

Article

Replacing Self-Efficacy in Physical Activity: Unconscious Intervention of the AR Game, Pokémon GO

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Abstract: With increases in aging and chronic disease, there have been efforts to apply IT to healthcare. Many studies show that the will to exercise (self-efficacy) is the most important factor contributing to physical activity. However, those who need exercise do not have this will so that an approach to increase the motivation for physical activity should be unconscious. Thus, playing Pokémon GO, an augmented reality (AR) mobile game requiring players to ambulate in reality, increases the physical activity of individuals with a simple motivation of enjoyment. A survey on 237 Pokémon GO players was analyzed using structural equation modeling (SEM) considering libertarian paternalism. The results show that self-efficacy had a non-significant effect on attitude toward the game Pokémon GO, while previous studies found that self-efficacy is the most important factor in increasing physical activity. This indicates that playing AR drives physical activity, subconsciously and effectively.

Keywords: quality of life; physical activity and sports; leisure; physical activity; AR; Pokémon GO

1. Introduction

As society is aging, interest in the use of IT for healthcare is increasing [1]. Responding to the growing interest in health care issues, wellness and lifestyle management systems using wearable sensors and mobile apps are on the rise [2]. The health care IT market will show revenue of \$104.5 billion by 2020 [3]. The purpose of wearable devices and healthcare apps is to motivate change in health behaviors [4]. Especially, gaming elements in nongame contexts are an increasingly popular strategy to encourage users to do more exercise [5,6]. As the smartphone is prevalent, gaming elements are often used in mobile fitness apps to make sporting activities fun. Using methods such as leaderboards and metaphorical visualization encourage people to exercise more [6]. Most methods rely on community awareness or self-awareness of the game. Commercial fitness products such as Nike+, Fitbit, and miCoach are based on community competition. There are many apps that show physical activity metaphorically. UbiFit Garden shows the user's daily steps as plant growth. The more activity the user has, the healthier the plants look [7]. Fish "n" Steps show the user's footsteps metaphorically in the tank. Metaphors associate users' physical activity with living organisms, thereby encouraging users to exercise based on compassion for plants or animals [8].

Research on gamification of health behavior studies for improvement in physical activity or other health behavior is based on the assumption that participants willingly adopt these applications or interventions in their real lives [9–11] or whether users enjoy physical activity [12]. Although these studies suggest that the main motivation for using these applications is the desire to improve one's

health [13–20], it seems unrealistic that people who are not inclined to exercise and improve their health would actually use these applications or benefit from them in the way described in these studies. Moreover, some studies show that the app intervention does not have a significant effect on increasing the intensity level of physical activity [13,21]. However, previous studies on the gamification of health behaviors neglected the fact that people who are not motivated to exercise would be unlikely to use health and fitness applications, even gamified versions, when the sole benefit of using them is to increase exercise level [13–20].

To encourage those who do not have a will to exercise, it is necessary to approach the game rather than to recognize the exercise itself. Thus, it may be effective to unconsciously draw out the physical activity, aiming at enjoying the game such as the approach of libertarian paternalism [22,23]. Libertarian paternalism is an intervention leading individuals to subconsciously make the correct decision rather than the wrong choice they are likely to make in the absence of intervention. If, when people are playing the game for enjoyment, their physical activity also increases, it would be a suitable approach to help people with health problems based on lack of exercise. The game Pokémon GO shows this possibility as increasing users' physical activity, as seen in Barkley et al. (2017) [24], and the reason can be that users enjoy the game in the context. Therefore, the research model is designed based on the motivation for playing games to consider the app as the game [21,25,26] and self-efficacy which is an important factor in physical activity research.

We chose to conduct this study in South Korea, as it has a mature market for mobile applications, with more than 90% of smartphone users accessing Mobile Instant Messenger through their smartphones [27]. Moreover, at the time of this study, Pokémon GO was not available in most of South Korea except Sokcho. This is because Niantic used diamond-shaped cells to mark restricted areas in their system, and the shape of the cells made it impossible to adequately map South Korea (Figure 1). Because of this anomaly, there has been a unique and fascinating phenomenon in which people from all over South Korea are flooding into Sokcho. Hence, Sokcho can be considered an ideal setting to observe behaviors of Pokémon GO players from diverse backgrounds, without any bias arising from choosing a certain geographical region for such observation.



Figure 1. Restricted areas of Pokémon GO service [28].

The remainder of this paper is structured as follows. In Section 2, we present the research model and assumptions for the study. In Section 3.1, we explain the survey data, and, in Section 3.2, we offer

the results of our analysis. In Section 4, we discuss the implications of the results and identify areas for further research and discussion. Lastly, in Section 5, we present our concluding remarks.

2. Research Model and Hypotheses

This study is to apply the Technology Acceptance Model (TAM) and Uses and Gratifications theory (UGT), which are widely used in new technology and new media consumer acceptance research [25,26,29,30], as well as Integrated Behavioral Model (IBM) to investigate factors affecting consumer acceptance intention of AR game.

The question of whether new emerging technologies can be actively used and accepted by consumers has been treated as a major research problem in the field of consumer and management information. After TAM was proposed by Davis [25], the study of acceptance of technology was rooted in TAM [31]. With high speed of technology development, many have tried to explain the motivation based on UGT, which explores how and by what motivations recipients are using the media and how they get gratification from the media and emphasizes the positive motivation and active use of media content to meet the needs of individual recipients [32]. Especially, the study on motivation for playing games additionally considers the factors for players to be more enjoyable [33–37]. In the case of AR game study to enhance the physical activity, revealed factors that should be considered to investigate motivation to use AR game.

Among previous studies that focus on physical activity, an important aspect of health behavior, many rely on concepts and constructs from Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and IBM [38–45]. TRA concentrates on cognitive factors such as beliefs and values that determine behavioral intention to better understand the relationships among attitudes, intentions, and behavior [46]. TPB, derived from TRA by adding perceived behavioral control, focuses on facilitating or restricting conditions that affect intention and behavior [29,47]. Then, Glanz et al. (2015) developed the IBM in which self-efficacy and attitude collectively predict behavioral intention, which then predicts actual behavior, by combining the TPB and TRA [29].

Our research model, shown in Figure 2, was developed to analyze the most important factors in the decision to play Pokémon GO, based on concepts and frameworks from the three theories above more appropriately focused on the perspective of a game. In our model, we hypothesized that recognition, ease of use, flow, and competition influence enjoyment; enjoyment affects attitude; and attitude and self-efficacy affect the intention to use.

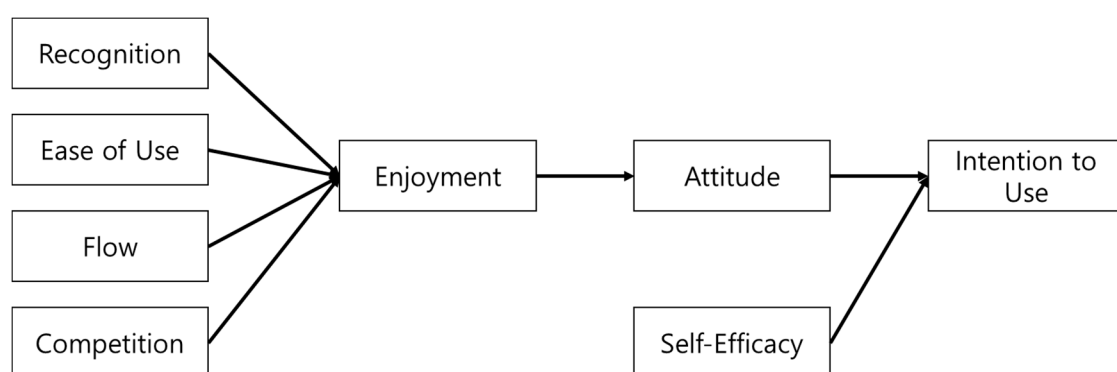


Figure 2. Research model.

TAM and UGT were used as a basic model to investigate the intention to use AR. Based on previous studies, the factors in the model were related to motivation to play games. Davis et al. (1992) defined enjoyment as the extent to which computer system usage is perceived to be personally enjoyable in its own right, aside from the instrumental value of the technology [48]. Ha et al. (2007) claimed that mobile games must provide users with enjoyment, and enjoyment has positive influences

on attitude [34]. Shin and Shin (2011) argued that, when the content or the service is hedonic in nature, enjoyment affects attitude and intention to use [36].

Hypothesis 1. *Enjoyment influences attitude significantly and positively.*

In particular, studies on physical activity are usually built around the concept of “self-efficacy” [49]. Self-efficacy is an individual’s belief in the ability of individuals to successfully perform the actions needed to achieve the desired outcome [50]. The greater is a person’s self-efficacy about physical activity, the more physically active he or she is likely to be [14,16,20,39,44,45]. Marcus et al. (1992) developed a questionnaire to measure an individual’s level of physical activity self-efficacy [51], and Wallace et al. (2000) used that questionnaire to see how well self-efficacy predicts physical activity levels of college students [52]. They found self-efficacy to be a reliable predictor of physical activity level. In addition, in other studies, self-efficacy has been shown to have a positive impact on the intention to use [39,44,45,53,54].

Hypothesis 2. *Self-efficacy influences intention to use significantly and positively.*

Recognition is defined as a measure of social motivation generated by the perception of being recognized by others, whether in the form of “likes” or praise for one’s achievements [33,55,56]. Since people sharing their achievements in the game of Pokémon GO on their SNS, such as Facebook, is one of the trends that followed the popularity of the game, it is reasonable to hypothesize that recognition affects enjoyment of the game. Additionally, ease of use, flow, and competition have been shown to have positive effect on enjoyment [34–36]. Davis (1989) defined “ease of use” as the degree to which using the technology will be free from effort [25], and Hsu et al. (2004) claimed that it affects attitude on the game [35]. Csikszentmihalyi et al. (1989) introduced the original concept of flow and defined it as “the holistic experience that people feel when they act with total involvement” [57]. Flow experience has an impact on enjoyment [58]. In addition, Chou and Ting (2003) showed that flow experience is an important factor for addiction because of the effect on enjoyment [59]. Thus, it is reasonable to consider flow has a positive impact on enjoyment. Yee (2006) defined competition as the desire to challenge and compete with others [60]. Competition is a component of achievement in playing game [21]. In Pokémon GO, a player can benefit from competing with and defeating other players; thus, competition seems to be a relevant component to enjoyment.

Hypothesis 3. *Recognition, ease of use, flow and competition influences enjoyment significantly and positively.*

TRA, TPB and IBM, which focus on the relationship among attitude, subjective norm, and perceived control, explain several different health behaviors and intentions. In TRA, TPB and IBM, attitude affects intention to use [29]. Attitude is defined as the degree to which a person forms positive or negative feelings and appraisals about engaging in a certain behavior [29]. Many previous studies have also demonstrated that attitude affects intention to use including smoking, drinking, health services utilization, exercise, condom use, and HIV/STD-prevention behaviors [46,61–64]. In addition, the attitude towards a game is important [29,34–36].

Hypothesis 4. *Attitude influences intention to use significantly and positively.*

This model is intentionally simplified to measure the intention to use and the self-efficacy of Pokémon GO players. There may be other relevant variables that are not included in this model or other relevant relationships among the included variables that are not considered. Nevertheless, the model is developed as described above with the very specific purpose of testing our stated hypotheses. Further research might help extend the current model and examine different relationships.

3. Data and Results

3.1. Survey and Data

In this study, a survey was conducted to identify the motivations of Pokémon GO players. All the respondents had played Pokémon GO before. The resulting data were analyzed using structural equation modeling (SEM). We conducted a man-to-man field survey in Sokcho, and 100 responses were collected in the field, Pohang Expo Park. Pohang Expo Park is a pokestop area, which is reset every 5 min for users to receive items to play a game continuously. Another 167 responses were collected online through Korean Pokémon GO community (<https://m.cafe.naver.com/headapji>). After eliminating the responses with missing items, the remaining participants were divided into three groups based on the questionnaire “whether you live in this area” and “have you ever visited Sokcho for playing Pokémon GO”, as summarized in Table 1.

Table 1. Respondent characteristics.

		Frequency				Percentage			
		Overall	Visit	No Visit	Resident	Overall	Visit	No Visit	Resident
Gender									
Female		72	57	13	2	30.38%	33.53%	25.49%	12.50%
Male		165	113	38	14	69.62%	66.47%	74.51%	87.50%
age, by gender	Mean	21.08	21.76	17.71	24.56				
	Median	20	21	16	23.5				
Range		10~50	10~50	10~35	11~43				
~19	Female	24	17	7	0				
	Male	91	58	27	6				
Subtotal		115	75	34	6	48.52%	44.12%	66.67%	37.50%
20~29	Female	32	28	4	0				
	Male	55	41	9	5				
Subtotal		87	69	13	5	36.71%	40.59%	25.49%	31.25%
30~39	Female	11	8	2	1				
	Male	14	10	2	2				
Subtotal		25	18	4	3	10.55%	10.59%	7.84%	18.75%
40~50	Female	5	4	0	1				
	Male	5	4	0	1				
Subtotal		10	8	0	2	4.22%	4.71%	0.00%	12.50%
Total		237	170	51	16	100.00%	100.00%	100.00%	100.00%
Age mean	Female	23.53	23.98	19.54	36.50				
	Male	20.01	20.65	17.08	22.86				
Age median	Female	22.00	22.00	18.00	36.50				
	Male	18.00	19.00	14.50	23.00				
Education level									
In middle school or lower		74	43	25	6	31.22%	25.29%	49.02%	37.50%
In high school		30	23	6	1	12.66%	13.53%	11.76%	6.25%
Finished high school		13	10	3	0	5.49%	5.88%	5.88%	0.00%
In college		57	42	12	3	24.05%	24.71%	23.53%	18.75%
Finished college		51	41	4	6	21.52%	24.12%	7.84%	37.50%
In graduate school		7	6	1	0	2.95%	3.53%	1.96%	0.00%
Finished graduate school		5	5	0	0	2.11%	2.94%	0.00%	0.00%
Total		237	170	51	16	100.00%	100.00%	100.00%	100.00%
Online Game Experience									
1year or less		3	26	10	3	1.27%	15.29%	19.61%	18.75%
1~3 years		36	29	6	1	15.19%	17.06%	11.76%	6.25%
3~5 years		40	28	9	3	16.88%	16.47%	17.65%	18.75%
5~7 years		35	20	11	4	14.77%	11.76%	21.57%	25.00%
7 years or more		87	67	15	5	36.71%	39.41%	29.41%	31.25%
total		237	170	51	16	100.00%	100.00%	100.00%	100.00%

Table 1. Cont.

	Frequency				Percentage			
	Overall	Visit	No Visit	Resident	Overall	Visit	No Visit	Resident
Online Game Playing (per day)								
less than 1 h	49	36	11	2	20.76%	21.18%	21.57%	13.33%
1~2 h	81	61	17	3	34.32%	35.88%	33.33%	20.00%
2~3 h	40	28	6	6	16.95%	16.47%	11.76%	40.00%
3~4 h	37	25	9	3	15.68%	14.71%	17.65%	20.00%
4~5 h	13	9	4	0	5.51%	5.29%	7.84%	0.00%
5 h or more	16	11	4	1	6.78%	6.47%	7.84%	6.67%
Total *	236	170	51	15	100.00%	100.00%	100.00%	100.00%

* Out of 16 responses from Sokcho residents, 1 response did not answer the question on online game playing, and was omitted.

Respondents also reported their typical physical activity levels and physical activity levels while they were playing Pokémon GO. The visiting group reported that they walked or bicycled 3.6 days a week, for approximately 0.95 h each day, on average, excluding walking and bicycling for a commute. While playing Pokémon GO, they walked or biked approximately 2.25 h a day. The average experience of playing the game was 4.7 days. In contrast, Sokcho residents walked 1.25 h a day, for approximately 4.2 days a week. Residents, on average, had been playing the game for 12.8 days and walked approximately 1.56 h a day while playing Pokémon GO.

The measures used are primarily from the literature on games. The measure for recognition is from Hamari and Eranti (2011) [55], the measure for competition is from Yee (2006) [60], the intention to use measure is from Davis et al. (1992) [48], self-efficacy is from Marcus et al. (1992) [51], and measures for ease of use, flow, enjoyment, and attitude are from Ha et al. (2007) [34]. The questionnaire was modified for surveying on playing Pokémon GO (Appendix A). For all of these measures, a five-point Likert scale ranging from “strongly disagree” to “strongly agree” was employed.

We conducted various statistical tests on the survey data, referring to Hair et al. (2010) [65] (Table 3). First, a construct validity test was conducted, and then convergent validity and discriminant validity were assessed. Construct validity indicates whether the measured variables represent the theoretical latent constructs. Construct validity is high when the items loaded onto each factor are relevant. Construct validity was measured by assessing convergent validity and discriminant validity. To establish these validities, Cronbach’s α needs to be higher than 0.7, and Average Variance Extracted (AVE) needs to be above 0.5. Discriminant validity can be assessed by comparing the correlations between construct pairs and the AVE of each construct. The squared correlation between the latent variables pair needs to be less than the AVE. In addition, the chi-square value should not be significant and needs to be lower than 0.05. Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) need to be above 0.9, and Root Mean Square Error of Approximation (RMSEA) needs to be lower than 0.08. After confirming that all of these conditions were met, we assessed the hypotheses using SEM.

3.2. Estimation Results

Table 2 shows the descriptive statistics of the analyses. Positive intention to use is reported, and all other variables have a mean higher than 3. From the positive responses to the items related to enjoyment, we infer that the respondents found the game enjoyable; the items related to flow also displayed positive results.

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	Minimum	Maximum
Recognition	3.61	1.09	1	5
Ease of Use	4.34	0.76	1	5
Flow	3.43	1.12	1	5
Competition	4.26	0.08	1	5
Enjoyment	4.15	0.81	1	5
Self-efficacy	3.30	1.05	1	5
Attitude	4.24	0.72	1	5
Intention to Use	4.10	0.87	1	5

The acceptability of the measurement model is assessed using factor analysis, the reliability of individual items, the internal consistency between items, the model's convergent and discriminant validity, and fit indices. Factor analysis results are shown in Table 3. All constructs achieve scores above the recommended value of 0.7 for Cronbach's α . Convergent validity is assessed using AVE and factor analysis. In this study, all AVEs are above the required value of 0.5, as shown in Table 3.

Table 3. Inter-consistent correlations: consistency and reliability tests.

Variable	Cronbach's α	AVE	Recognition	Ease of Use	Flow	Competition	Enjoyment	Self-Efficacy	Attitude	Intention to Use
Recognition	0.78	0.82	0.90							
Ease of Use	0.82	0.63	0.14	0.79						
Flow	0.79	0.86	0.39	0.13	0.93					
Competition	0.78	0.69	0.53	0.05	0.46	0.83				
Enjoyment	0.76	0.85	0.53	0.31	0.47	0.54	0.92			
Self-efficacy	0.83	0.70	0.17	0.28	0.21	0.11	0.17	0.83		
Attitude	0.76	0.73	0.49	0.31	0.42	0.59	0.86	0.18	0.86	
Intention to Use	0.77	0.73	0.39	0.24	0.39	0.48	0.66	0.16	0.70	0.85

Note: Diagonal elements are the square roots of AVE. Off-diagonal elements are correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

After evaluating reliability and validity, the overall fit of the research model was tested. Table 4 shows the results: $\chi^2/\text{d.f.} = 1.835$, CFI = 0.943, TLI = 0.935, and RMSEA = 0.069. The overall fit indices indicate that data from the survey are well represented by the model.

Table 4. Fit indices of the research model.

Fit Index	Recommended Value	Results
$\chi^2/\text{d.f.}$	<5.0 [66]	1.835
Comparative Fit Index (CFI)	>0.90 [67]	0.943
Tucker-Lewis Index (TLI)	>0.90 [67]	0.935
Root Mean Square Error of Approximation (RMSEA)	<0.08 [68]	0.069

We employed SEM to assess our model and hypotheses. The results are shown in Figure 3. The figure displays the path coefficients and the significance level for each hypothesis. All of the hypotheses but one, Hypothesis 2, are supported by the model. Hypothesis 1 posits that enjoyment positively affects attitude, with a coefficient of 0.81 (significant level at 0.01 level). As stated in Hypothesis 3, the ease of use in playing Pokémon GO also positively affects enjoyment (at 0.01 level); flow has a significant positive effect on enjoyment (at 0.05 level); competition positively influences enjoyment, with a coefficient of 0.43 (at 0.01 level); and that recognition positively affects enjoyment and is supported (significant at 0.05 level). Contrary to our Hypothesis 2, however, self-efficacy has a nonsignificant effect on attitude. In contrast, the positive effect of attitude on intention to use is significant (coefficient of 1.02; at 0.01 level), which supports Hypothesis 4.

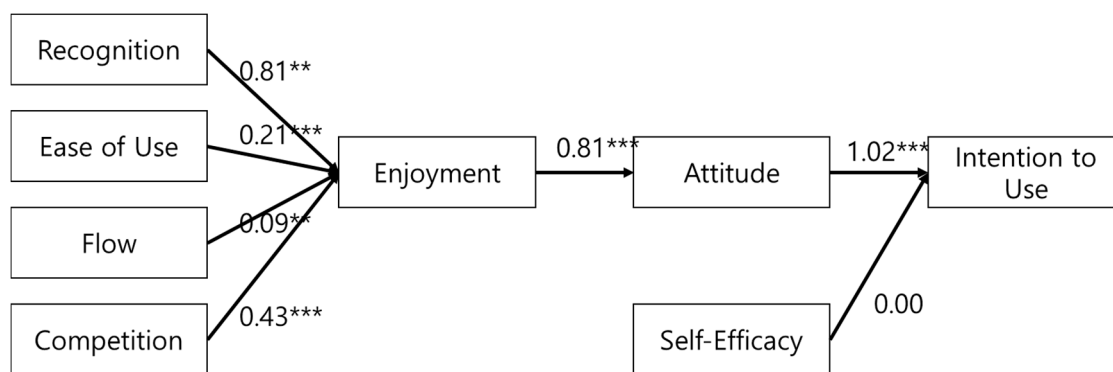


Figure 3. Model results. Note: ** Significant at the 0.05 level; *** Significant at the 0.01 level.

Unlike previous studies [39,44,45], this study finds self-efficacy to be a nonsignificant factor in determining the intention to use of users but there is an increase in physical activity, as described in Table 1. However, there is a significantly positive effect of enjoyment on attitude.

4. Discussion

As technology develops, there have been increases in life expectancy and chronic diseases. Thus, there are many gamification health care approaches to encourage people to exercise. Many studies show self-efficacy to be important for increasing physical activity [29,39,44,45]. However, previous research has failed to provide more realistic accounts of how the gamification of health behavior would attract and change the behaviors of people with problematic health behaviors in the perspective of playing a game [13–20]. If the purpose is not for exercise, but to enjoy a game, people’s physical activity will increase despite a lack of intention.

Compared to Barkley et al. (2017) which assessed the improvement in walking by using Pokémon GO [24], this study analyzes the reason for players’ intention to use Pokémon GO. The main finding of the current study is that, even without affecting their self-efficacy level, playing Pokémon GO significantly affects players’ physical activity levels. Previous results showing that recognition [23,55,56], ease of use [34,35], and competition [60] positively influence enjoyment are verified by the results of our study. Additionally, this study shows that flow has a positive effect on enjoyment when they are playing the AR game. It means the users perceive the Pokémon GO as a game itself so that their self-efficacy on physical activity is not important to play a game.

A comparison between the current study and one conducted in the United States provides some additional insights. According to a survey of 750 Pokémon GO players in the United States, conducted by the private research firm Qualtrics, players increased their daily outdoor physical activity duration by 2 h, on average. While Sokcho residents, who increased their physical activity by 1.56 h, experience a less drastic change, Sokcho visitors experience a greater increase in physical activity (2.25 h). Additionally, 16% of the U.S. users reported playing the game for 4 h or more a day, which is a similar finding to that of the Sokcho visitor group.

From these findings, we conclude that playing the AR game increases physical activity, but not by affecting self-efficacy, which does not significantly affect intention to use unlike previous studies show self-efficacy has a significantly positive effect on intention to use [39,44,45,53,54]. However, user enjoyment of playing the AR game significantly affects attitude, which leads to positive effect on intention to use and serves as a pathway to increasing physical activity. IBM explains factors to explain the behavior change [29] but IBM model does not fit for explaining motivation for playing AR game when physical activity is not the purpose because the factors affecting attitude are different in AR game. While enjoying AR game as the game itself, the users’ physical activity increases.

As the online game market is forecasted to grow into a \$98 billion market by 2020 [69], the gaming industry is becoming more and more influential. At the same time, there is a growing concern

about the negative effects of games on people's health, especially by reducing physical activity. However, this study shows that certain types of games can, in fact, increase a user's physical activity by incorporating physical activity into game play as the mobile phone intervention leads to increase in physical activity [70]. This suggests that games can contribute to an individual's health and reverse the negative effects of game play.

By creating a model based on TAM and UGT, while considering self-efficacy from IBM, this study provided a framework for assessing the effects of games on users' physical activity. Unlike previous research [15,18,19], we focus on a popular game, rather than games specifically designed for increasing physical activity, and this helps us draw more practical and realistic implications. This research framework will be useful to study whether the game could drive physical activity subconsciously.

Strengths Points and Limitations of Study

This study suggests a framework for studying game motivation approach to promote physical activity. Based on TPB and TRA, IBM has been studying the factors affecting physical activity such as self-efficacy and other behavior [39,44,45,53,54]. However, regardless of the attitude to exercise, this study finds that physical activity could naturally increase while enjoying the game.

However, further studies are needed to identify any additional factors that are related to the motivations for using gamified health care applications. In addition, future studies are needed to identify variables that induce maintained usage of applications or maintained engagement in physical activity, which would be greatly helpful to the developers of gamified health care applications.

5. Conclusions

In conclusion, this study finds that physical activity increases subconsciously regardless of self-efficacy level when people's intention is to enjoy a game. Thus, even if a game is developed to promote physical activity, it should make users feel enjoyment for the game itself but not consciously exercising more. Then, there is a possibility that people exercise subconsciously while playing a game even without the will to exercise. Moreover, this study suggests a research framework for gamification health care to improve health, whether consciously or subconsciously, which will become increasingly important in the future.

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A. Questionnaire

Recognition	Enjoyment
- I feel good when others recognize the Pokémon GO I have taken and the achievements.	- Playing the Pokémon GO provides me enjoyment.
- I would like other trainers to like or praise my achievements in the Pokémon GO.	- I enjoy playing the Pokémon GO.
- My colleagues should be aware of my work at the Pokémon GO.	- It's fun playing the Pokémon GO.
Ease of use	Attitude
- Playing the Pokémon GO is not that difficult.	- I have an affinity for playing the Pokémon GO.
- Playing the Pokémon GO is easy.	- I like playing the Pokémon GO.
- I can easily do the required actions in the Pokémon GO.	- Playing the Pokémon GO makes me feel good.

Flow	Intention to use
- I often experienced flow in playing when playing the Pokémon GO.	- I intend to keep playing the Pokémon GO in the future.
- I am frequently playing the Pokémon GO in the state of flow.	- I expect that I will continue to play the Pokémon GO.
- Most of the time I play the Pokémon GO I feel that I am in flow.	- I want to play the Pokémon GO soon.
Competition	Self-efficacy
- I want to raise the Pokémon level as soon as possible.	- I believe that I can exercise consistently even when I am not feeling well.
- I want to improve my Pokémon's ability quickly.	- I believe I can exercise consistently even when I feel I lack time.
- I want to capture a lot of Pokémon in the game.	- I believe I can continue to exercise during my vacation.

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