The Effects of Location-based Mobile Games on Media Literacy Education in Schools Based on the Case Study of *Pokémon Go*

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ABSTRACT
This article explains the application of mobile games in media literacy education. Based on a case study of *Pokémon Go*, it argues how location-based mobile games contribute to teaching media literacy in schools. The participatory context and the ideal informal learning space constructed within the game benefit the teaching environment in class. Also, the multimodal text offered by the game broadens the version of text conventionally used in the classroom and improves the clarity of information delivery as well. The application of mobile games opens new possibilities in education, but raises concerns regarding the informal and simulated game space.

Keywords: *Location-based, Mobile Games, Media Literacy Education, Pokémon Go*

1. INTRODUCTION

From both individual and social points of view, media literacy has become a prerequisite for engaging in an information society. The definition of media literacy evolves from basic literacy skills to a broader understanding of media competence in the increasing social, mobile society [1]. In the participatory world of mass media, most audiences are passive and vulnerable in media exposure. Individuals need to be aware of the potential media effects in conjunction with multiple trigger influences [2]. Education is one of media literacy interventions that targets those adverse media effects and one's initiative in experiencing and creating media content. It includes building personal competencies and skills but also developing critical thinking in different forms of interactions. In this paper, I focus on one effective tool of education, games, to further examine media literacy education.

1.1 Media Literacy

Based on a widely accepted definition, "the ability to access, understand and create communications in a variety of contexts" [3], media literacy, in the plural, is emphasized within different levels of social practices [1]. Reviews conclude two essential perspectives of discussing media literacy. Starting from the individual level, discussion about media literacy focuses on personal skill and competency in dealing with media. Rather than focusing on people's accessibility to media, researchers pay more attention to how they interact with media content. Buckingham suggests that media literacy education is more effective than blocking or filtering while dealing with the potential risk of media information [4]. Both operational skills related to the media or technology itself and critical thinking skills in interpreting media content are necessary [5]. Media literate people are also able to understand fictional information and facts. Notably, children should be critically aware of simulation and reality, for instance, persuasive content in advertisements and factual knowledge in real life [4]. Another competency linked to media development is that media production and creation become increasingly important due to digital media and technology development. Researchers argue that individuals should creatively communicate and express themselves while using different media. In reverse, involvement in new media production would lead to a development in critical thinking and the formation of a different interaction as well [6].

From a collective perspective, participation and political involvement are fundamentally related to media literacy. Besides social participation in a media-saturated society [7], media literacy is emphasized as a crucial prerequisite of being critically involved in the political

culture [8]. It is a critical capacity that keeps people within the community and prevents the risk of exclusion. It provides a range of possibilities for underrepresented people. On the premise of having equal access to media information and knowledge, media literate people can criticize stereotypical information and present their self-representation. As Livingstone argues, media literacy enables individuals to express themselves in a heavily symbolic environment equally. It broadens personal fulfilment and cultural expression, which enrich the inclusiveness of the stratified society [9]. Furthermore, focusing on the representations within media systems and content, media literacy considerably implies a systematic and institutional consequence of media consumption [1]. Media shapes people's understanding and involvement of society. Since media does not actually reflect reality, the proper evaluation of media messages is vital to the construction of media content [10]. It is significant for people to understand the limitations that systematically constrain their understanding of such inconsistency. For instance, socioeconomic conditions limit people's understanding of the media and reality. The way people interpret media information influences how they further create and represent reality. These core aspects essentially inference the development of media literacy education.

1.2 Multimodal Representation

Different from traditional verbal or nonverbal communication, the concept of multimodality emphasizes the combination of different modes or resources [11]. Multimodality is based on social semiotic theory, which deals with the meaning of its appearance that is socially occasional, unstable, and culturally shaped [12]. In particular, Kress illustrates the "motivated" relation between modes and meaning. The sign maker's intention and interest motivate their choice of the semiotic modes constructed within their cultural practices [12]. As a normal state of human communication, multimodality is viewed as the consequence of continuing social interactions and technological development. In general, multimodal representation is a material-based, specific and situational work of design and interpretation.

The theory of multimodality can also be applied to teaching and learning in schools [13]. Multimedia, including multimodal communication, significantly reduces uncertainty in delivery, which contributes to teaching in class [14][15]. Therefore, within a multimodal media context, the learning process becomes more effective. However, Bazalgette and Buckingham argues that, in fact, the oversimplified use of multimodality in school ignores the essence of the learning experience. The theory of multimodality inherently limits people's focus to the text itself, for instance, the motivation and the meaning of the text, rather in a diverse way [16]. It is crucial for educators to focus beyond the text and critically apply it to a broader context of literacy.

1.3 Affinity Space and Media Literacy Education

An ideal learning environment is inherently formed within the media participatory culture, which is known as "Affinity Space" [17]. The participatory culture that supports personal expression and sharing creation shift the definition of literacy from a set of individual skills to the competencies in social involvement, consistent with the two perspectives of media literacy discussed above. Besides self-expression, media builds social connections between people and groups. Online communities are cantered on various media platforms, where people in different socioeconomic groups who have the same interest are bridged together. Learning and knowledge development becomes a collaborative process contributed by various digital strategies. The flow of media both enables and restricts the audience from engaging in multiple cultural contexts [18]. Therefore, in such an "affinity space," people are not only less restricted but motivated to a learning process. They learn new knowledge and skills from each other. In reverse, such a peer-to-peer learning environment strengthens their social relations as well. However, pedagogical interventions are still necessary within this flexible learning environment, especially for children and people who are less educated. Jenkins concludes three fundamental limitations of the "affinity space." First, the participation gap limits people's access to media platforms or other technologies. Disadvantaged people are systematically distant from virtual participation. Second, due to the media effect, media transparency significantly influences participants' understanding of reality. It is challenging for children to shape their perception of the world within a non-transparent or deceptive information pool. Also, the less ethically restricted virtual space potentially affects the youth's understanding of public socialization. Thus, media literacy educators should offer equal opportunity to let the students participate in digital communities and interact with media content ethically.

1.4 Game and Media Literacy Education

Games play an important role in cognitive learning. Different games can construct a range of literacy practices. For instance, while playing video games, rather than passively led by the game instructions, players actively engage in the game story and develop problem-solving strategies in the underlying system. Such a rich and complicated learning practice experience in the game environment is different from the school learning context [19]. According to MIT constructionism, instead of passively receiving information, people learn by actively

constructing knowledge. When people engage in meaningful personal construction, learning becomes particularly compelling. Therefore, based on constructionism, games released for commercial entertainment could be a personally attractive environment and facilitate learning. In a virtual space, the learning scenario is no longer limited to formal classrooms. Students can access multimodal text presented in games. The participation gap is blurred as well. Teachers offer students equal access to media and technology in school. Theoretically speaking, within the culture of mobility [20], mobile games that heavily depend on the multimodal text and social interactions would effectively apply to media literacy education. However, some instructors are facing a gap between the conventional literacy taught in class and the modern multimodal context in real life [21]. The aim of this paper is to understand the implications of mobile games in relation to media literacy. I will discuss the relationship between a particular mobile game and media literacy and its potential application in the learning process in the following content.

2. CASE STUDY: *POKÉMON GO*

The discussion is based on a case study of *Pokémon Go* to further understand media literacy education in today's mobile participatory context. I divide this part into three sections, description of the game, media literacy practices the game implies, and the application in media literacy education.

2.1 Game Description

Pokémon Go is one of the most popular mobile games worldwide. A mobile phone is the only device that a player needs to engage in the game. Guided by the game map, players are able to catch Pokémon, which could be seen as virtually inserted in a real-life environment. Then, they could have their trained Pokémon to engage in battle with other species controlled by other players. The logic is similar to the original card-based franchise. Players can interact with each other either online or offline. In general, the foundation of *Pokémon Go* is exploring the real world with a virtual objective. According to the data reported by J. Cement, in January 2021, it had about 827,000 daily active users in the United States. It was the highest-grossing mobile game in the world from January to June 2021. As the world's top mobile games, *Pokémon Go* highlights the potential of mobile games and the successful application of ARGIS technology that is heavily applied throughout the game.

2.2 Components of the Game

This section introduces three components of the game, including ARGIS technology and its implications, the social context that constructs the individual and social behaviours in the game practice, and the text that directly relates to literacy practices, which is emphasized in media literacy development.

2.2.1 Technology

ARGIS refers to the integration between Geographic Information Systems and Augmented Reality. This combination extends the game world, which ultimately becomes a real-world adventure [22]. The application of AR technology allows the audience to interact with the natural world through their device's camera. Reality becomes the backdrop of the virtual scene in the game. Moreover, as a location-based game supported by GIS, mapping is a prominent component that functions the game. Different layers of spatial data are converted into dynamic maps, which present the actual environment in detail. Consequently, ARGIS based games create a better simulation of reality, which expands the possibility of mobile games. Furthermore, since the real world is the game world, players themselves are the actual figures who participate in the game world rather than game characters in most video games. Thus, players feel more relevant to the game due to the location-based characteristic, which implies close interaction with the game itself and other players.

Indeed, the play experience depends on the computational interface for augmented reality that broadens the space of possibilities for public digital play. Nevertheless, at the same time, the cooperation between the virtual and physical world offers new interpretations of the public place [23]. Designer augments reality by blurring the boundary between physical and virtual space. Different from other games, *Pokémon Go* takes place in the real environment. By inserting virtual objects, the designer creates its game world based on reality. It seems to have little room for flawed simulation since everything is the same as the real world besides the inserted virtual objects. However, such reality-based simulation is not consistent when it comes to the rule of the game world. The ultimate meaning of the gaming space depends on the social and cultural practice while playing.

2.2.2 Social Context

ARGIS technologies greatly extend the social functions of the game. By reviewing previous studies of *Pokémon Go*, several factors contributing to social interactions in the real world could be concluded. Firstly, the fundamental rule of the game inherently promotes sociability among players. Players are able to meet in person while searching Pokémon outdoors. According to the research conducted by Kellie Vella, "it encourages trainers to be sociable in the third location, beyond home and workplace" [24]. It somehow leads to the formation of communities, where players informally communicate

with each other, insofar, the gap between virtual and real communication is reduced. Secondly, Augmented Reality visualizes GIS information presented on the map. Since the player's sight is no longer limited to the flat 2-dimensional screen, the game is becoming a tour guide that guides them toward unexplored destinations that also discloses potential social possibilities [25]. Furthermore, players could mark a Poke Stop nomination on the map to recommend the location they think is appropriate to search Pokémon. Therefore, players are not only passive trainers who follow the game's guidance but active creators who highly engage in the game design. As long as the nomination works, other players would possibly visit the same place. That is another way of interaction as well. Finally, according to Orosz et al., the game explicitly motivates outdoor activities, which, in reverse, satisfies certain players' social needs [26]. For example, people could play *Pokémon Go* when they are hanging out together. Thus, it strengthens the existing social relationships. *Pokémon Go* builds a specific culture and community, in which participants not only socially interact with each other but the text in the game as well.

2.2.3 Multimodal Text

Pokémon Go provides considerable multimodal text and challenges text-related literacy practices. Participants can reach text, images, mapping, and the information gathered during their movement in real life, which are less presented in a formal classroom. Also, the game offers opportunities to interact with dynamic and unstable digital texts throughout the game. For instance, the evolution of Pokémon illustrates the multimodal, interactive, and continuously revised characteristics of media text [27]. Referring to the theory of multimodality, multiple modes of text offered in the game make the game's information less complex and easier to understand. Also, while players interact in the game, the effective delivery contributed by the multimodal text improves the social interaction between players, either online or offline.

2.3 Discussion on Media Literacy

The environment of *Pokémon Go* inherently forms an engaging community and an ideal learning space. Also, the implication of literacy practice in the game contributes to the media literacy education in class. However, the augmented game space blurs the boundary between public and private draws ethical concerns that are significant to the awareness of the social rules.

The game forms a location-based affinity space for learning from the game and learning from their peers. The learning process is constructed throughout the game. For instance, the game tutorial is a teaching pattern that guides the players throughout the game. Instead of being single text-based and presenting at the very beginning of the game, the tutorial works as emergent teaching, which is based on the action done by other players and distributed around the games [28]. Also, as discussed above, the online community of *Pokémon Go* overlaps with the local communities in specific regions. It creates a distinctive participatory culture that encourages active engagement and social interaction within the context. People in social circles become the source of learning and teaching. Notably, according to Tran, some teaching and learning processes do not happen within the game environment but on other media platforms, such as Reddit and Facebook [28]. In this case, teaching or learning materials are no longer limited to the game content, which also practices critically interpreting information from multiple resources. Therefore, learning in such an informal framework varies based on different situations and resources throughout the game. In reverse, the peer-to-peer learning process strengthens the relationship within the community.

Practically speaking, *Pokémon Go* is a proper education tool that could be used in class. It enables teachers to actively engage in the game and lecture on the particular literacy practices present in the game content. Participants are offered enough responding time within the game, in which teachers have the opportunity to engage in the interpreting process [29]. Also, as mentioned above, players gain information not only within the game but from other media sources. It is an opportunity for teachers to lecture about information retrieval and explain the critical interpretation of multiple sources online. Furthermore, the digital text offered in *Pokémon Go* could adapt to the multimodal composition, which is significant in literacy education [30]. Students would have a better understanding of semiotic modes from the multimodal text the game provides. It broadens their choice of texts while writing with different intentions.

The limitation of the game space draws certain ethical concerns. Besides providing social interpretation to the game world, the use of augmented reality also blurs the boundary between public and private space. For players in the game, everywhere on the game map is the place that could be explored. The existence of the Pokémon is the only determinant of whether entering certain places, independent of its private boundary. In this case, the recognition of privacy is ultimately blurred by the designer. The game designer should be responsible for the rules created in the simulated world. Since it is highly possible for users, people in the simulated world, to reflect such rules to the real world, especially since there is little difference between the simulation and the real. Therefore, people’s privacy is then overlooked and harmed in consequence. It is risky when children apply the simulated rules of space to the real world.

3. CONCLUSION

Within an information society, it is necessary for individuals to develop media literacy competence related to different social contexts. Social-based mobile games effectively create an ideal informal learning environment within a socially bonded community. Based on the study of *Pokémon Go*, text and the community the game covers are significant to its application in class. Multiple versions of the text are offered in the game to make up the presentation of the multimodal text in the classroom. It improves the clarity of the information delivery and the practice of media design and production as well. However, inherently, schools, as the formal learning environment, is opposite to the informal environment the game creates. Therefore, it is significant for teachers in school to be aware of the remaining informal learning context constructed in the game. Also, rather than entirely rely on the game context, teachers should consider the ethical concerns of the simulated game space. It is necessary to emphasize the difference between simulations and reality. Future research could focus on teaching out of school and develop a practical instruction of using the location-based mobile game in media literacy education.

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