gaming experience be enhanced according to the research findings from Pokémon Go’s case study?
4. What kind of human-media relation is suitable for optimising the gaming experience in the future?

2. Literature Review

The literature review for the human-media interface study in Pokémon Go basically follows the structure from macro, meso to micro perspective. The macro-level research focuses on media entertainment background as well as the human-media relation with moral concerns in contemporary and future eras. Then the meso-level research concentrates on human-media interface and gaming experience study, which describes the technological support and strategy in bridging gamers and gaming contents in today's gaming industry. In the end, the micro-level research directly investigates Pokémon Go per se, from which it depicts how special the gaming experience is in this game.

2.1 Media Entertainment Background Research

This thesis requires a cultural perspective on Pokémon Go's study and it is relevant work for understanding the media entertaining environment. The media entertainment background research is based on a macro approach in investigating human-media relation in media entertaining products through media cultural study. This section mainly introduces Deuze's (2012) *Media Life*, Jenkins et al.'s (2013) *Spreadable Media*, and Thompson's (1995) research in mediated experience to describe the human-media relation in current era and how it evolves in the future. Meanwhile, this section also involves their opposite argument including Fuchs' (2014) debate on 'media user exploitation' to discuss the contemporary human-media relation from the broad media entertainment background.

2.1.1 The 'Media Life' Study

In media cultural study aspect, Deuze (2012, Overview) defines that, 'A media life can be seen as living in the ultimate archive, a public library of (almost) everything, embodying a personalized experience of all the information of the universe'. He considers a media life includes all contents from human-media interaction (Deuze, 2012, Overview), and the form is ubiquitous with the support of the latest technology (ibid.: 8). In psycho-analytical sense, the powerful media can give us entertaining experience, but also make us feel guilty about the pleasure we get from media, because 'the further

our immersion in media goes, the more powerful media can be as a source of fantasy or fear', analysed by Deuze (2012: 25) through extending Freud's study. Again, in Deuze's (2012: 32) point of view, the media life is not about 'technology' or 'human beings' in its essence, but it is a question whether we view technology stands opposite to human beings or is part of our body. As a result, media life is making 'media' become invisible, as Deuze describes:

[P]eople tend to forget most of their media use, mainly because they are concurrently exposed to multiple media at the same time, and most of their media use occurs in combination with other everyday activities such as working, hanging out and eating. (Deuze, 2012: 61)

However, the media life makes us lost as well (ibid.: 67), and there are quite a few modes of personal communications not exactly requiring to be mediated (Rosen, cited in Deuze, 2012: 72). Thompson's (1995) 'mediated experience' research which will be introduced subsequently in this chapter, points out the diverse communication does not always need to be mediated through technological support, because non-mediated communication also makes sense in some situations.

From the media moral perspective, Bauman (2007: 2) argues our '*social* life has already turned into an *electronic* life or *cyberlife*' and human beings are becoming commodities under the highly consuming environment. On the contrary, against Bauman's apprehension about the media life today, Baym (cited in Deuze, 2012: 92) suggests that 'new media do not offer inauthentic simulations that detract from or substitute for real engagement', and we can exactly view media life as physical life we experience. Also with reference to 'interface envelopes' study which the research will talk in depth in the following sections in this chapter, human beings cannot step out of technology as a result. On the other hand, there is 'no life outside media' (Deuze, 2012: 100) where people construct their identities and communities (ibid.: 125). Especially in gaming's field, Deuze (2012: 183) regards the gaming world as the 'benchmarking' of media life where the 'real-world environments' are blended with 'various forms of mediated gameplay'.

2.1.2 The 'Spreadable Media' Study

Jenkins et al. (2013) define 'media spreadability' as 'the potential – both technical and cultural – for audiences to share content for their own purposes' (p. 3) in media cultural study's aspect, and 'the technical resources that make it easier to circulate some kinds of content than others' (p. 4). Jenkins' study is convincing in explaining media users' role in building human-media relationship and he claims for the active role of audiences instead of being seen as passive receivers in human-media interaction (Jenkins et al., 2013: 21). The limit of applying Jenkins' study to this research is that, *Spreadable Media* mainly orients to social media study based on Web 2.0 logic, by which this case study concerning future human-media interface working methods cannot be fully explained. Besides, the authors also believe personal contents can be 'commodified' (ibid.: 83), and media users are exploited in media participation (Smythe, 1981, cited in Jenkins et al., 2013: 126).

Fuchs (2014) is one of those critics against *Spreadable Media* and he claims media users are exploited by new media. Even Jenkins et al. (2013: 298) also describe the fact that, 'not everyone is allowed to participate, not everyone is able to participate, not everyone wants to participate, and not everyone who participates does so on equal terms'. Fuchs' (2014) argument stands on the 'ownership' problem in human-media relationship. In his opinion, media users are exploited in participation no matter how they feel entertained in the process. He criticises 'Jenkins tends to advance a reductionistic understanding of culture that ignores contemporary culture's political economy' (Fuchs, 2014: 57).

However, the most significant finding from *Spreadable Media* is the 'collaboration' of humans and media (Jenkins et al., 2013). Even Fuchs (2014: 74) admits humans cannot live without media technology, because '[t]echnology is one of many results of the productive societal interactions of human beings'. As Jenkins et al. (2013) suggest the way in balancing human-agent power and relation, the agent should design an interface which can 'listen to' media audiences. Compared with the passive way of receiving users' message (defined as 'hearing' by Jenkins et al.), 'listening to' audiences requires active communication with users (Jenkins et al., 2013). In the end, Fiske (1989) remarks

the media contents can only thrive if they enable media users to make their own meanings with their identities in media activities.

2.1.3 The 'Mediated Experience' Study

Thompson's (1995) research in mediated experience is relevant to the discussion about Pokémon Go's gaming experience in this thesis. Thompson (1995) introduces the core difference between non-mediated and mediated communication in his work, and the normal type for non-mediated human-to-human conversations is 'face-to-face interaction'. He mentions 'participants commonly employ a *multiplicity of symbolic cues* in order to convey messages and to interpret messages conveyed by others', which means 'winks and gestures, frowns and smiles' can always affect the conversation apart from 'words' (Thompson, 1995: 83). Thompson implies a face-to-face interaction usually has a high-quality in accurately conveying the message (ibid.).

On the contrary, the ways of mediated communication are highly dependent on media technology, and the message can be transmitted without the limits of time and space. Although mediated communication does not offer much interactive chance for humans, 'the media make available a range of experience that individual would not normally acquire in the practical contexts of their day-to-day lives' (ibid.: 225-226). Thompson (1995: 228) wants to notice us the mediated experience is significant because it makes our time and space extended, and the context differs compared with human-to-human communication as well. As a result, the mediated experience enables 'a continuous interweaving of different forms of experience' in our daily life (Thompson, 1995: 233). This can be relevant to Pokémon Go's AR function which brings the diverse gaming experience with blurry gaming space for gamers. The dynamic mediated communication differing from non-mediated interpersonal communication brings much more complexity to the society, which is relevant to media moral issues and needs the responsibility from human beings in experiencing and managing the change and development.

2.2 The Human-Computer Interface Research from the Sociocultural Aspect

The human-computer interface research from the sociocultural aspect also belongs to the macro perspective's research for this thesis. Hornung et al. (2015: 38) regard the human-computer interface as an entrance which allows users to 'interact with data instead of only passively consuming them'. Mignonneau and Sommerer (2005) explain the human-computer interaction study should consider the knowledge on both technological side and sociocultural side. In Farman's (cited in Ash, 2015: 18) argument, 'the purely computational understandings of the digital interface' is not the real interface study because the digital devices per se cannot be viewed as interfaces, and the 'theorization of the interface requires a relational understanding of the human practices as well as the technical processes that coalesce and are formed around interfaces'.

Yoichi Ochiai is the proposer of the concept 'Digital Nature'. He studies media engineering but is also interested in the 'media ecology' research from a sociocultural perspective. Ochiai's (2016) research is important for interpreting the future human-media relation in gaming for this thesis. He regards the computer as our 'second brain and body' instead of the electrical appliance per se (Ochiai, 2016: 19). In his 'Digital Nature' model, computers per se will work and learn new things without human beings' involvement in the future (ibid.: 22), and he considers this innovation will inspire us to think about the future man-machine relation. Although it sounds controversial, Ochiai (2016) believes the revolution is unstoppable, which is what Rosa and Trejo-Mathys (2015) call 'social acceleration'. 'Digital Nature' implies a new relation between humans and computers, within which the interaction and cooperation are crucial (Ochiai, 2016: 26).

Ochiai believes computers will manage humans to work in future social productions, which is the most significant assumption in his research (ibid.: 55). Under computers' instruction, human beings work more efficiently and can get more income per unit of time (ibid.: 65). For this thesis, Ochiai's (2016) hypothesis inspires a way of improving the gaming experience by viewing human-media relationship from a different perspective. Meanwhile, Ochiai knows the moral risk with the innovation, and he also

explains how unstable our daily life will become respecting information security issues in his research (ibid.: 97). Nevertheless, he suggests humans get used to the new change and suspect ‘Dualism’ (ibid.: 126-128). The main achievement from his proposal of ‘Digital Nature’ is to eliminate the difference between humans and computers. At the same time, Deuze (2012) and Jenkins et al. (2013) who suggest collaborating humans and media hold the similar opinion. As Ochiai (2016: 223) concludes his study, rather than feel about dystopia to the hypotactic ‘computer-human’ relationship in ‘Digital Nature’, we build the ‘brave new world’ to maximise the human happiness.

However, Kanda and Ishiguro (2013: 311) who work on human-robot interaction research claim that contemporary media engineers and designers may be too optimistic towards future intelligent media, because they always ignore whether people feel positive to interact with the intelligent media such as human-brain robots, but they assume media users do so. Salanitri et al. (2015: 49) also remind us it is a question whether we should trust media technology including AR and VR in our real life. ‘[T]rust in technology is considered a more problematic form of relationship to the one between person-person’ (Mcknight et al., cited in Salanitri et al., 2015: 50), due to the reason that ‘technologies may not guarantee to people the same level of assurance and support to reach their goals (e.g. pay for a service, fill a form) that another human being can guarantee’ (Friedman et al., 2000, cited in Salanitri et al., 2015: 50).

Therefore, Kanda and Ishiguro (2013: 311) believe the daily human-media interaction cannot be easily accepted by media users in a social sense, but it is valuable to know how to build an ideal human-media interface which can map participants to media contents.

2.3 The Augmented Reality Research

The feature of augmented reality (AR) is a crucial part of human-media interface study in Pokémon Go and it is basic to understand how AR mediates humans and the game contents and impacts the gaming experience from the meso perspective for this thesis. Chastine (2011: 321) defines AR as ‘a technology that attempts to seamlessly integrate virtual artifacts into the physical world’. Apart from this, there are several explanations

for the general concept of AR as well as its functions in sociocultural sense from digital media and gaming research areas.

Azuma et al. (2001, cited in Liestøl, 2011: 311) describe that, ‘An AR system supplements the real world with virtual (computer-generated) objects that appear to coexist in the same space as the real world’. Liestøl (2011: 311) generalises the features of AR as a combination of reality and virtuality in our real-time living sphere. With an AR application, the virtual elements are usually brought to the real situation and in an ideal case, ‘the real and the virtual occupy the same space, that is there is a congruity between the real and the virtual environment, movement and orientation in the one is mapped in the other’ (Liestøl, 2011: 312). In his words, ‘AR has been focused on merging reality with additional information provided by graphical layers, which again match the depth, space and texture of reality’ (ibid.: 318).

In Carmigniani and Furht’s (2011) grounded AR research, they find that ‘AR enhances the user’s perception of and interaction with the real world’ (p. 3), but on the contrary, the AR application developers should also assure the images are displayed naturally with immersion (p. 22). They also want to notice us the essence of AR is to ‘augment the real environment with virtual information’, instead of replacing everything in reality with virtual stuff (Carmigniani & Furht, 2011: 41). Besides, Hugues et al. (2011: 49) claim the aim of AR developing is to ‘enable a person to carry out sensory-motor and cognitive activities in a new space by associating the real environment and a virtual environment’. As a result, AR ‘enables us to propose an environment with which [...] users can play with location in time’ (Hugues et al., 2011: 60). Moreover, referred by Kalkofen et al. (2011: 66), AR empowers the fictional elements to show up in our real life, which ‘ranges from fictional characters living in a real world game environment (Close et al., 2000, cited in Kalkofen et al., 2011: 66) to a presentation of structures hidden in reality’. As Sherstyuk and Gavrilova (2011: 226) conclude, they think the reality and virtuality are becoming blurry in our daily practice with AR.

Furthermore, some researchers conduct their AR study with respect to mobile gaming. Wetzel et al. (2011: 513) refer the AR mobile gaming enables players to interact with the real world with its feature compared with traditional gaming. They explain:

[AR] incorporate real locations and objects into the game, therefore tapping into a set of pre-existing thoughts, emotions and real-life experiences of its players, which in turn provides the material for a much richer gaming world and user experience. In mobile augmented reality games the playing area becomes borderless and they can be played literally anywhere and anytime. (Wetzel et al., 2011: 513)

According to the model given by Wetzel et al. (2011: 515), a ‘true mobile AR game’ should have ‘mobility’ and ‘far content space’ as two main features. They explain ‘a true mobile AR game’ is worthy of the name when gamers can freely move around the game place (ibid.: 517). With this feature, ‘[t]he real environment is much more influential on the game play as you are completely surrounded by it and it has an effect on how you behave and move in the game’ (ibid.: 527). Compared with hard console gaming, gamers can, or to some extent, should have physical movement in the gaming space while being immersed into gaming (ibid.: 528).

However, suggested by Wetzel et al. (2011: 527) on AR mobile gaming designing, to develop a true AR mobile game is not as easy as putting a lot of 3D stuff into the real world augmented by the game. Of course, it is crucial to combine the real and virtual elements in designing AR gaming, but on the other hand, it is even more important to consider whether their combination is meaningful and the gaming characters are showed in a natural way for gaming experience (ibid.: 529), which Carmigniani and Furht’s (2011) grounded AR research above also refer the similar opinion. Wetzel et al. admit the part of ‘real world elements’ which is crucial for making AR gaming stronger is difficult for the actual design process because the uncertain real environment is usually uncontrollable and can lead to negatives for user experience (ibid.: 530). However, they suggest designers think about multimedia (including non-digital media) strategy to improve the reality as well as the operability for the game, for example, allowing gamers to use the real map for geo-themed AR games (ibid.: 531).

Wetzel et al. also make us conceive the social aspect through developing the game. Especially, good user-to-user interaction during gaming is important for gaming experience (ibid.: 532). It is important to know AR is not everything for gaming development, but mainly strengthens the gaming experience (ibid.: 533-534). With respect to operability, the designers should always remember to ‘keep the interaction simple’ rather than make the technology become a barrier for gaming engagement (ibid.:

534). A user-friendly game is always superior to those which are complicatedly designed.

However, gaming can largely benefit from well applied technology. Ferreira (cited in Ferreira & Boavida, 2011: 541) comments, ‘Augmented reality tries to extend the real world with virtual objects while maintaining the computer in an assistive, unobtrusive role, thus trying to keep in line with the pervasive computing objective of invisibility’. We can see in pre-computer era, gaming interaction is mostly composed of human-human and human-reality communication (Ferreira & Boavida, 2011: 542) where technology did not play a dominant role at all, but it does nowadays. The gaming experience can be largely impacted with gaming technology applied naturally. Huang et al. (2011: 707-708) conclude AR’s features in gaming, and to the most significant for AR gaming designing, they refer it is always easier to develop AR gaming, because there is ‘[n]o need to build the complicated virtual surroundings’.

2.4 The Gaming Research

The gaming research review is also based on the meso perspective, along with AR research in investigating the human-media interface as well as gaming experience in Pokémon Go. This includes a lot of previous research about gaming simulation, gaming interface and mobile gaming.

2.4.1 Gaming Simulation Research

Gaming, first of all, is ‘a method of communication’ (Matsuda, 2005: 95), which is also a practical way of thinking of the human-media interface design in Pokémon Go. Ichikawa and Nakamura (2005: 227) refer, ‘[g]aming simulation should be understood to be human or human-computer simulation of social processes’, and it is useful to consider simulation as one of gaming’s functions when we investigate the future gaming. According to Duke’s (1974, cited in Ichikawa & Nakamura, 2005: 228-229) claim, gaming is also a method for simulating the future when confronting the current problems which can be hopefully solved in the future. McLuhan’s (1994: 235) media research strengthens this idea, and in his point of view, ‘Games [...] are extensions of

social man and of the body politic, as technologies are extensions of the animal organism’.

2.4.2 Gaming Interface Research

The interface in a broad sense is ‘the place where information moves from one entity to another, from one node to another within the system’ (Galloway, 2009: 936, cited in Ash, 2015: 1). Ensslin (2012: 130) defines the gaming interface as the agent which connects gamers to the game space that can be real or virtual. Meanwhile, Ash (2015) uses the concept of ‘interface envelope’ to help understanding how interface may ‘shape human capacities to sense space and time’ (p. 7) instead of being limited to gaming. He defines envelopes bridge the users and ‘interface environment’ that can be seen as the technical control panel in gaming (Ash, 2015: 9). ‘There is no “space” in interface environments’ argued by Ash (2015: 12), ‘only processes of spacing in which objects appear as distinct and differentiated from one another’. In other words, Ash believes interface is a kind of practice (ibid.: 18), and the ‘[e]nvelopes are the ultimate aim of interface design’ (ibid.: 32). He describes envelopes have power which is not the bad power making users become gaming ‘zombies’.

To conclude, the envelope power enables media users a stronger ability for media engagement (ibid.: 140). Today, especially in the AR gaming, the concept of ‘interface envelope’ is widely used, because ‘there is a key overlap in the way [...] augmented reality present environmental data to the user’ (ibid.: 123). Ash argues that ‘there is no “space” or “time” in the interface environment, but “processes of spacing or timing” appearing ‘as a particular kind of phenomenon through the construction of relations and non-relations between objects that make up the interface’ (ibid.: 140-141). That is to say, the time and space in the interface environment are not ‘reducible’, and overall speaking, the gaming environment is nothing special compared to our real living environment in ontological sense (ibid.: 142).

2.4.3 Mobile Gaming Experience Research

Compared with previous Pokémon game series, Pokémon Go is different because it is played on smartphones. Some previous Pokémon game series appeared on Nintendo’s portable gaming platforms, but they were not mobile gaming. From a mobile gaming

research background, Hjorth and Richardson (2014: 27) believe mobile gaming is more than the gaming and it is also 'locative', 'social' and 'playful'. However, as the public believes so far, mobile gaming is 'casual gaming' with 'non-immersive, short and shallow experience' (Hjorth & Richardson, 2014: 46). The authors deny the idea and think 'casual' is too abstract to define this type of gaming without considering gaming cultural context (ibid.: 45-46; 144). Even 'non-casual' gaming can include casual gaming elements, and whether gamers have the casual manners to play is not dependent on how casual the game itself is designed but relates to the physical situation (ibid.).

Besides, some researchers find that 'mobile games are often played at home' (Chan, 2008; Bohmer et al., 2011; Information Solutions Group, 2012, cited in Hjorth & Richardson, 2014: 48), which 'changes our mode of "being" at home' (Hjorth, cited in Hjorth & Richardson, 2014: 48). Along with the debates, Keogh (cited in Hjorth & Richardson, 2014: 72) argues for his understanding of 'casual gaming' that, 'a casual game does not simply offer an easier or more shallow experience than a traditional videogame, but an experience that is more flexible with the player's time, more easily incorporated into the player's everyday life'. However, Hjorth and Richardson (2014) prefer to use 'ambient' to describe the feature of current mobile gaming which represents 'filtering through the contextures of everyday life' (p. 48).

Hjorth and Richardson (2014: 63-64) believe it is crucial to combine 'movement' and 'emotions' when talking about ambience, as Lasén (2004, cited in Hjorth & Richardson, 2014: 63) suggests '[m]obility is part of the original sense of the notion of emotion as it refers to agitated motion, mental agitation or feelings of mental agitation'. The mobile gaming also materialises 'play between worlds' (Taylor, 2006, cited in Hjorth & Richardson, 2014: 70), which strengthens the gaming context 'that encompasses both gameplay and the paratextuality that surrounds it' (Hjorth & Richardson, 2014: 70). Meanwhile, '[b]y merging online and offline spaces, pervasive games can thus offer new ways of experiencing place, play and identity' (ibid.: 83).

In Hjorth's (2011: 45) research in new media gaming, she also considers games as 'a form of new media'. Hjorth (2011: 77) studies Japanese mobile gaming in depth, and in her work, she uses 'three P', which are 'Pedestrian, Personal and Portable' to describe its features. Compared with traditional video gaming where the gaming interface can

utmostly invite players into a virtual gaming world, mobile gaming which applies Global Positioning System (GPS) and smartphone camera navigates the players to stay in the physical world while playing games (Hjorth, 2011). This function gives the possibility for regional mobile gaming such as Pokémon Go to ‘relocate a sense of place’ for the gaming space whereas most video games do not fulfil the requirements (ibid.: 99).

Related with ‘a sense of place’, Biocca (1997) generalises the concept of ‘presence’ as well and he defines it as ‘a feeling of being there’ of gamers in gaming. Later in 2003, Biocca, Harms and Burgoon have revised a concept of ‘social presence’ and they consider ‘awareness, psychological involvement, and behavioral engagement’ as three main factors constructing social presence (p. 459, cited in Kröger & Quandt, 2014: 153-154). Especially for location-based gaming, Hjorth and Richardson (2014: 141) believe gamers experience ‘co-presence’ through gaming, by which they mean the gaming process is complex in both physical and virtual dimension. In their opinion:

Urban spaces are now filled with mobile media users who create communicative pockets of co-existing modalities of presence: co-located presence, telepresence, absent presence, distributed presence, and ambient presence, all of which demand different modes of being-in-the world. (Hjorth & Richardson, 2014: 142)

Compared with ‘presence’ or ‘social presence’ or even ‘co-presence’, Madigan (2016) uses the term ‘spatial presence’ to describe players’ mental condition when playing games from gaming psychological research aspect. He defines, ‘Spatial presence is the psychological state brought on when you forget that the world you’re experiencing is created by technology’ (Madigan, 2016: 120). He uses the word ‘immersion’ to describe how those game players feel like being in another real world without stopping interacting with all the virtual stuff in the game world and they feel it is authentic with ‘spatial presence’. The AR as well as VR games in recent years show the evidence that this kind of gaming can sync your mind and body with a real-virtual borderless place where the gaming world has no difference with the physical world (ibid.: 125-126). As Madigan (2016: 131) analyses the mechanism for ‘spatial presence’, you are ‘assuming that the game world is your primary point of reference for your location’. As we can see, ‘spatial presence’ is an ideal concept for gaming interface design, which enables

users to ‘forget media’ per se while being immersed into media contents as Deuze (2012) suggests.

To conclude the mobile gaming study, it may not be proper to distinguish ‘casual gaming’ and ‘hardcore gaming’ without considering how people presence and engage in the game as well as the gaming context (Juul, 2009; Taylor, 2012, cited in Hjorth & Richardson, 2014: 159). Significantly, it is unfair to categorise all mobile gaming into ‘casual gaming’ in gaming research area.

2.5 The Relative Research about Pokémon Go

The relative research about Pokémon Go are those academic materials which directly study the case from a micro perspective. Pokémon Go is quite new, and the related research sources are limited but otherwise can be powerful to prove the arguments in this case study. A group of Indian researchers analyse the reasons why Pokémon Go is successful. They conclude the ten main psychosocial reasons for its popularity (Bhattacharyya et al., 2016: 364), and the authors find three of them are related with the AR feature:

Another mode of social networking where likeminded players interact with each other. (p.364)

The game features ‘Augmented Reality’ by virtue of which a direct or indirect real world environment is augmented with sound, graphics, video and GPS data. (p.364)

The gaming involves lots of walking in outdoor which gives a breather to sedentary lifestyle and boredom. (p.364)

Besides, these researchers find that AR in this game motivates ‘a sense of “presence”’, as similarly mentioned in the previous sections when talking about AR and mobile gaming experience, which also invites us to enter the gaming world reflecting our real life instead of a virtual, unreal world (ibid.: 363-364).

Meanwhile, Pokémon Go brings the moral and health (in both physical and mental ways) concerns to the society. By giving a quantitative data analysis, Althoff et al. (2016) find this game improved the physical activity level for men and women of all ages who play

this game for health. Because of Pokémon Go, the ‘shut-ins’² have the motivation to go out which is a good first step to change the negative social phenomenon despite of some public arguments against it (Iwamoto & Fujishiro, 2017: 75).

Nonetheless, Pokémon Go probably involves the ethical issue when researchers find people can be addicted to this game. Bhattacharyya et al. (2016: 365) generalise the different degrees of addiction to Pokémon Go in their research and for the most severe result from the addiction, they consider is the complete subversion between gaming life and real life where gamers get lost in the blurry gaming space. This is the main argument against Iwamoto and Fujishiro’s claim above, and AR gaming creates reality but also results in confusion for daily life. On the other hand, Mans’ (2016) research analyses the flaw of Pokémon Go in gaming participation. In particular, the game is not well designed for gamers to exit the game according to the gaming experience’s problem (ibid.).

However, Pokémon Go ‘represents a breakthrough in integrative gaming technology’ instead of just a boom from a new type of gaming according to its human-media interface (Clark & Clark, 2016: 1). Compared with the old Pokémon game series on Nintendo’s gaming platforms such as Gameboy in 1990s, Pokémon Go inducts the ‘actual geographical space’ into the ‘collecting and battling’ game (ibid.). Also, regarding the human-media interface for this game, Tateno et al. (2016: 848) describe the game is ‘user-friendly’. ‘With a simple flick of a finger, even mobile game novices can collect balls and throw them to catch Pokémon on the screen’ (Tateno et al., 2016: 848).

In the end, the Pokémon culture researchers point out we can neither view Pokémon itself as a TV anime nor a game, but it is a ‘cultural practice’ (Buckingham & Sefton-Green, 2003: 379). ‘Pokémon is something you *do*, not just something you read or watch or “consume”’ (ibid.: 379). Pokémon is also a cross-cultural phenomenon due to its feature in Japanese ‘kawaii’ (cuteness) culture (ibid.: 383). The researchers claim those who watch or play Pokémon are more than audiences or gaming consumers, but

² ‘Shut-ins’ refers to people who are reluctant to join outdoor activities but addicted to indoor hobbies.

they practice the culture in social spaces (ibid.). This perspective is especially crucial for considering the way to make the cultural brand thrive for a long term in the future.

3. Methodology and Methods

Methodology is the research strategy for the academic study (Bryman, 2004), and the strategy depends on the ontology and epistemology of the research subject. This thesis studies the human-media interface in Pokémon Go and how it influences gaming experience in a new way. As mentioned in the literature review, the human-media interface study always needs to consider both sides from sociocultural and technological study. This research is a social scientific research and emphasises the aspect of humans and culture in the interface study. From this perspective, the human-media interface and the gaming experience are constructed by human actions. Bryman (2004: 17) believes social phenomena and what they represent are usually constructed by various social factors. In this case, the human-media interface and gaming experience can differ among gamers from various sociocultural background.

Flyvbjerg (2001) views social scientific study as pre-paradigmatic and he believes one can never predict the result of a social scientific research. The research wants to know how Pokémon Go gamers react to the gaming and interpret how special the human-media interface is inside Pokémon Go according to the data. Therefore, there is nothing we can predict before the data collection and analysis, and the aim of the research is not testing any existing theory related with media culture or gaming research. In this way, the researcher has to induct the meaning to the research target to explain the social phenomenon, and the qualitative approach is suitable for conducting the whole research. However, Bryman (2004) mentions a social scientific research is not only limited to use inductive research approach but can also use deductive approach to test the theories, which he suggests the abductive approach is common as well. The concept such as ‘ambient gaming’ can be examined, and the proved concepts can push and develop the inductive process further.

Therefore, interpretivism is the main research strategy in understanding the case, and the research uses qualitative methods to collect and analyse the data to develop the arguments, because this case study is overall exploratory and needs new findings to be inducted for future gaming in this thesis. The research methods include qualitative interviews and qualitative content analysis in this thesis.

3.1 Qualitative Interviews

The qualitative interview guide is designed with both structured and semi-structured interviews' logics in this thesis, and the latter is more dominant through the whole interview process. The structured interview questions aim at categorising interviewees and filtering the subsequent questions for various interviewees. For example, the researcher can know how passionate the interviewee is about playing Pokémon Go through asking the 'gaming frequency' from the interviewee and decides to go deeper into some specific topics including previous Pokémon gaming and anime or not. This procedure totally depends on the basic structured interview questions. However, the sample size is not large and this is not a quantitative research either, which means categorising is not the main aim of interview data analysis for this thesis. Nevertheless, we can roughly see the relation between gamers and their sociocultural background through the structured questions, which can also benefit the further discussions in this thesis.

The semi-structured interview is the main approach in the interview guide. Berger (2011: 136) implies a semi-structured interview maintains the primary structure of the subject the interviewer wishes to inquire but also gives enough space for the interviewee to broadly give answers to the subject. In this case study, the subject is very determined in human-media interface and gaming experience research, but the research wants more complexity in data to induct the research findings. Therefore, a combination of structured interview questions that standardise the interview process and semi-structured interview questions that lead and push the interview further with allowing interviewees to talk about the areas in the case they are familiar with is the most suitable way of conducting interviews for this thesis.

The interviewee selection is based on the principle of snowball sampling. The new interviewees were usually recommended to attend the interviews by the previous interviewees. Finally, this research has recruited 17 interviewees who come from Sweden, China, Japan and Indonesia, aging from 19 to 33. Interviewees include those who are passionate Pokémon Go gamers, and also the general smartphone users who occasionally check the game. The interviewee Anonymous 1 has not played Pokémon Go so much, but he works as an engineer and has his specific points of view for current

Pokémon Go gaming as well as the expectations for its future development. The interview gives preference to the form of face-to-face conversation, but several interviews are conducted on the internet due to various reasons including the limitations of time and space. Meanwhile, some interviewees also prefer to be interviewed online. All face-to-face interviews and online interviews through chat application including Messenger, LINE and WeChat have been recorded. The interview guide is shown in Appendix A. In the interview guide, the current human-media interface as well as gaming experience in Pokémon Go, and the imagination about future gaming with AI are two main themes. This thesis has chosen the interview transcript with Kevin, who is a passionate Pokémon Go gamer studying engineering, as an example shown in Appendix B.

The coding for interview data is also combined. The first theme which talks about the current human-media interface and gaming experience in Pokémon Go uses an abductive approach in coding the materials. Some coding work is deductive in examining the existing academic research such as ambient gaming, but the other part is inductive and works for interpreting the findings in this research. Rivas (1998: 371) emphasises, ‘Sometimes it is useful to combine deductive and inductive coding. You may have a general idea of what you are looking for and use broad, deductively determined codes to home in on the data, and then inductive coding to explore this in more detail’. Applied to this case study, the concept of ‘ambient gaming’ can be examined through deductive coding, and it can support to induct what the research finds through interviews into the argument, for which the examined suitable concepts may strengthen the belief. For the second theme, the interviewer has conversations with interviewees about future gaming and their attitudes towards technological factor in gaming. The coding for this theme is only inductive and works to interpret a proper future human-media relation in gaming. In addition, the whole interview transcript coding table is displayed in Appendix C.

3.2 Qualitative Content Analysis

The qualitative content analysis of online news related with Pokémon Go is only an additional method in order to fill the vacancy of the empirical data which the interviews do not cover. The news selection is primarily based on Pokémon Go’s report in Japan

through the search engine of *Yahoo! Japan News*. The key search words are Pokémon Go (ポケモン GO), and the time scale is from July, 2016 to January, 2017 while selecting relevant materials for the case study. The news selected work for explaining some specific phenomena of Pokémon Go and cooperate with data analysis to help readers understanding the arguments better. For example, some news introduce how Pokémon Go is positive for exercising or results in chaos in urban areas. Some explain how this kind of gaming can exactly help with regional reconstruction in the future, which proves a meaningful role of AI media in future gaming with respect to maximising human happiness. Alongside, the online empirical data includes Japanese media artist and researcher Yoichi Ochiai's interview by an online media organisation, who explained his opinion about future human-media relation related to his research. Overall, the qualitative content analysis assists to clarify the analysis in this thesis.

3.3 Limitations and Delimitations

The research methods mentioned above have limitations in bringing out research arguments through data analysis. The method of snowball sampling is used in qualitative interviews for this research, and it is an efficient approach in obtaining enough effective data. 'However, it is not likely to enable you to cover people across a range of differences', by which Byrne (1998: 218) implies researchers always get a bunch of similar data through snowball sampling. As a matter of fact, the interviewees recruited in this research age from 19 to 33, all of whom are high educated. To some extent, the samples share the similarity. The research has tried to recruit more senior people who have played Pokémon Go for interviews, but unfortunately no one reaches the requirement, and those other people who are recommended by them to participate in interviews are among 10s or 20s as well.

Besides, the research found those who agree to participate in a face-to-face interview can usually provide more information than those who attend on the internet. It is also easier to recognise how passionate the interviewees are about the subject through their facial expressions and gestures in face-to-face interviews. More or less, some details for the data may be ignored when conducting the online interviews. However, apart from people who cannot come to Lund, Sweden or do not have time to receive face-to-face interviews, some interviewees who chose to receive online interview may be

introverted people per se who can otherwise not provide so much verbal or gesture information even given chance to talk face to face. Besides, the interview topic is quite fixed, thus unlike other semi-structured interview which requires a large part of open answers, it is not quite problematic to conduct interviews through the internet for this research.

As for qualitative content analysis of online news, Bryman (2004: 197) points out, 'It is difficult to ascertain the answers to "why?" questions through content analysis'. In his opinion, the qualitative content analysis always keeps a descriptive level in telling the truth but hard to go deeper as unstructured or semi-structured interview can. However, this thesis includes a large amount of empirical data from the qualitative interviews with many semi-structured interview questions designed. Actually, the qualitative content analysis of news in this thesis mainly assists to clarify the data analysis, as the data from the qualitative interviews are primary in this thesis. Therefore, a descriptive level of qualitative content analysis can be enough for this thesis.

The last point related with the limitations of research methods used in this research comes from the general flaws of doing a qualitative research. Bryman (2004) generalises the disadvantages of applying qualitative methods to research, and the problems are that a qualitative research is too subjective and it is difficult to generalise and replicate the research outcomes. Taking this case study as an example, it can be rather naïve to say this research is able to understand how human-media interface in Pokémon Go is special for gaming experience after analysing the data from only 17 interviews and several pieces of online news. It is even much more difficult to generalise how to develop and make future human-media interface workable for maximising happiness for humans and regions through gaming with a universal rule in this thesis. However, as mentioned above, the research target is constructed and the researcher should interpret the meaning for the project. This thesis primarily studies the sociocultural side of human-media interface in gaming, which is shaped by social factors that differ among people with various sociocultural background. As a result, the social factors can never be quantified.

4. Data Analysis

The chapter of data analysis starts from a micro, then a meso, and finally to a macro perspective in the case study of Pokémon Go. At the beginning of this chapter, the research deduces the concept of ‘ambient gaming’ (Hjorth & Richardson, 2014) with empirical data from qualitative interviews and uses the findings to interpret how special the gaming experience is for Pokémon Go gamers. With augmented reality study, the thesis combines the ‘ambient gaming’ research to interpret the feature of human-media interface design in Pokémon Go from a micro perspective. Then with reference to ‘interface envelope’ research (Ash, 2015), the thesis studies the construction of the human-media interface in gaming within this case study, and discovers how the sociocultural aspect and technological aspect interplay in the interface in Pokémon Go from a meso perspective. Finally, the thesis involves the debate on human-media interface design for future gaming experience development with the inspirations from the micro and meso perspectives’ studies, and Ochiai’s (2016) ‘Digital Nature’ study.

4.1 Pokémon Go – The Ambient Gaming

Pokémon Go is the first try on mobile devices for Pokémon gaming development, which is different from the previous RPG (Role-playing Game) Pokémon game series on Nintendo gaming consoles. Pokémon Go researchers comment the game ‘represents a breakthrough in integrative gaming technology’ rather than the meaningless boom of a new game playing (Clark & Clark, 2016: 1). Moreover, instead of calling most mobile games easy gaming or casual gaming such as *Angry Birds*, which many gaming researchers are doing so far, this research prefers to define the smartphone game *Pokémon Go* as a way of ambient gaming (Hjorth & Richardson, 2014). This section analyses the case from a micro perspective, in which the research investigates the human-media relation in Pokémon Go with the concept of ambient gaming, and also discusses its problems.

4.1.1 Why Ambient?

The idea of defining mobile gaming as ambient gaming is introduced by the mobile gaming researchers Hjorth and Richardson (2014). Their research purpose is to argue

against the definition of ‘casual gaming’ for all mobile games. The common belief in gaming research area is according to Hjorth and Richardson (2014) that casual gaming represents those games which are designed for easy playing without intensive gaming engagement. In their argument, not all mobile games are designed to be casual and whether it is casual or not only depends on the individual attitude towards the games. It may differ among people even with the same game, and ‘a casual game’ can also include intensive playing contents for gaming engagement (Hjorth & Richardson, 2014: 44-45). Taking *Angry Birds* as an example, this catchy game can also make many gamers play with intensive pace, and the game per se can be as hard as other hard console gaming for gamers to succeed.

According to the answers from interviewees (Aryo, Edvard, Hario, Kevin, Nils, Peter, Shuko), the smartphone game Pokémon Go is not as challengeable and competitive as previous Pokémon game series on Nintendo gaming consoles, with respect to the part of Pokémon battles³ in the game. Compared with the previous Pokémon game series, Pokémon Go is designed to be easy to play. However, Aryo, Edvard and Kevin mentioned that whenever they went outside they would play the game, and Hario even considered playing and checking Pokémon Go on the smartphone was his daily routine. Besides, Kevin told that when he played Pokémon Go, he also intended to play well rather than just for fun as most non-Pokémon fans do in the gaming. The results prove that whether Pokémon Go is ‘casual’ or not depends on players but not the game per se, because some players actually play the game with quite intensive pace and serious gaming attitude. No matter how Pokémon Go looked like a non-intensive game for those passionate players including Kevin, he was serious when he played, and ultimately the gaming was not casual.

From another perspective, Keogh (cited in Hjorth & Richardson, 2014: 72) has different opinion about defining ‘casual gaming’ that, even ‘a casual game does not simply offer an easier or more shallow experience than a traditional videogame, but an experience that is more flexible with the player’s time, more easily incorporated into the player’s

³ The Pokémon battles are common in previous Pokémon game series on Nintendo’s consoles. Players can use the Pokémon they collect and train to battle with others who can be either a PC player or real players with various battling strategies for winning the game. But the main battling form in Pokémon Go is to battle against the gym leaders without battling strategies to use.

everyday life'. Otherwise instead of using the term 'casual gaming' with negative meaning, Hjorth and Richardson (2014: 27) prefer to use 'ambient gaming' to describe the feature of most mobile games including Pokémon Go, which are applied with '[l]ocation-based, navigational, and image-capture technologies' in a sense of ambience. This is what the hard console gaming exactly lacks. Even hard console gaming is equipped with more powerful gaming engine driving the large-scale gaming process, gamers can hardly play with reality through it. The interviewee Joy mentioned she used to drive to markets, but she walked there instead after Pokémon Go's release. Other interviewees (Anton, Daniela, Edvard, Jennifer, Joyee, Kira, Nils, Shuko, Tina, Yuri) commonly answered they played the game when they waited for transport or hung out with friends, but it can never happen for them to play hard console gaming in those situations. Ambient gaming implies the 'situation'. A person commented in the gaming developer Gliner's (2013) blog article talking about the gaming situation issue that, 'I like really deep, really engaging games... but not when I'm waiting at the dentist's office or some such'. Likewise, the ambient gaming suggests mobile gaming can occur indoors intensively, which 'changes our mode of "being" at home' (Hjorth, cited in Hjorth & Richardson, 2014: 48). Different than other interviewees, Sae referred she liked playing Pokémon Go when she felt free at home and it was also her daily routine. In Hjorth and Richardson's (2014: 48) opinion, 'such gameplay is better described as ambient – filtering through the contextures of everyday life – rather than casual'.

Therefore, ambient gaming is a better way of describing this mode of playing with the environment. Ambient gaming is more of a strategy in gaming designing rather than a category of gaming. In other words, future gaming developers need to conceive how to make gamers play and interact with the physical environment no matter the game is designed to be easy or 'hardcore'. Many contemporary media scholars including Deuze and Jenkins believe human beings and media will be collaborated in the future, and gaming will also have its meaning in physical ambience instead of only occupying a virtual space without connection to the physical world.

Besides, Hjorth and Richardson (2014) believe 'movement' and 'emotion' are two main elements for 'ambient gaming' related with human-media interface design for smartphone games. Definitely, Pokémon Go was designed to require gamers to play with 'movement'. Several interviewees referred they mostly played the game when they

commute from workplace home (Anton, Daniela, Edvard, Jennifer, Joyee, Kira, Nils, Shuko, Tina, Yuri), and some of them also use it for walking and exercising (Hario, Kevin, Nils, Peter, Tina, Yuri). At the same time, several interviewees praise the game in emotional aspect. The interviewee Tina described she felt joyful through the gaming experience, and she thought the game was especially user-friendly. Kira could not suppress his love for the cute graphic display of Pokémon in the game during the interview. In Lasén's (2004, cited in Hjorth & Richardson, 2014: 63) words, '[m]obility is part of the original sense of the notion of emotion as it refers to agitated motion, mental agitation or feelings of mental agitation'. In summary, smartphone gaming has the strength in creating emotional interaction with gamers, with making best use of its mobility with location-based function.

What the idea of ambient gaming contributes to think of human-media interface in Pokémon Go is also that the concept introduces 'play between worlds' (Taylor, 2006, cited in Hjorth & Richardson, 2014: 70). Hjorth and Richardson (2014: 70) regard the shuttle between physical and virtual, online and offline worlds strengthens the gaming context 'that encompasses both gameplay and the paratextuality that surrounds it'. Kevin told in the interview that, 'I hadn't touched Pokémon in so long, and when I was a kid I always wanted Pokémon to be real and Pokémon Go is pretty close I guess'. Iwamoto and Fujishiro (2017) suggest Pokémon Go has the glamour to attract 'shut-ins' to come out and have more social interactions outside while keeping themselves in a gaming world. In fact, a report from Japanese Association of Exercise Epidemiology (2016) highly rated the positive influence from Pokémon Go to motivate people to have more physical exercise. The data indicates that in our contemporary life with media gaming, ambient gaming creates a multidimensional space to invite people with various identities to participate in the gaming and increases the diversity of social interaction.

To conclude, Hjorth (2011: 77) thinks mobile gaming is ambient from 'pedestrian, personal and portable' perspective. She also refers *Spreadable Media* (Jenkins et al., 2013) to mention the importance of considering humans and media as a collaboration when talking about the human-media interface designing strategy. After Pokémon Go's release, Niantic, Inc. put the watch-like equipment *Pokémon Go Plus*⁴ on the market on

⁴ To see its English official website: <http://www.pokemongo.com/en-uk/pokemon-go-plus/>.

16th September 2016 to combine the smartphone game (Shinohara, 2016). Pokémon Go Plus improves the ambient gaming experience and reduces the possibility of danger through gaming, because players do not need to stare at smartphones to play all the time when they are in urban areas. Tateno et al. (2016: 848) praise the game is ‘user-friendly’, and at the same time, the idea of the collaboration of human beings and media (Jenkins et al., 2013) benefits the spreadability for gaming. McLuhan (1994) suggests a similar point that we can view the technology and media gaming as an extension of human body. Ambient gaming implies a collaboration of humans and media which creates a new way of investigating human-media relation can optimise the gaming experience.

4.1.2 *The Problems*

While ambient gaming has its strength, Pokémon Go is not perfect, which exists several problems in mapping the human-media relation as ambient gaming. Pokémon Go researchers Bhattacharyya et al. (2016: 365) point out the game is addictive, and they consider it may cause the problem for gamers to get lost in the blurry gaming and physical worlds. Thus, they think what Iwamoto and Fujishiro (2017) believe ‘the game is helping “shut-ins” to come out’ is arguable. The interviewees, Joy and Peter both agree the gamers can be obsessed with such new gaming experience. In fact, the problem has already occurred for several times. According to a report, the emergence of a rare Pokémon caused ‘panic’ in Odaiba in Tokyo on 18th September 2016, and many gamers entered the prohibited area in order to catch the rare Pokémon which made the police also come (*Utago*, 2016). The gaming addiction deprived gamers’ rationality as a result, and many gamers broke the rules which they had never done in normal life, in order to play better.

Meanwhile, the Pokémon Go researcher Mans (2016) believes the game has primary problems for ‘participation’. On the one hand, Mans (2016) believes Pokémon Go is problematic for gamers to ‘opt-out’. In fact, a lot of Pokémon Go gamers complained the inconveniency of exiting the game according to online news. A gamer complained he usually touched the ‘back’ button and then pressed ‘yes’ to end most smartphone apps whereas it was not workable for Pokémon Go, and he felt anxious about the flaw each time he played (*McDonald’s Pokémon Go*, 2016). In the interview, Kira also mentioned the same thing, and he thought the previous Pokémon game series were

much better regarding this issue. The flaw makes the gaming experience suffer as a result, even that is a devious strategy the game developer tries to keep gamers in the game. On the other hand, Mans (2016) referred the game is not considerate when designing its regional distribution for Pokémon. Utago's blogger (2016) thought this was Niantic's fault in planning because they had to forecast the crisis before releasing the game and deciding the Pokémon distribution. Moreover, it was problematic to distribute those rare Pokémon into non-public areas, which filters the gamers in participating the game to catch the rare and induces unfairness and potential social security chaos.

There is also the problem related with 'ambient gaming' per se. Because it focuses on 'ambience', the game design may ignore doing enough efforts on other aspects such as storyline which makes the gaming more dynamic. It is not deniable Pokémon Go boom did not last long, and from the interview, a most common reason for gamers to lose the interest in it was its monotonous playing (Hario, Jennifer, Joy, Kevin, Shuko). People found that they were doing the same things such as finding, catching every day in this game. Some interviewees (Anton, Joy, Kevin) quitted because there was no rewarding or new motivation, challenges in this game, and some (Jennifer, Joy) felt bored without interacting with friends who played at the same time. Although the scholars argue ambient gaming can be intensive and hardcore in their research (Hjorth & Richardson, 2014), the fact is a game with only the factor of ambient gaming can hardly keep the boom for a long period. As the interviewee Kevin suggested, Pokémon Go was poor in displaying several indexes for Pokémon through gaming, which frustrated the 'serious' Pokémon players like him:

There were some things that you couldn't see in the app, like stats. But stats were there, you just couldn't see them using the app, I think that would've been a necessary thing to display, for more 'serious' players because the same Pokémon at the same CP could have different stats but it wasn't shown in the mobile app. I used a bot for a while with a different interface that displayed all those different stats, I mean, if Niantic didn't want people to know that Pokémon had different stats they could just make everything dependent on CP and level. But it was hidden, at least when I played. (Kevin)

The Japanese mobile application experts agreed, and they believed Pokémon Go should import more ways of playing the game such as Pokémon exchanging and trading, which can earn a longer gaming lifespan with the successful ambient gaming (Kondo, 2016).

Ambient gaming is not casual, but it can be boring otherwise with monotonous playing style. Of course, mobile gaming can hardly own the large-scale gaming process as hard console gaming does, but that does not mean a smartphone game cannot have dynamic storylines applied with ambient gaming which sustains the gaming engagement.

4.2 Augmented Reality on Pokémon Go Gaming Experience

Although Pokémon Go is not perfect in every aspect, it is a successful smartphone game with augmented reality (AR) use as a Pokémon theme game so far. The game is not the first one which applies AR but the most influential one making the public become familiar with AR, and several interviewees (Daniela, Joyee, Peter, Tina, Anonymous 1) in this research agreed that it was Pokémon Go making them become familiar with AR. AR also strengthens ‘ambient gaming’ for Pokémon Go. Besides, AR is also a starting point for this research to analyse the human-media interface in gaming with new graphic gaming technology. This section investigates the case from a hybridity of micro and meso perspective by analysing the role of AR plays in the boom of Pokémon Go. Yet, AR is an important part of Pokémon Go gaming and this section discusses how AR impacts the gaming experience and strengthens ‘ambient gaming’ effect from micro perspective in data analysis.

4.2.1 A Fresh Way of Gaming

The *Image 2*⁵ was photographed by a young Japanese woman who was hanging out in an interior furnishing shop while playing Pokémon Go (ITmedia Mobile, 2017). ‘Pikachu just jumped out cheerfully and suddenly felt sleepy when it “was” in the bed. I took the screenshot in my smartphone and the picture really cheered me up. I want to use it for my smartphone’s wallpaper’, the woman commented and could not suppress her joyful feeling for seeing one of the most popular Pokémon.



Image 2:
Pikachu Faintly in Bed with AR
Display (ITmedia Mobile)

For most Pokémon Go gamers, AR represents a new mode of gaming. The interviewees Edvard and Joy praised AR made Pokémon characters look like staying around them, and another interviewee Kira told he felt excited when he saw Pikachu jumping out on a desk with the help of his smartphone camera. Some researchers claim that ‘AR enhances the user’s perception of and interaction with the real world’ (Carmigniani & Furht, 2011: 3), and at the same time, AR empowers the virtual elements to ‘exist’ in our physical world (Kalkofen et al., 2011: 66). As a result, the reality and virtuality are becoming blurry in the daily life practice owing to AR (Sherstyuk & Gavrilova, 2011: 226), and this brought the innovation towards Pokémon Go and made the game so entertaining. The interviewee Peter thought AR was such a suitable idea for developing the Pokémon game series, and the interviewees Anton and Tina praised they had very real gaming experience in Pokémon Go. AR represents a new attempt with regard to gaming graphic innovation, and it enables a new strategy in mapping the human-media relation with new gaming experience nowadays.

Wetzel et al. (2011: 513) who conduct AR research on mobile gaming and comment that it is the strength for AR mobile gaming that gamers can interact with the real world

⁵ The copyright was granted by *ITmedia Mobile*.

through gaming whereas traditional gaming does not have the feature. The Pokémon Go director Tatsuo Nomura from Niantic once talked on ‘Japan VR Summit 2’ that ‘Niantic is redefining AR as “Adventures on foot”’ (Inoue, 2016), which connects to the idea of ‘ambient gaming’ (Hjorth & Richardson, 2014). In Nomura’s understanding of AR, he thought the target of augmentation was not only media contents but also human beings who participated. Meanwhile Wetzel et al.’s (2011) research strengthens Nomura’s opinion and they argue that the ‘mobility’ and ‘far content space’ are the two main factors in designing what they call ‘true mobile AR game’ (p. 515). In this sense, AR mobile gaming means playing with the changeable physical background. Jennifer told in the interview that she felt surprised that the gaming contents adjusted to the actual geography each time, ‘Once a time I played Pokémon Go nearby the lake, the Water-type Pokémon⁶ really appeared’.

Wetzel et al. (2011: 527-528) comment that the physical environment has a decisive role in influencing how gamers behave in mobile AR gaming and makes gamers immersed into the ‘blurry gaming space’. The truth in Pokémon Go gaming is sometimes a ‘hotspot’ really drives thousands of gamers to come. Instead of the gaming contents, the physical background is the most powerful factor in pushing AR gaming to thrive. On the other hand, it makes playing with actual physical background the biggest strength in AR mobile gaming which drives players to be immersed into the blurry gaming world, whereas the traditional hard console gaming can hardly achieve.

4.2.2 The Negative Gaming Experience

While the strength of AR gaming in Pokémon Go is significant, the thesis found the AR gaming experience was also critical for those who are especially passionate about Pokémon through the data collection. Several of them would rather turn off AR while catching the monsters, despite AR is quite a big feature of the game according to public belief. Those gamers mentioned AR’s flaws in playing Pokémon Go, such as it costs too much data usages with AR (Nils), it makes battery charge lose quickly (Edvard, Hario, Nils), and it makes gaming dangerous in urban areas (Sae).

⁶ The Water-type Pokémon, which most look like aquatic animals, is one of the types of Pokémon in the Pokémon story. Alongside, there are Fire-type Pokémon, Grass-Type Pokémon, etc.

For the most common reason which causes gamers feel reluctant to try with AR in Pokémon Go, several interviewees (Edvard, Kevin, Kira, Yuri) mentioned turning on AR made it more difficult to catch the Pokémon. In fact, without turning on AR, the Pokémon can be fixed in the centre of the smartphone screen and gamers can exactly feel easier to use the techniques of ball throwing and catch the Pokémon. The interviewee Hario is a passionate Pokémon Go gamer who still plays the game every day, and he described in the interview that AR only made sense when gamers took a screenshot of the moment the Pokémon was displayed in the physical background and shared the picture on SNS. Unfortunately, he was not among them and did not like AR because AR did not help him to perform better in the game.

More related with the core problem of gaming interface, the interviewee Aryo responded that AR did not help Pokémon Go look real, and it did not make sense how Pokémon are displayed. He said:

I don't really think AR in this game now is really useful, because when you turn on the AR, sometimes it doesn't make any sense because all the time the Pokémon appears on your screen, kind of stuck in the place that makes no sense like, let's say a Magikarp⁷ on the top of the table, or a Magikarp sticks on your wall. I think that doesn't seem real for me. (Aryo)

The thesis finds what Aryo mentioned is one of the problems in human-media interface design with AR in gaming. Carmigniani and Furht (2011) suggest AR engineers should always try to make the AR display natural and reasonable without confusing users with meaningless AR display, for example as Aryo said a virtual fish swam on the real wall. From AR mobile gaming perspective, Wetzel et al. (2011: 527) suggest AR mobile gaming development not only try to augment as much 3D stuff as to the physical background. To consider whether the combination of the virtual elements and the physical background makes sense, whether the gaming characters are showed in a natural way with AR is the most crucial (Wetzel et al., 2011: 529). They admit combining 'real-world elements' is difficult because the physical world is much more uncontrollable in gaming and can frustrate gaming experience (ibid.: 530).

⁷ Magikarp: A fish-like Pokémon which should usually live in the water.

Aryo even mentioned ‘I hate AR’ during the interview conversation. Accompanied with him, there are also a lot of Pokémon Go gamers sharing the moments Pokémon being displayed in weird ways with AR. Some are not criticising the gaming design, but may only share those ridiculous displays on SNS to have fun. However, this indicates AR gaming developers should consider how to let the immersion of virtual and real elements make sense in gaming, and how to map AR in designing the human-media interface in gaming. Particularly for those serious Pokémon Go gamers, they wish to see a high-quality of gaming contents. The gaming technology use can be bonus for them if it makes sense for improving the gaming experience, but this cannot replace the gaming contents per se.

4.2.3 The Immersion between ‘Worlds’: Some Judgements

There is no doubt the AR use enables better gaming immersion between the real-life and virtual-gaming worlds in Pokémon Go. The AR gaming researchers Huang et al. (2011: 707-708) comment that gamers feel better immersed into AR gaming when they can regard the surroundings as real because the real world is there ‘without any change as a background’. Through AR gaming, the gamers are experiencing a special perception of the reality, and meanwhile for AR gaming designers, to develop a game with using AR can be quite easy because there is ‘[n]o need to build the complicated virtual surroundings’ (Huang et al., 2011: 707-708). No matter how it is problematic at times, AR is a successful try for Pokémon Go. Several interviewees (Anton, Daniela, Tina, Anonymous 1) commented that AR was the decisive factor as well as the selling point making Pokémon Go so popular. According to those who are not passionate Pokémon fans or videogame players including interviewees Anton and Tina, AR was the only reason for them to start playing Pokémon Go. This research found AR was especially favoured by general smartphone users opposite to passionate fans or gamers.

However, the thesis found passionate Pokémon fans and gamers still played Pokémon Go much more than the general smartphone users. As Hario told in the interview, he was a passionate videogame player and he checked Pokémon Go several times a day as his hobby. This research actually found Pokémon Go could not be counted as a game for those passionate fans and gamers, but it was part of their life and motivated them to check like a daily routine. The interviewees (Aryo, Hario, Kira) agreed Pokémon Go

could be designed better if it applied SNS function to communicate people, while it would even be better than a common SNS application because Pokémon Go was entertaining as well.

In Wetzel et al.'s (2011: 532) research, they make us regard that good user-to-user interaction through gaming is important for gaming experience. AR as well as other future gaming technology is not the most significant for gaming designing, which on the contrary, comes second to user experience (Wetzel et al., 2011: 533-534). Pokémon Go tried to immerse the gaming world into the real world, but it failed to involve interactions among human beings, as some interviewees previously mentioned in ambient gaming's part. In the interviewee Edvard's words, 'The graphics AR is not very important, but the gameplay AR is'. Ferreira (cited in Ferreira & Boavida, 2011: 541) suggests the purpose of AR is to augment the physical world using virtual elements while keeping computer working as an assistant. Ferreira and Boavida (2011: 542) also imply human-human interaction is the original way of gaming in pre-computer era, but the technology is playing a more dominant role nowadays. However, in Wetzel et al.'s (2011: 534) words again, the gaming designers should always remember to 'keep the interaction simple' rather than make the technology become the barrier for gaming engagement. As a result, Pokémon Go benefits from its simplicity attracting the general media users (Atanda, 2016). The interviewee Kevin agreed because of the simplicity, the gaming engagement covers not only those passionate Pokémon fans, but the game was also popular among general players.

As a conclusion, Pokémon Go is successful with immersing the real and virtual worlds' logics with AR. It enables the virtual gaming scene to be displayed in the real world, but the flaw is its monotonous immersion between the virtuality and reality. Hugues et al. (2011: 49) claim the aim of AR is to 'enable a person to carry out sensory-motor and cognitive activities in a new space by associating the real environment and a virtual environment'. Although with designing gaming elements in the physical background, designers ignore the complicated social-context involved in the real society. During Pokémon Go's boom, we can always see the crowds of Pokémon Go gamers in public places, but there is no actual gaming interaction happening among them. Thompson (1995: 233) argues that the mediated experience should provide 'a continuous interweaving of different forms of experience' which creates diversity in daily

communication rather than cuts off the traditional forms of social interaction. It is a pity for AR design in the game that, players can only see the real elements in gaming through cameras whereas their context-involved daily social activities are not immersed into the blurry space. Although this needs quite hard work to achieve in the future, it is crucial to push AR gaming development further by immersing gamers per se into gaming rather than only the gaming contents.

4.3 The Analysis of Human-Media Interface in Pokémon Go

The human-media interface is one of the significant topics throughout the thesis and this section investigates the interface design in Pokémon Go from a meso perspective. As introduced at the beginning of the thesis, the human-media interface study usually has to combine the sociocultural and technological studies, this section wants to analyse the construction of the human-media interface in gaming based on Ash's (2015) 'gaming interface envelope' research, and how sociocultural factors matter for the interface design. Besides, the meso perspective's part analyses how the human-media interface design strategy can influence gaming experience in this case study.

4.3.1 Interface, Envelope, Power

The human-media interface is invisible, but effectively connects media users and contents. This thesis has discussed about gaming immersion between the real and virtual worlds, and the interface exactly works as an agent in supporting the immersion. Continued with Hario's interview, he told that:

One of the main reasons why a lot of people are included is Pokémon Go is set in a kind of real world, but not exactly a real world, but it's still a fictional world. Well, it is a fantasy world, but it has enough real-world elements I think to make it engrossing, engaging for people, and some are relatable for me as well.

The interface of Pokémon Go has the 'magic' to attract players immersing themselves into the blurry gaming world, and Ash (2015) uses the concept 'interface envelope' to describe the 'magic'. The interface can 'shape human capacities to sense space and time' (Ash, 2015: 7) in contemporary media gaming era instead of only limiting people to the gaming contents, and interface envelope has the magic in bridging the gamers and interface (ibid.: 9). However, Ash (2015) argues the interface is not a space or in other

words it is invisible practice. ‘[T]here is no “space” or “time” in the interface environment, but ‘processes of spacing or timing’ appearing ‘as a particular kind of phenomenon through the construction of relations and non-relations between objects that make up the interface’ (ibid.: 140-141). The interface envelope has the power like the ‘magic power’ to motivate users’ engagement in gaming through the interface. This thesis created the *Image 3* to show the relation among them.

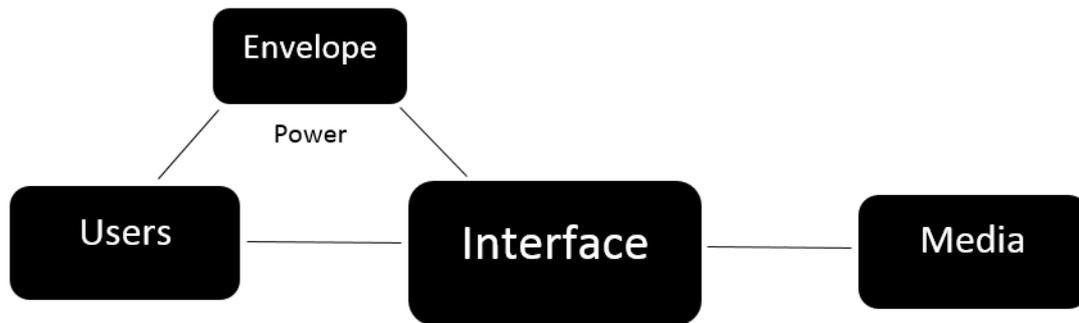


Image 3:

The Relation among Users, Media, Interface and Envelope (Y. Fang)

The interface designing is the core concept in mapping human-media relation in gaming. Such as what Hario told in the interview, the gamers were channelled to the real-virtual blurry gaming world through Pokémon Go gaming. We can only see the gamers and the gaming contents rather than directly see the ‘interface’ per se. However, we are not supposed to find out the interface, because the interface is involved in the gaming practice. In summary, the interface is the strategy for gaming developers to improve the whole gaming, and a good interface always has the power to attract people to participate in the gaming.

4.3.2 Does Pokémon Culture Matter for Interface Design?

The interface represents a working strategy for gaming developers to consider the way of bridging users and media in gaming. Apart from the engineering factors, this thesis focuses on how the sociocultural aspect may affect the interface design. In Hornung et al.’s (2015: 38) opinion, the interface can be viewed as an entrance which allows users to interact with media contents instead of only receiving all the information and consuming the contents in a passive way. Therefore, the interface design is highly dependent on media users’ behaviour study, which requires the research from sociocultural perspective.

According to the interview data, the thesis found there was a high degree of correlation between Pokémon culture and Pokémon Go gaming engagement. Several interviewees (Aryo, Edvard, Hario, Jennifer, Joy, Kevin, Kira, Nils, Peter, Shuko, Yuri, Anonymous 1) agreed that the Pokémon culture including the anime, manga and games motivated them to try and play Pokémon Go. This was about nostalgia, referred by Aryo, Kevin, Nils and Peter. In particular, those who are passionate about Pokémon culture were more energetic in talking about this subject compared with AR. Aryo admitted his passion about the Pokémon culture was the only reason for him to start playing this game. However, as most passionate Pokémon fans including Aryo argued in the interview that, Pokémon Go was not trying the culture storytelling at all (Aryo, Kevin, Nils, Peter, Yuri). Besides, even some of those who were not passionate Pokémon fans also agreed a better storytelling design should be important to improve the game further (Hario, Joy, Kira, Shuko).

Mignonneau and Sommerer (2005), together with Farman (cited in Ash, 2015: 18) try to remind us media or technology per se is not the interface, but to design the human-media interface requires the knowledge from both engineering and sociocultural sides. This thesis surprisingly found that most passionate Pokémon fans did not even care about the so-called selling point of AR, and the interviews had collected countless of negative voices about a lack of storytelling in Pokémon Go. Especially with consideration to the fact that the passionate Pokémon fans primarily occupy Pokémon Go's gaming market, the storytelling contents should not be ignored in any case.

However, opposite to this type of players, interviewees such as Jennifer and Tina were quite content with the storytelling part in Pokémon Go. Also including Joyee, they think storytelling is not important compared with exciting graphic gaming experience. Meanwhile, Pokémon Go released a lot of new characters in February, 2017 which called back many gamers who once quitted the game to play again, but Joyee considered it was only a business trick and she argued not every Pokémon Go gamer knew well about different kinds of Pokémon. She regarded this as an ineffective brand promoting strategy. It was the same case for Tina in the interview that she was not a Pokémon fan either and she believed a better gaming experience could attract more gaming engagement. Both Joyee and Tina claimed in the interview that gaming technology should be more dominant for long-term gaming development.

The interview data proves the opinion and reminds us that the human-media interaction design should consider both technological and sociocultural sides again (Sommerer, 2005). Especially, the thesis found different types of Pokémon Go gamers have dissimilar points of view towards the emphasis on either side of the human-media interface design. It is in a dilemma, for example, if the gaming developer complies with those passionate Pokémon fans' request to spend more time and efforts on gaming storytelling contents instead of applying new gaming technology to the game, this decision may exclude the general players who have little interest in Pokémon culture but represent for the big potential market.

Anonymous 1 is one of the interviewees for this thesis, who works as an engineer. Although he did not quite play Pokémon Go, he saw people playing around and was quite interested in this phenomenon from his professional perspective. Based on the dilemma of the interface designing referred above, he suggested Pokémon culture can be of course crucial in improving the game, but both storytelling design and gaming technological development are equally important if considering dividing the time and efforts to do the improvements. The compromise is the only mean which can largely keep and further expand the gaming engagement without frustrating each side.

Through *Spreadable Media*, Jenkins et al. (2013) imply the media contents are usually spread in both technical and cultural sense. Unquestionably, Pokémon Go needs to try more in developing human-media interface in its cultural side as a conclusion. Buckingham and Sefton-Green (2003: 379) also refer Pokémon should be better viewed as a 'cultural practice' instead of merely an anime or a game, which also implies Pokémon Go is something we do and interact with the contents rather than we just watch what happens on smartphones. All the efforts with the human-media interface design are to maximise the gaming engagement and optimise the gaming experience. Keeping a balance of technological and sociocultural elements in the interface development is crucial for keeping and opening new markets among various categories of gamers. Nevertheless, the balance is rather difficult to define, which requires further research to go in depth.

4.4 The Debate on Human-Media Interface in Future Gaming

While the previous sections in this chapter talk about the special human-media interface and gaming experience in Pokémon Go, this section uses the research findings above to interpret how the human-media relation can be shaped to optimise gaming experience in the future from the macro perspective. This is also the most exciting part throughout the data analysis, which investigates a way of designing the human-media interface as well as mapping the human-media relation for future gaming.

4.4.1 A Real-Virtual Borderless Gaming Space

The section 4.2.3 introduces the immersion between physical and fictional worlds in Pokémon Go gaming. As a result, the ‘immersion’ represents a mode of complex ‘presence’ between the real and virtual space. Hjorth (2011) introduces the ‘three P’ (Pedestrian, Personal and Portable) strategy in her research about mobile gaming development (p. 77), compared with which she refers hard console gaming is not equipped with ‘sense of place’. In a deeper sense, Biocca (1997) uses the term ‘presence’ to describe the similar idea of ‘sense of place’ that the gamers have the feeling of being presented at the space by media. Later in 2003, Biocca deepens the concept of ‘presence’ regarding social property by categorising ‘awareness, psychological involvement, and behavioral engagement’ as three main factors constructing social presence with other researchers (Biocca, Harms, & Burgoon, 2003: 459, cited in Kröger & Quandt, 2014: 153-154). Then recently, the researchers Hjorth and Richardson (2014: 141) define the gaming experience with location meaning with the term ‘co-presence’, by which they claim the contemporary mobile gaming experience is complex in both real and virtual dimension.

In particular, the concept ‘co-presence’ can be best for explaining how a real-virtual borderless space exists in gaming. Taking Pokémon Go as an example, the gamers play with the fictional gaming contents while being presented in the real world. They are walking on the streets, but interact with virtual Pokémon, or the avatars of other Pokémon trainers through gaming. As ‘co-presence’ implies, those players are presented in both real and virtual worlds, or in other worlds, the space they experience the gaming is ‘real-virtual borderless’. Not surprisingly, some interviewees (Aryo,

Daniela, Hario, Jennifer, Joy, Joyee, Kevin, Kira, Nils, Sae, Shuko, Tina, Yuri) agreed that Pokémon Go was a fantastic start for developing such a ‘real-virtual borderless’ gaming space for future gaming.

Furthermore, Madigan (2016) argues for the importance of psychological research with respect to ‘presence’ apart from the location and social context. He uses the term ‘spatial presence’, and describes it as ‘the psychological state brought on when you forget that the world you’re experiencing is created by technology’ (Madigan, 2016: 120). Madigan’s research (2016) implies gamers should be not only physically but also mentally immersed into the ‘real-virtual borderless’ space of gaming, which can be viewed as a successful development. Some interviewees (Peter, Anonymous 1) did not really regard Pokémon Go as the reference value for developing this type of new gaming in the future. Such as Peter, he thought it was not difficult for him to distinguish the physical and fictional elements through Pokémon Go gaming at all. At least, he was not feeling immersed. Peter suggested there be a long way for realising the ‘real-virtual borderless’ gaming space in the future.

Alongside, a few interviewees (Jennifer, Joy, Peter, Sae) doubted whether people would feel obsessed and whether the gaming would endanger humanity with reality and virtuality being mixed. With respect to *Media Life*, Deuze (2012: 61;67) states media per se are invisible if the media life is so real for media experience, and sometimes people get lost in media life. For example, playing a game in a ‘real-virtual’ blurry space may cause safety problems such as traffic accidents when the players are physically in the urban areas but mentally in the gaming world, as Shuko told in the interview. The concern is relative to what Bhattacharyya et al. (2016: 365) concern the subversion between real and virtual life will happen due to the problems of ambient gaming mentioned previously. By extending Freud’s psycho-analytical study, Deuze (2012: 25) argues a powerful media offering us exciting experience can be a source of both fantasy and fear. A media life usually makes us lost (Deuze, 2012: 67) and there are quite various means of human communications not necessarily being mediated (Rosen, cited in Deuze, 2012: 72). The ‘borderless world’ can be awesome for gaming experience, but as a result, it is not necessary to apply in all aspects of our lives. For example, the daily human-human conversations do not need to be virtually immersed

at all, and Thompson (1995) argues ‘face-to-face interaction’ has its special role and cannot be replaced by the mediated communication.

However, to create a ‘real-virtual borderless’ gaming space makes sense for future gaming development. Baym (cited in Deuze, 2012: 92) suggests ‘new media do not offer inauthentic simulations that detract from or substitute for real engagement’. Besides, gaming is not only a method of entertainment but also the communication (Matsuda, 2005: 95). In Ichikawa and Nakamura’s (2005: 227) research, they believe gaming is also a way of social simulation where everything has its meaning in the space. With the gaming technology itself, the interviewee Nils believed such a real-virtual borderless gaming space could motivate to socialise people for communication and entertainment. Not only do people have fun in gaming, but also, they communicate better and learn something to simulate the future within the immersed world.

Hamamura remarked that instead of only considering developing gaming platforms, the gaming industry workers should focus on what he mentioned ‘user community’ in future gaming (*Famitsu.com*, 2016). The future gaming world should be seamlessly connected to the real life, and he suggested gaming not be isolated from the reality, which should be related with our everyday physical activities. The ‘user community’ for gaming should have no difference from the physical human communication. The purpose is exactly what Kira talked in the interview that, a ‘real-virtual borderless’ space made it easier for gaming engagement as well as participation in social activities.

4.4.2 A Hypothesis of Media-Human Vertical Relationship

A media-human vertical relationship for future gaming development is an original idea brought by this thesis. Through the discussion about a real-virtual borderless gaming space designing in the previous section, media could become more intelligent in the future, which provide more exciting gaming experience and make it easier for human-media interaction. A media-human vertical relationship means media may play a more dominant role in the human-media interface in gaming and manipulate the gaming procedure to some extent. The idea is inspired by Ochiai’s (2016) future human-computer interface study as well as his assumption of ‘computer-human vertical

relationship' for social productions in the future. This thesis applies his research to discuss the future gaming development.

Ochiai (2016) proposes the concept of 'Digital Nature' in his research, by which he signifies that future intelligent computers can do almost everything as what human beings can do in social communication. He suggests us regard future computers as our 'second brain and body' instead of the electrical appliance at home or workplace (Ochiai, 2016: 19). In Ochiai's opinion, 'Digital Nature' inspires us to rethink the relation between humans and future media, as computers can be prior to humans in project working (ibid.: 23). He thinks this development will reduce the burden of life and work for humans, and benefits them with more revenue per unit of time especially in workplace (ibid.: 65). In a sense of gaming development, the intelligent gaming robots can be more powerful and dominant through the gaming, but otherwise offer excellent gaming experience to the gamers. Although the assumption of media-human vertical relationship sounds arguable since human beings are usually afraid of the unknown changes in the future, this thesis surprisingly found that several interviewees (Anton, Daniela, Hario, Jennifer, Joyee, Kevin, Shuko, Yuri, Anonymous 1) held quite open attitudes towards the proposal.

The reason comes from the premise of a limited exertion of the technology in gaming and media entertainment. Some interviewees (Hario, Jennifer, Shuko, Anonymous 1) commented that the intelligent gaming robots can make gaming per se more challengeable and entertaining, and the interviewee Yuri also mentioned this innovation would increase the variation of gaming in the future. However, not everyone was optimistic to this proposal, even under the premise of limited exertion in gaming's field. Joy spoke in the interview that it endangered the existence of human beings, and she believed gaming was part of social activities and the premise was not realistic either. Alongside, the interviewee Tina considered it was impossible for future computers to guide humans in gaming because she believed robots would never be endowed with emotion:

First of all, I can't be persuaded that robots will be smarter than human beings in the future, even though the robot can do much more complicated computation than me, or run faster than me, and deal with a lot of stuff. Because robots do not have emotions, I

don't think they are literally smarter than me, and I won't care about their existence for me.

In fact, Ochiai has expected the repulsion to 'media-human vertical relationship' from the public. Ochiai mentioned it was 'artificial intelligence scary problem' through an interview (Takahashi, 2016). However, he emphasises this is inevitable in the future (Ochiai, 2016: 26). It is not a tragedy for humans but will bring better quality in media experience, he mentions several times both in his research and interview. Several interviewees (Anton, Kira) highly agreed with Ochiai's proposal and they believed it was not a question of accepting it or not but it would happen soon. In particular, Anton who studies engineering gave his opinion that, 'There is such a huge discrepancy between future AIs and humans, they wouldn't really benefit from reading our thoughts'. The interviewee Aryo also mentioned human beings could always trust AI, because AI was the purpose of technological innovation.

However, Kanda and Ishiguro (2013: 311) who work in human-robot interaction project argue that many media engineers and designers are too optimistic towards AI development in the future, because they usually ignore whether people want to interact with the super smart media in daily life. As mentioned in the previous section, one cannot take the sociocultural and technological sides apart in developing the human-media interface. Nonetheless, AI developers tend to assume people would love to interact, but the result usually turns out the products are not as successful as they expect after being released on the market. '[T]rust in technology is considered a more problematic form of relationship to the one between person-person' (McKnight et al., cited in Salanitri et al., 2015: 50), because no matter how intelligent computers are, people commonly believe they lack interpersonal communication ability to guarantee anything like human beings (Friedman et al., 2000, cited in Salanitri et al., 2015: 50). Even though some engineers are tackling the barrier to try on endowing AI with emotion at present, the interviewee Tina argued it was unwise to try with the development because the sentient AI would bring disasters to human beings. At the same time, several interviewees (Nils, Sae, Shuko) were also concerned about the privacy problems if AI is going to be applied to gaming or further areas in our real life. Furthermore, some (Anton, Daniela, Anonymous 1) were afraid this technology would be abused by human beings in other fields including military use.

Notwithstanding, the technological development was inevitable in future gaming area. Although Bauman (2007: 2) argues that media users are being consumed with new media technology, this is what Rosa and Trejo-Mathys (2015) suggest 'social acceleration'. For instance, no one can reject using the smartphone nowadays, despite the public argue smartphones worsen the interpersonal communication, because people tend to use the convenient mediated way for communication, while losing interest in deep physical interpersonal communication. Thompson (1995: 83) implies physical messages including 'winks and gestures, frowns and smiles' from 'face-to-face interaction' can convey subtle meanings other than the text per se compared to mediated ways. The mediated communication is unlimited by time and space, but limits the emotional expression that is however basic for communication.

Contrary to the mainstream opinion, Ochiai (2016) believes equipping computers with emotion can solve this problem. His 'Digital Nature' challenges Descartes' 'Dualism' and he argues human beings will not be the unique creatures with wisdom and emotion, and computers will share the equal status with human beings in this new societal system called 'Digital Nature'. For example, in AI gaming, gamers can cooperate with AI, and the intelligent and emotional AI can make the game per se flexible and entertaining. Ochiai (2016) implies the anthropocentric perspective in viewing the world should not be universal, and the world outlook can be renewed as times change. Furthermore, he claimed in an interview that our future media experience would all go from hardware to software, which suggested AI be part of the human body and cooperate with humans in life and work (Saito, 2016). Similarly, the 'real-virtual borderless' gaming space was mentioned in the previous section and many people like the proposal, but this can be only realised with the support from the more intelligent media.

Deuze's (2012) concept strengthens Ochiai's argument, and he believes people only have to consider whether media stands opposite to humans or are part of our body in understanding media life (p. 32). Deuze (2012: 100) argues there is 'no life outside media'. The common standpoint between Ochiai and Deuze is that they both conceive human beings should hold optimistic attitudes to the media technological development, because the development is inevitable in the future. Several interviewees (Anton, Aryo, Hario, Kevin) also mentioned people did not need to worry too much about the moral

issues for this development, because most of them benefit our life according to the past history of scientific and technological development. In other words, they did not see immediate problem for gaming technology development.

To conclude, the idea about a media-human vertical relationship in gaming could be questionable, but this is potential to inspire the future gaming experience. As Ochiai (2016) justifies, AI can be either the enemy or the company for human beings but considering humans and computers as a collaboration is crucial to promote future innovations. Particularly in the field of gaming, Deuze (2012: 183) regards the gaming world as the ‘benchmarking’ of media life where the ‘real-world environments’ are blended with ‘various forms of mediated gameplay’ bringing unimaginable gaming experience. Of course, AI for gaming is still a long way to go, as the interviewee Kevin referred. This is not only the problem of overcoming the technical difficulties, but also the question how to earn media users’ trust for the gaming technology. A workable human-media interface needs a combination of culture and technology to bridge gamers and media and provides excellent gaming experience.

4.4.3 The Expectations

At the end of the interview, the thesis collected the expectations from interviewees about future gaming designing. Several interviewees (Anton, Kevin, Nils, Sae) expressed their excited feeling about the current Pokémon Go gaming and implied they hoped to see much more development in creating the modes of gaming and would love to try in the future. Some interviewees (Aryo, Hario, Kira) mentioned they expected to see the AR game such as Pokémon Go might import SNS function which is also mentioned previously. Particularly for passionate gamers, Pokémon Go is better to be defined as a combined smartphone application with both gaming and communication function, instead of an anime-theme mobile game. Moreover, the interviewee Joyee suggested AI gaming possibly simulate for future risk management. Several researchers also have the similar opinion regarding the function of gaming simulation. Ichikawa and Nakamura (2005: 227) refer, ‘[g]aming simulation should be understood to be human or human-computer simulation of social processes’, by which they mean we can use the tactic of gaming simulation to tackle the problems that may happen in the future.

Besides, there are interviewees standing by Ochiai's proposal which advocates to collapse anthropocentrism and generate diverse values in investigating human-nature relation. Those interviewees feel like to experience the space Ochiai depicts with marvelous media experience. Joyee who supported empowering media with intelligence and emotion referred we could have different approaches in presenting ourselves in an online gaming community where the spatial presence could bring abundant gaming experience with the help of AI:

[The gaming world] can be like a small-scale simulated community. For example, if you are 10-year-old and I'm 15, after we have been tested by AI gaming media with several simple questions to examine how we perceive the world differently apart from the age difference, and we can be distributed with different roles in the gaming society according to the background difference at the beginning. This will bring the sense of the real life into gaming, and gamers can just check up the game every day for only a few minutes without spending too much time on it.

Joyee told that humans could relieve the stress from the reality in this way, and gamers would feel what they were doing in the game was meaningful as well, because the virtual gaming contents also reflected on their real life background with AI mapping everything in the gaming world. For example, everyone's role in the gaming world is as unique as he is in real life, and each person will have his own mission to accomplish in gaming. Joyee's assumption is similar to what Hamamura mentioned in Section 4.4.1 that the online gaming community can have totally different communicative logics without being influenced by the physical world related with age, social status, but gamers also keep their identities in gaming as well as communicate each individual with personality. From Ochiai's point of view again, the 'escaping from the reality' was not a negative thing for the future, but it maximised human happiness without harming anyone in the blurry space (Saito, 2016).

However, those interviewees (Aryo, Tina) who were critical to the media-human vertical relationship referred media technology were not the core in human-media interface designing for future gaming. Tina considered gaming development should always adhere to humanistic spirits and user experience. Their concern is relevant to Fuchs' (2014) belief that media users are being exploited by new media industry. Even Jenkins et al. (2013: 83) who propose *Spreadable Media* which supports the technological influence for future media development also admit media users can be

‘commodified’ through this process. Taking Pokémon Go as an example, many gamers feel entertained in the gaming and some have even paid much money for the equipment to play better. However, some claim it turns out they get nothing as payback in participation, but only help to propagate the brand. They have not got any reward from playing Pokémon Go but they largely helped to create the gaming boom. Eventually, they do not know if they are going to be exploited by AI media or people who invent this technology in the future.

In spite of the argument whether we should insist on developing the media world with anthropocentrism in the future, the interviewee Kira referred a crucial point that the future gaming should always remember to inherit cultural spirits no matter how the media environment changes and develops. ‘I love the Pokémon game itself, I’d be happy if we can continue giving children the dreams and to see the infinite possibilities in the future’, he said. The interviewee Anonymous 1 also gave an example that AI gaming might make elementary education more efficient and entertaining. Yonaga (2016) who is a game designer pointed out it was true Pokémon Go gamers caused environmental damage through gaming to some extent, but on the contrary, people can utilise the gaming to positively influence the regions. For example, the game could design to motivate gamers to pick up the garbage in the place they are playing, and get rewards from helping cleaning the regions while gaming (Yonaga, 2016). Besides, according to the report from Miyagi Prefecture Tourism Section, the Pokémon Go gaming event⁸ brought the revenue of approximately 2 billion yen⁹ last year, because the regional collaboration with Pokémon Go brought more visitors and benefitted tourism reconstruction in Miyagi Prefecture which was seriously damaged by Tōhoku earthquake and tsunami in 2011 (*Kahokushimpo Online News*, 2016). Of course, Pokémon Go per se was also making profits, but the event quite maximised the benefits for the region.

The purpose of gaming technology development is to offer better gaming experience to maximise the happiness for humans and regions, although how dominant AI should be remains to be proved in the future. Besides, a universal rule for media products to thrive

⁸ Rare Pokémon characters were distributed in some specific regions by Niantic, and the strategy called for much more visitors than usual to search for Pokémon.

⁹ Approximate to 18.4 million US dollars.

is to allow media users to make their own meaning in the media engagement (Fiske, 1989). Otherwise, future gaming cannot sustain any boom without its cultural spirit as a motivation for long-term gaming engagement from people.

4.5 Summary

The data analysis illustrates how gaming experience in Pokémon Go is special to gamers, how the human-media interface design effectively works for gaming engagement and how the case study inspires future human-media interface for gaming experience. The thesis examines the concept of ‘ambient gaming’ (Hjorth and Richardson, 2014) with interview data and further interprets how special the human-media interface as well as gaming experience in Pokémon Go is for other gaming together with AR research. From the meso perspective, the thesis analyses the data with Ash’s (2015) ‘interface envelope’ study to explain how it bridges humans and media in gaming. The perception gap between different categories of gamers exists in this topic that the passionate Pokémon gamers and general smartphone users have opposite attitudes to the technological and sociocultural sides of human-media interface designing in gaming. In the end, the thesis involves an open space for discussing future human-media relation in gaming. Together with the assumption of the ‘real-virtual borderless’ gaming space for impacting the future gaming experience, the thesis also proposes the idea about ‘media-human vertical relationship’ for inspiring future gaming experience based on Ochiai’s (2016) hypothesis of ‘computer-human vertical relationship’ in future social productions. However, the thesis collected intense arguments for and against the proposal through interviews. Some felt excited about the potential change and development in future gaming, but some felt frightened holding their anthropocentric belief. Although the proposal remains to be questionable, we got to know an importance of balancing sociocultural and technological sides in designing the human-media interface to optimise the future gaming experience.

5. Conclusion

This thesis studies the human-media interface as well as the gaming experience in the smartphone game *Pokémon Go*. As a media entertaining product, it quickly opened the market due to its features. The new media technology such as AR is also making future media powerful, and it is significant to discuss how to bridge humans and the media technology in entertainment in the future. This thesis uses *Pokémon Go*'s case to interpret how 'human-media interface' and 'gaming experience' are special in this game, and also discusses the way for bridging humans and media for better gaming experience in the future. That is, the research is trying to inspire the future gaming study with the research findings to discuss a way of shaping human-media relation for future media entertainment. The thesis includes the academic research from various researching areas including media cultural study and gaming technological study on sociocultural side, which are used for analysing the qualitative data from interviews and answering the research questions.

The first research question is about what impacts *Pokémon Go*'s gaming experience as well as the way in succeeding it. In spite of the prejudice that mobile gaming is a 'casual' form of gaming without in-depth gaming contents bringing immersive gaming experience in the research area, Hjorth and Richardson (2014) argue mobile gaming is ambient gaming rather than casual and meaningless gaming. The case study of *Pokémon Go* proves the idea that with ambient gaming, gamers feel enjoyable in playing with changeable physical background. *Pokémon Go* embodies ambient gaming with the real geography, in which gamers have more 'real' feelings through playing especially with turning on AR during the game. On the contrary, the thesis found *Pokémon Go* relied too much on ambient gaming whereas ignoring other aspects of bridging gamers and the gaming contents to make it easier for participation. Gamers are not equally treated in collecting *Pokémon* due to restrictions in some areas, and some complain it is not user-friendly to exit the game. However, *Spreadable Media* reminds us media users can never be viewed as passive opponents in mass communication (Jenkins et al., 2013). Ambient gaming can attract gamers but the monotonous playing cannot make the boom last for a long period, and *Pokémon Go* lacks another selling point other than AR to keep the gaming engagement.

Nevertheless, Pokémon Go is successful. AR is of course the biggest selling point in this game to open the market, which also has an epoch-making significance of impacting the human-media relationship in gaming. Ambient gaming is the core, and AR plays a decisive role of strengthening ambient playing to promote Pokémon Go's gaming market. AR also works to immerse gamers into a real-virtual blurry gaming space, which innovates a new of gaming for smartphones. However, the research suggests an effective gamer-gamer communication is always fundamental for gaming, and in the meantime, mediated communication should not exclude the basic way of human-human interaction in media activities. After all, monotonous immersed gaming experience cannot thrive with separating gamers.

The second research question investigates human-media interface per se deeper, and how its sociocultural side impacts the gaming experience. Ash's (2015) 'interface envelope' research is the most significant for explaining how the interface bridges humans and media and immerses gamers into the 'blurry world' in gaming. The interface per se is invisible, and it represents a strategy or practice to map humans and media with envelope power. Besides, Farman (cited in Ash, 2015) emphasises the importance and the equal role of sociocultural side with technological side in considering the interface study. This thesis found there were conflicts between the Pokémon fans and general smartphone users in expecting the ways of improving Pokémon Go. The former thought highly of the cultural side in developing Pokémon storytelling, but the latter thought gaming technological strategy such as AR was much more crucial for attracting players. Overall, the human-media interface is a strategy which discusses balancing sociocultural and technological aspects, and tries to combine humans and media together in developing media products as Deuze (2012) and Jenkins et al. (2013) suggest. The contradictions of the demands for future gaming mentioned above also require the interface to mediate.

The third research question focuses on the ways of improving the gaming experience with the research findings from the previous questions. A 'real-virtual borderless gaming space' is one of the proposals inspired by 'immersion playing' analysed in the sections of ambient gaming and AR study. Madigan's (2016) concept of 'spatial presence' gives the academic support for the proposal, and he suggests a physically and

mentally immersed gaming space can make a difference to current smartphone gaming, including Pokémon Go. Another proposal is to argue for the possibility of the ‘media-human vertical relationship’ in gaming, which can be viewed as the technical support for the ‘real-virtual borderless’ gaming space. ‘Media-human vertical relationship’ in gaming is original in this thesis working to impact the gaming experience, but the idea is inspired by Ochiai’s (2016) ‘Digital Nature’ study. Ochiai (2016) argues, a ‘Digital Nature’ maximises human happiness and eases the social burdens on them, in which he suggests there be no reason to feel dystopia towards the innovation. Nonetheless, his claim is either endorsed or questioned by interviewees at the same time.

In the end, the fourth research question works to introspect the new proposals for future gaming based on theories and empirical data, which can be viewed as an extension of the third research question. There are interviewees who like the proposals and think it should bring exciting gaming experience with ‘media-human vertical relationship’ in gaming, but some protest the ideas. In particular, they consider the existence of human beings will be endangered if AI media are more dominant, even only in gaming area. Although it is always arguable to apply a new technological proposal to social business from the perspective of human development history, the ‘social acceleration’ (Rosa & Trejo-Mathys, 2015) is never stoppable. Ochiai’s (2016) ‘Digital Nature’ concept suggests humans suspect anthropocentrism because he argues ‘Dualism’ is not eternal. Furthermore, the proposal of ‘media-human vertical relationship’ in this thesis is slightly different from Ochiai’s (2016) argument, because the idea is only applied to gaming within the debate in this thesis. To some extent, this proposal is less problematic, because it is not generally relating to the whole society, and gamers can decide not to participate if they do not like or want to.

However, this is also a problem whether gamers feel willing to participate in the new gaming, because the innovation will become meaningless if it fails to attract the gaming engagement. Kanda and Ishiguro (2013) argue AI developers nowadays are usually too optimistic to the AI products they have designed, and they take it for granted that media users will feel excited to interact with AI media contents. According to the data analysis, some gamers are quite negative about the proposals for gaming as well. Thus, Kanda and Ishiguro (2013: 311) imply gaming researchers should balance the sociocultural and technological aspects in designing the human-media interface for gaming, which is

even more difficult than gaming contents designing per se. The ideal interface can help media users to understand the media contents and bridge users and media better, which optimises the gaming experience in media gaming.

Yet, this research cannot generalise a universal rule to explain how to design the human-media interface on its sociocultural side for future gaming or how to balance the sociocultural and technological sides for developing a game. This is also the common weakness of doing a qualitative empirical research which does not involve a large scale of samples to persuade the result. Nevertheless, this research works to inspire the future gaming experience for media users with considering bridging human-media relation through the case study. In particular, the thesis suggests humans think of endowing media with intelligence and independence, and challenge the anthropocentric thinking humans view the world for centuries in developing future gaming. Besides, although Fuchs (2014) is critical to media exploitation especially with the new media development, he also admits human beings cannot live without technology in contemporary era with a sense of 'technological determinism'. Instead of refusing the technological application in gaming or a broader area in media entertainment, it is more valuable to investigate how to apply media technology into media products and inspire the future gaming experience. Otherwise, it is not a question of accepting the change or not, but it will come sooner or later, and it is vital for human beings to know how to get used to the change and development.

Meanwhile, the gaming technology is unstoppable, but the sociocultural side in human-media interface always introspects whether the development rationally benefits humans and regions. When talking about the human-agent power relation, Jenkins et al. (2013) imply a more powerful agent is to enable more feedback and interaction from media users. Thus, the doubt whether humans or media will be more dominant in human-media interface in future gaming is not important, but it is valuable to know if the users create effective meaning in gaming engagement. No matter how gaming developers shape the human-media interface in the future, they should always optimise the gaming experience with benefiting humans and regions in direct or indirect means.

Whereas some media technology abuse threatens human beings such as privacy issues, and many media scholars including Fuchs are introspecting the problem, the media

modernisation is highly dependent on technology. As a result, most of the change and development are for good purposes and benefit us and our regions much so far. To give a specific example, people even start to use AR application to naturally display their deceased relatives or friends with the physical background when they visit the grave recently in Japan¹⁰ (*ZUU online*, 2016). The purpose of the application development is thoughtful and exactly offers users the chance to ‘see’ someone they miss in specific situations, despite the potential moral issues remain to be seen in the future. Nowadays, the new media technology is creating opportunities for humans to break the limits of time and space to see what they cannot approach in real life as what McLuhan’s (1994) classical theory suggests ‘media are extensions of humans’. In particular, once the innovation is only limited to the field of gaming throughout this case study, this thesis suggests human beings hold open attitudes towards media technology development for future gaming products. At the same time, the future research should carry on studying the relation between humans and AI media in the field of media culture and entertainment study, and investigates how this improvement of media intelligence may primarily impact human happiness in media life.

¹⁰ The smartphone application is ‘Spot message’. With AR and GPS’s support, one’s important deceased relatives or friends can be displayed in some special spots at the physical background after information setting including images and spots.

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¹¹ 'Anonymous 1' is one of the interviewees for this thesis who is an engineer, but he requires to be completely anonymous without other name in this research.

7. Appendix

7.1 Appendix A: The Interview Guide

Theme 1:

Pokémon Go's human-media interface design

Gaming experience

AR's role in the game

Questions:

- How often do you play Pokémon Go?
- In what situation (when and where) do you mostly pick up your smartphone and play this game? For example, waiting for a bus or anything else?
- Are you still playing the game recently?
 - If so, what are the features from the game attracting you to play for such a long time?
 - If not, why do you lost the interest? Is there anything wrong with the gaming interaction?
- Do you roughly know augmented reality (AR)? And do you always keep turning on AR in the game?
 - If so, how far does the feature of AR attract you to start or continue to play the game? And can you tell me your feeling when you play with the feature?
 - If not, why don't you like AR since the public believes it is the biggest selling point for Pokémon Go?
- Have you played any other Pokémon game series on other platforms such as Gameboy, 3DS and so on?
 - If so, can you compare their strengths according to your gaming experience? Or can you tell me which series including Pokémon Go do you like best?
 - If you like Pokémon Go most, in what ways do you think Pokémon Go improves the gaming experience which the previous did not have?
 - If you like other series most, why do you think Pokémon Go is not good in gaming experience compared with the previous you have played?
- Have you watched any Pokémon anime for a certain period?

- If so, is Pokémon culture the main motivation for you to start playing Pokémon Go if compared with AR's influence?
- If so, how do you think of the storytelling design in Pokémon Go as far?
- Which do you think is more important in designing Pokémon Go or future Pokémon game? The Pokémon storytelling in the game or the new gaming technology (like AR) for better gaming experience?

Theme 2:

Future human-media interface in gaming

The blurry worlds in gaming

Hypothesis of 'media-human vertical relationship' for future gaming

Questions:

- Do you think Pokémon Go is a good start for creating more 'real-virtual borderless' game in the future? And can you tell me the reasons?
- As you know new technology can bring better user experience in gaming, future artificial intelligent gaming robots can be smarter than humans. But otherwise they can read your thoughts when you play. Would you accept those artificial intelligent gaming robots which are smarter than humans existing in future gaming area if this technology is only applied to gaming use?
 - For positive reasons, can you tell me why you trust this brave innovation can maximise our benefits in gaming?
 - For negative reasons, which kind of moral issues in developing super-smart robots for gaming are bothering you?
- Is there anything else specific related with Pokémon Go or your expectation for future human-media interaction in gaming you feel like to say?

7.2 Appendix B: The Sample of Transcripts

One interview transcript sample comes from the interview with Kevin ('K' in the transcript), who is a Swedish student studying engineering:

How often did you play Pokémon Go?

K: About every day when I started.

In what situation (when and where) do you mostly pick up your smart phone and play this game? For example, waiting for a bus or anything else?

K: Sometimes I would just want to play the game and play it. But always when I was waiting for something yes, or walking back and forth from school.

Are you still playing the game recently?

K: No. I only played for a while, like one month or two. I don't play it anymore. And I went to China for the past semester, they don't have it there.

Why do you lost the interest? Is there anything wrong with the gaming interaction design?

K: Not really. I think it was easy to use. But it became very one dimensional and I got tired of it. You only really did the same thing all the time. If you fought to take over a gym it was really easy for someone else to retake it. No challenge. There were some things that you couldn't see in the app, like stats. But stats were there, you just couldn't see them using the app, I think that would've been a necessary thing to display, for more 'serious' players because the same Pokémon at the same CP could have different stats, but it wasn't shown in the mobile app. I used a bot for a while with a different interface that displayed all those different stats, I mean, if Niantic didn't want people to know that Pokémon had different stats, they could just make everything dependent on CP and level. But it was hidden, at least when I played. I don't know if they still have it like that.

Do you roughly know augmented reality (AR)?

K: Uhm, not much more than that how the Pokémon were displayed on the screen. I turned it off. I didn't like it.

Why don't you like the AR function since most people think it's the biggest selling point of the game?

K: It made it harder to catch Pokémon. When I play a game I tend to play to become good at it haha, not just for fun.

Have you played any other Pokémon game series on other platforms such as Gameboy, 3DS and so on?

K: Yes, when I was a kid I played gen 1-3 with friends, to ruby/Sapphire on Gameboys.

Can you compare their strengths according to your playing? Or can you tell me which series including Pokémon Go do you like best?

K: I liked gen 3 the best, probably because I was at a good age then, I understood English and I could understand what happened in the game, stats and everything Pokémon Go didn't feel competitive at all. You just walked around catching Pokémon [that] was not as fun.

Have you watched any Pokémon anime for a certain period?

K: Yes, when I was a kid, under 10, I watched Pokémon on the TV in the mornings. I think season 1 came to Sweden when I was around 4 or 5. Or no, it came 2000 so I should have been 6 years old.

Is the Pokémon culture as well as the monster characters the main motivation for you to start playing Pokémon Go?

K: The main reason was that it hadn't been released yet. I think. I had to download the .apk file from another source other than Google Play to get it. And of course the nostalgia for Pokémon. I hadn't touched Pokémon in so long, and when I was a kid I always wanted Pokémon to be real and Pokémon Go is pretty close I guess. But since it wasn't released in Sweden yet, it was 'cool' to have it and also because of the fact that it blew up, like everyone talked about it and everyone played it.

How do you think of the storytelling design in this game as far? Do you know there are new monster characters released in February?

K: I didn't know there was a story, and no, I didn't know they released new Pokémon.

Which do you think is more important in designing Pokémon Go or future Pokémon game? The Pokémon storytelling, variety of monster characters in the game or the new gaming technology (like AR) for better graphic gaming experience?

K: Normal Pokémon games have a story, Pokémon Go doesn't, but they have the AR thing for immersion, maybe if they had a story in Pokémon Go or new technology for the normal games might be an interesting concept. Right now I would rather play a normal Pokémon game than Pokémon Go. Bigger variety of Pokémon doesn't matter to me, but I imagine for younger people it might be more successful.

Do you think Pokémon Go is a good start for creating more 'real-virtual borderless' game in the future? And can you tell me the reasons?

K: I guess, since it became so popular it might have given developers incentive to make it look even better, but it died pretty fast too, so i don't know.

As you know new technology can bring better user experience in gaming, future artificial intelligent gaming robots can be smarter than humans otherwise and read your thoughts when you play. Would you accept this kind of gaming robots who are smarter than humans showing up in future media entertaining area if I promise you this technology will only be applied to gaming?

K: Haha, it's a long way, but yes, I think I would be rather okay with that.

Can you tell me the reason you trust this brave innovation can maximise our benefits in gaming?

K: I believe in the developers and innovators to do what is responsible for this matter everything that's new can be used for bad purposes but most of it isn't.

But is there anything related with morality you would concern even you believe this brave innovation can benefit us in gaming?

K: If AI becomes sentient, it will definitely be used outside of gaming, mostly for good purposes, but even big names such as Elon Musk and Bill Gates have concerns regarding the advancement of AI and how we are going to restrain and limit them. It can be an interesting topic to discuss, but I haven't really thought about it yet. It seems so far away.

For a last question: Is there anything else specific you would like to say about Pokémon Go or your expectation for future human-media interaction in gaming?

K: I think Pokémon Go was definitely the first step to open up this market because it became so popular to everyone, not just gamers. And showed that everyone could enjoy it.

7.3 Appendix C: The Data Coding

Themes	Category	Sub-category	Codes
Gaming experience in Pokémon Go	Ambient gaming	Daily entertainment	Walking instead of driving to shops in order to play (Joy). Trend and popularity (Anton, Joy, Joyee, Kevin, Peter, Sae). Waiting for or taking the transport (Anton, Daniela, Edvard, Jennifer, Joyee, Kira, Nils, Shuko, Tina, Yuri). Walking and exercising (Hario, Kevin, Nils, Peter, Tina, Yuri). Whenever going outside or feel free, I will play (Aryo, Edvard, Kevin). Good human-media interaction (Tina). Good graphic display (Tina). User-friendly operability (Tina). Hanging out with friends (Anton, Nils, Tina). Playing at home when I'm free (Sae). Feeling happy to get more monster collections (Sae). It is challengeable to collect what you have not got (Sae). Playing during lunch time (Anton). Intending to play well, not just for fun (Kevin). Pokémon is pretty 'close' to me (Kevin). Popular for everyone, not just gamers (Kevin). Checking whenever, a habit of playing the game (Hario). A time-filler, and it is something new (Hario). I can insist on playing in a foreseeable future (Hario). Leisure playing compared with other videogames (Hario). Playing when feeling bored, checking (Joyee).
		Reasons for losing interest	Monotonous playing, finding and catching (Hario, Jennifer, Joy, Kevin, Shuko). No gaming motivation, challenge, rewarding (Anton, Joy, Kevin). No interactions with other players (Jennifer, Joy). Unfair for new coming players to compete (Peter). Do not have time, time-consuming (Daniela, Joyee, Nils, Anonymous 1). I have no deep interest in Pokémon culture (Tina). Climate reasons, becoming dark and cold in winter outside (Nils). Do not have the data usages (Sae, Yuri). It costs too much battery charge (Kira, Shuko, Yuri). I cannot quit in spite of the flaws in designing, otherwise I would feel sorry (Yuri). Bad design for gym leader competition (Kevin). Bad for 'serious' gamers, no statistics for the monsters (Kevin). It is meaningless to catch Pokémon all the time (Joyee). Dangerous when playing in urban areas (Shuko).
	Augmented reality	Fresh feeling	Pokémon are there with me (Edvard, Joy, Kira). The game applies to geographical changes (Jennifer). The 'first' AR mobile game, Pokémon Go makes AR popular (Daniela, Joyee, Peter, Tina, Anonymous 1). AR is suitable for the gaming subject (Peter). A new way of gaming (Daniela). More entertaining (Tina). Awesome with real gaming experience (Anton, Tina). Certain places have certain monsters, it is the motivation to go to certain places (Edvard). I got to know AR after playing Pokémon Go (Tina).

		Negative feeling	Not 'real', it does not make sense how Pokémon show up in the physical background (Aryo). I hate AR (Aryo). AR function costs too much data usages (Nils). Battery charge loses quickly (Edvard, Hario, Nils). Dangerous when using in the urban areas (Sae). It makes catching monsters more difficult (Edvard, Kevin, Kira, Yuri). It looks like only making sense for people to take the screenshot and share on SNS by using AR (Hario). It does not make sense for me to play Pokémon Go better, no additional item and help (Hario).
		Game design	Decisive role for Pokémon Go boom, a unique selling point (Anton, Daniela, Tina, Anonymous 1). Creative and useful in industry (Anonymous 1). Decisive role or the only reason for me to start playing (Anton, Tina). Expecting for voice control in AR gaming (Tina). It is better or necessary to design SNS function, and gamers can interact with real people through gaming (Aryo, Hario, Kira). It would be cool if playing Pokémon Go with virtual reality, I suggest Pokémon Go is not literally gaming (Hario). How to turn on or off is not obvious, I did not even know I could exactly turn on AR but it looks awesome (Joyee, Shuko). The graphics AR is not very important, but the gameplay AR is (Edvard).
	Pokémon game series comparison	Judgements for Pokémon Go	The gaming battle is not competitive and designers should improve its battle system (Aryo, Edvard, Hario, Kevin, Nils, Peter, Shuko). Hard to raise role's level (Peter). No role playing (Aryo). AR is the only selling point (Aryo, Kevin). Bad designing for ending the game (Kira). Cute graphic display (Kira). The boom goes away fast (Kevin, Anonymous 1). No actual strategic playing for battles and the goal (Edvard, Hario, Shuko). Bad for a lot of grinding (Edvard). Good for interaction with the real world, the gym in the game is good (Edvard). I like to see Pokémon on my smartphone (Kira).
		Features of other series	Delicate graphic display (Peter). Good and exciting storytelling (Aryo, Peter, Yuri). I can interact with other Pokémon trainers (Shuko). I can cultivate Pokémon through gaming (Shuko). I like to build an awesome Pokémon team (Edvard).
		In general	Different selling points (Aryo). I would rather play the previous one (Kevin).
	Pokémon culture	Anime and culture influence	The Pokémon culture and characters (Aryo, Edvard, Hario, Jennifer, Joy, Kevin, Kira, Nils, Peter, Shuko, Yuri, Anonymous 1). Nostalgia (Aryo, Kevin, Nils, Peter). Necessity for Pokémon Go's success (Anonymous 1). The culture itself is addictive, the fandom reason (Aryo, Anonymous 1). The only reason for me to play Pokémon Go (Aryo). The new released characters attracted me to play again (Aryo, Kira, Yuri). Having little or no interest (Anton, Hario, Tina). The hobby of videogame playing is the only factor for me to start Pokémon Go (Hario).

		Pokémon Go storytelling and graphic design	There is little or even no storytelling, boring (Aryo, Joy, Kevin, Nils, Peter, Shuko, Yuri). Storytelling is important and can improve the game (Aryo, Hario, Joy, Kevin, Kira, Nils, Peter, Shuko, Yuri). Consent, good storytelling (Jennifer, Tina). Less important than graphic technology (Jennifer, Joyee, Tina). Good monster distribution in different countries and continents (Tina, Yuri). The game is trying storytelling (Tina). Better to have more characters (Shuko, Yuri). Better to place a gym leader in the game (Yuri). Only period display of original storytelling (Joyee). New monster characters releasing is only a commercial trick (Joyee). Not every person knows Pokémon, ineffective promoting strategy on storytelling (Joyee). Technology is for long-time gaming experience (Joyee, Tina). Gaming technology is more important than the brand culture storytelling if the game wants to attract more gamers (Tina). Equal role in designing (Shuko, Anonymous 1).
Future human-media interface in media gaming and entertainment	Real-virtual borderless space		Pokémon Go is a good starting point (Aryo, Daniela, Hario, Jennifer, Joy, Joyee, Kevin, Kira, Nils, Sae, Shuko, Tina, Yuri). Obsessed (Joy, Peter). Can be confusing and dangerous without a border for humanity (Jennifer, Sae). Pokémon Go cannot be really counted (Peter, Anonymous 1). Virtual reality is better in this category (Peter). Good for a game to socialise people to play together (Nils). Excited for gaming itself (Sae). Easy to participate and play (Kira). Fantasy world and immersion (Hario). Concern for safety issues (Shuko).
	Media-human' vertical relationship in gaming and entertaining	Judgement	Unnecessary and unacceptable (Joy, Nils). Acceptable (Anton, Daniela, Hario, Jennifer, Joyee, Kevin, Shuko, Yuri, Anonymous 1). The game is more challengeable (Hario, Jennifer, Anonymous 1). AI is the proposal of technology (Aryo). Impossible, the limitation of artificial intelligence (Aryo, Nils, Tina). AI can hardly be smarter than humans without emotion (Tina). Humans cannot win the game and feel joyful if AI is too smart (Sae). A challenging idea, can make big profits if designers make it interesting (Sae). It will be the truth, not the question of accepting it or not (Anton, Kira). It increases game variations (Yuri). Huge discrepancy between AI and humans, and humans will not suffer (Anton). A long way to go (Kevin). Makes the game more entertaining, immersed and fun (Hario, Shuko).

		<p>Moral concerns</p>	<p>Entertaining cannot separate from societal system (Joy). Endanger human beings' existence (Joy, Joyee, Peter). Technology abuse by humans in other fields (Anton, Daniela, Anonymous 1). Bad idea if AI is sentient (Tina, Anonymous 1). Nothing with morality, you can trust technology and most are for good purposes (Anton, Aryo, Hario, Kevin). Should not endow AI emotion in any condition (Tina). Privacy problems (Nils, Sae, Shuko). Physical acceptance level problem, we may lose control (Sae, Shuko). Worsening human-human social relations (Sae). It can harm people if it is too real (Hario). It can be awesome with rational design (Hario). Do not see immediate problems at least (Hario).</p>
	<p>Expectations</p>		<p>Intelligent teaching games can guide children more efficiently (Anonymous 1). Feel willing to give a try (Sae). Automations can positively affect all social areas not just gaming (Anton). Good gaming simulation for risk management in social use (Joyee). Raise operation efficiency (Peter). Excited to see the future development in gaming (Anton, Kevin, Nils). The future gaming should also inherit the cultural spirits (Kira). The future gaming should include the element of emotion for better innovation (Joyee). Online presence with real human-human social interaction through gaming, we can get rid of stress from physical community (Joyee). Media are not the main role in gaming and gaming's proposal is human-human interaction (Aryo). Should stick to anthropocentrism (Tina). User experience comes first (Tina). Smartphones are powerful to create new modes of gaming (Anton).</p>