MOTIVATION THROUGH POKEMON GO©

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Abstract

One aspect of improving behavior change in individuals is to create realistic goals. Health coaches assist in the development of attainable goals and improve self-efficacy in clients in order to promote behavior change. In order to know if the health coaching program is effective, goal achievement and the effectiveness of the program must be evaluated. Are goals for the client too hard or unachievable? Are goals for the client too easy and not challenging the client enough? These are factors that could affect behavior change. Therefore, it is important to incorporate an evaluation process for the health coaching program. By incorporating the mechanisms of the Goal Attainment Scale (a standardized process traditionally incorporating three goals), health coaches may have a standardized approach in evaluating the program as well as individual client improvement, which would in turn, lead to more successful health coaching programs. Therefore, the purpose of this article is to provide a rationale for utilizing the Goal Attainment Scale in health coaching programs to achieve program and client success regardless of the number of goals set for clients. Sedentary behavior has become a significant public health problem within the past 15 years (Bice, Ball, McClaran, 2016; Haskell et al., 2007; Sherry, Blank, Galuska, Pan, & Dietz, 2010; Stalmatakis & Weiler, 2010). Increasing lifestyle physical activity, such as walking, has been shown to have a significant impact on positive health outcomes (Haskell et al., 2007). Advances in mobile phone technologies and applications have provided opportunities for researchers to understand how phone application programs impact motivation in healthier lifestyles. One phone-based application is the augmented reality game Pokémon Go©. The game was one the highest rated downloaded applications during its inception into society. This observed phenomenon stimulated researchers to explore the impact of the Pokémon Go© on an individual’s motivation to be more physically active. Data was collected in municipal parks and a collegiate campus in a Midwestern region. Utilizing the Motivational for a Physical Activity Measure-Revised instrument, the study identified a Pokémon Go© participant’s time spent on the activity, how many people they participated with, the social, fitness, and general interest in the activity as a motivator to be physically active. Sixty-seven males and 39 females ranging in age from 18-55 participated in the survey. Chi-squared analysis was utilized, and the results indicated all three categories of motivation were significant (p < .05) with means of 5.62 (s = 1.05) for interest, 3.25 (s = 1.82) for fitness, and 4.74 (s = 1.56) for the social aspects of motivation. The top motivator to participate in Pokémon Go© was interested, followed by social aspect, and then fitness. Gillman and Bryan (2016) had similar results with the study, which suggested that physical activity of the application for fitness purposes may not be the largest motivator for participating in Pokémon Go©. However, it still did get individuals out and active while enjoying the augmented reality phone application.
Introduction

Sedentary behavior has become a significant public health problem within the past 15 years (Bice, Ball, McClaran, 2016; Haskell et al., 2007; Sherry, Blank, Galuska, Pan, & Dietz, 2010; Stalmatakis & Weiler, 2010). According to the World Health Organization, 39% of adults 18 years of age or older have a body mass index (BMI) of $\geq 25$ kg/m$^2$ which indicates an individual is overweight (World Health Organization, 2014). Even more shockingly, within three decades the prevalence of individuals around the world with a BMI of $\geq 25$ kg/m$^2$ has almost doubled (World Health Organization, 2014). Although the health risks of sedentary behavior have been researched and well documented, there is a lack in literature to support why individuals do not engage in a regular physical activity (Haskell et al., 2007; Physical Activity Guidelines Advisory Committee, 2008).

Increasing lifestyle physical activity, such as walking, has been shown to have a significant impact on positive health outcomes (Haskell et al., 2007). A social trend that has seen recent growth is the use of electronic activity monitors, such as the Fitbit and Apple watch, to serve as an educational and motivating factor to increase an individual’s physical activity. The appeal to use an electronic activity monitor may stem from the immediate feedback, which serves as a way to reinforce behaviors, self-perception, and self-evaluation (Bice et al., 2016). A meta-analysis indicated that utilizing mobile devices is a useful instrument for having a positive influence on engaging in physical activity (Fanning, Mullen, & McAuley, 2012). More recently, a meta-analysis showed that individuals who used the mobile phone application had a lower body weight of 1.04 kg, a more moderate BMI of .43 kg/m$^2$, and an increase in physical activity compared to the control groups analyzed (Mateo Granado-Font, Ferre-Grau, & Montana-Carreras, 2015).
These new technological and social strategies have been shown to motivate and increase individuals’ physical activity effectively; however, additional supportive research is needed to report definitive generalizations about the motivational impact of mobile phone applications (Kang, Marshal, Barreira, & Lee, 2009; Mateo et al., 2015; Muller-Riemenschneider, Reinhold, Nocon, & Willich, 2008). One of the most recent phenomena of technological activities is the wireless phone application Pokémon Go©. This application-based game utilizes a phone’s global positioning system and augmented reality to entice individuals to travel to different locations collecting, training, and battling Pokémon characters. In mid-December 2016, the game was the number one downloaded application (Smith, 2017).

Due to the popularity of the Pokémon Go© application, the primary researchers decided to explore the impact of Pokémon Go© on individuals’ motivation to become more physically active. The research question in mind was whether individuals are utilizing Pokémon Go© to be more physically active. This research was founded upon the self-determination theory, which provides a framework for explaining human motivation by intrinsic and extrinsic motivators (Deci & Ryan, 2000; Deci & Ryan, 2002). Intrinsic motivation is driven by an internal force, such as interest, curiosity, or core values (Deci & Ryan, 2000; Deci & Ryan, 2002). Extrinsic motivation is driven by external forces, such as grades, rewards, or the opinions of others (Deci & Ryan, 2000; Deci & Ryan, 2002).

Methods

Participants

The locations the participants were surveyed included city parks in and a college campus in the Midwest region if the United States of America. All participants were selected by who
participated in the online application game of Pokémon Go©. There were a total of 106 valid surveys utilized for this research study (n=106).

**Procedures**

A systematic random and convenience sampling method of approaching individuals on a first come first serve basis randomly throughout the different locations was utilized to collect the data. The survey was administered to individuals at parks and the college campus. Locations were chosen based on availability and time frame to collect data. Data were collected on various days of the week and at various times of day during July, August, and September.

**Research instrument**

The physical motivation through Pokémon Go© survey consisted of three parts. The first section of the survey identified participants, frequency playing Pokémon Go© and how many additional individuals would go with the participant to play Pokémon Go©.

The second section of the survey identified the motivation for physical activity through Pokémon Go© by utilizing the Motivation for Physical Activity Measure-Revised (MPAM-R) instrument (Ryan, Frederick, Lopes, Rubio, & Sheldon, 1997). Ryan et al., (1997) confirmed the validity of the MPAM-R by running it through two pilot studies including factor analysis and construct. The MPAM-R consists of 30 Likert-scale statements that assist in identifying one’s motivation for participating in a physical activity. Participants in the study rate each statement on a 1-7 scale (1 = not at all true for me, and 7 = very true for me). The 30 scaled statements are comprised of five subscales: 1) interest/enjoyment, 2) competence, 3) appearance, 4) fitness, and 5) social motivation (Ryan, et al., 1997). The researchers decided only to use the interest/enjoyment, fitness, and social motivation related statements. The decision to remove the other two categories was made to reduce the size of the instrument but still provide a general
understanding of the participant’s motivation. Each subscale met the coefficient alpha minimum with interest/enjoyment ($\alpha=.92$), fitness ($\alpha=.78$), and social ($\alpha=.83$) (Ryan et al., 1997). The final section of the survey included sets of demographic questions regarding the participant’s sex, ethnicity, and year born.

**Data Analysis**

Range and mean were measured for each of the descriptive questions in section one of the survey. Mean scores and the standard deviation were calculated for each statement, and chi-squared ($x^2$) goodness of fit was used to measure the subscales for significance. The results were also tested for significance with an alpha level set to $\alpha=.05$.

**Results**

Of the 106 usable surveys, 63.2% ($n=67$) of the participants were male and 36.8% ($n=39$) were female. The ethnicities were identified as 64.2% ($n=68$) Caucasian, 10.4% ($n=11$) African, 8.5% ($n=9$) Native, 5.7% ($n=6$) Hispanic, 2.8% ($n=3$) Asian, and 8.5% ($n=9$) of the participants identified as other. The ages ranged from 18-55, with the mean age being 22.88 and median age being 21.5. The most frequent age listed was 19 at 17% ($n=18$).

The average amount of time spent playing Pokémon Go© ranged from less than one hour to 12 hours, the mean amount of time spent playing was 2.25 hours.

Of the 106 surveys, the number of additional participants would go with a range from 0-15. On average the participants would go with a mean of 2.13 people while playing Pokémon Go©.

Mean scores were analyzed. Of the five fitness motivation statements, “to maintain physical strength and live a healthy lifestyle” had the highest mean of 3.52 ($\sigma=2.06$), while “to be physically fit” had the lowest mean score of 2.95 ($\sigma=1.92$). For interest/enjoyment statements
“It is fun,” had the highest mean score of 6.32 (σ=.86) and “The activity is stimulating” had the lowest mean score of 4.61 (σ=1.80). Finally, within the social motivation statements, “I enjoy spending time with others doing this activity” had the highest mean score of 5.27 (σ=1.78), and “I want to meet new people” had the lowest mean score of 3.69 (σ=2.04) (Table 1).

Table 1

<table>
<thead>
<tr>
<th>Motivations statements</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fitness motivation Statement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To maintain physical strength and live a healthy lifestyle</td>
<td>3.52</td>
<td>2.06</td>
</tr>
<tr>
<td>To maintain my physical health and well-being</td>
<td>3.46</td>
<td>1.97</td>
</tr>
<tr>
<td>I want to have more energy</td>
<td>3.31</td>
<td>1.88</td>
</tr>
<tr>
<td>To improve my cardiovascular</td>
<td>3.23</td>
<td>1.91</td>
</tr>
<tr>
<td>To be physically fit</td>
<td>2.95</td>
<td>1.92</td>
</tr>
<tr>
<td><strong>Interest/Enjoyment motivation statements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is fun</td>
<td>6.32</td>
<td>0.86</td>
</tr>
<tr>
<td>It is interesting</td>
<td>5.91</td>
<td>1.24</td>
</tr>
<tr>
<td>I enjoy this activity</td>
<td>5.87</td>
<td>1.24</td>
</tr>
<tr>
<td>I like to do this activity</td>
<td>5.75</td>
<td>1.39</td>
</tr>
<tr>
<td>It makes me happy</td>
<td>5.47</td>
<td>1.39</td>
</tr>
<tr>
<td>I like the excitement of participation</td>
<td>5.23</td>
<td>1.67</td>
</tr>
<tr>
<td>This activity is stimulating</td>
<td>4.61</td>
<td>1.80</td>
</tr>
<tr>
<td><strong>Social motivation statements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy spending time with others doing this activity</td>
<td>5.27</td>
<td>1.78</td>
</tr>
<tr>
<td>My friends want me to</td>
<td>5.13</td>
<td>1.81</td>
</tr>
<tr>
<td>Be with my friends</td>
<td>4.75</td>
<td>1.89</td>
</tr>
<tr>
<td>I like to be with others interested in this activity</td>
<td>4.72</td>
<td>1.83</td>
</tr>
<tr>
<td>I want to meet new people</td>
<td>3.69</td>
<td>2.04</td>
</tr>
</tbody>
</table>
Chi-Square goodness of fit was drawn across the means to identify if there was or was not a significant difference in responses to the physical motivation, interest/enjoyment motivation, and social motivations.

Chi-squared analysis was run on the means for each motivation category. With a degree of freedom of five, the mean score of interest/enjoyment motivation was 5.62, which had a significant difference ($X^2(5) = 78.76, p<.05$). Social motivation also had a significant difference with a degree of freedom of six and a mean score of 4.74 ($X^2(6) = 35.32, p<.05$). Fitness motivation had a degree of freedom of six and a mean score of 3.25, which was a significant difference ($X^2(6) = 16.57, p<.05$) (Table 2).

<table>
<thead>
<tr>
<th>Motivation</th>
<th>DF</th>
<th>Mean</th>
<th>$X^2$</th>
<th>SD</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest/Enjoyment</td>
<td>5</td>
<td>5.62</td>
<td>78.76</td>
<td>1.05</td>
<td>.000</td>
</tr>
<tr>
<td>Social</td>
<td>6</td>
<td>4.74</td>
<td>35.32</td>
<td>1.56</td>
<td>.000</td>
</tr>
<tr>
<td>Fitness</td>
<td>6</td>
<td>3.25</td>
<td>16.57</td>
<td>1.82</td>
<td>.011</td>
</tr>
</tbody>
</table>

In conclusion, all three categories had a significant difference in rating than expected with Interest/Enjoyment having the highest score on average followed by social and fitness respectively. Individuals were more likely to participate in Pokémon Go© because it was fun rather than because they wanted to be physically fit.

**Conclusion**

Pokémon Go© got many individuals out and about in the physical world. While individuals’ motivation for participating in the application-based game varied, this study found that the majority’s motivation was not for fitness. Their motivation was more aligned with interest/enjoyment and social aspects. The majority (86.9%) of those who responded in the
study, participate in Pokémon Go© for interest/enjoyment and rated those statements with a five or higher out of seven. For the social motivation statements, 69.8% of participants responded with a four to six out of seven. Lastly, for the fitness motivation statements, 75.4% of participants answered with a four or lower out of seven. While Pokémon Go© does not provide immediate feedback on how healthy a person is, it does offer an immediate reward for finding and winning a Pokémon© character throughout the game similar to the immediate feedback other electronic devices (Bice et al., 2016). An extrinsic reward such as winning a Pokémon© character might not be seen as part of self-determination, but with autonomy of participation, and relatedness the extrinsic reward may be internalized by the participant (Deci, Eghrari, Patrick, & Leone, 1994; Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997; Deci and Ryan, 1985).

Robinson and Trail (2005) suggest that there is motivation in participation as a spectator of sports when the spectator is attached to the identification of the team, location, coach, and more. This attachment may also explain the motivation of interest in Pokémon Go©. Pokémon© has been in television, movies, video games, card games, and literature for generations. People who participate in the Pokémon Go© may do so because they became attached to Pokémon© growing up watching Pokémon© at a younger age.

Other studies have shown a similar perspective. Technology like the Fitbit can increase motivation due to enjoyment, affiliation, and the desire for physical fitness (Bice, Ball, & McClaran, 2016). This concept is similar to the idea that, although physical fitness was not the primary motivator for individuals playing Pokémon Go©, the enjoyment of participating in a technological aspect of activity can motivate people to be more active.

In addition to technology, Pokémon Go© used a theme from a youth television show. A study found that participants of the application-based Zombie Run© expressed that the game
POKEMON GO®

gave them the ability to disconnect the exercise aspect of it and participated in it for the enjoyment (Gillman & Bryan, 2016). This is similar to what was found with Pokémon Go®, that individuals were more motivated to participate for the enjoyment and social aspects of the activity, and that the physical activity of it was neither a motivator nor a deterrent.

Limitations

This study did have some limitations. The most notable one was that the program life cycle for Pokémon Go® was very short. This cycle created an issue for collecting data while the trend was still at maximum saturation. The second limitation was the summer season and receiving data in city parks in the heat. Many Pokémon Go® participants did not want to stand around and take a survey while sweating in the heat. The third limitation of this study was its lack of generalizability. This study focused its data collecting within only three municipalities which makes it hard to justify generalizations for everywhere.

Further studies

When new application-based games are introduced, researchers should investigate their usefulness for application-based recreational programming as motivation for physical activity. Long-term physical effects of application-based games should be another area of further study. Do participants show signs of better health over time after participating in these types of recreational activities?

Management Implications

Physical activity may not be the main reason for the participation in Pokémon Go®. On the contrary, interest in the activity and social influences to join in the application-based game help motivate people to play Pokémon Go®, drawing them from their sedentary behavior to become more physically active. Utilizing application-based games to motivate individuals to be
more active may assist in addressing the concerns of the sedentary lifestyle leading to significant public health problems (Bice, Ball, McClaran, 2016; Haskell et al., 2007; Sherry, Blank, Galuska, Pan, & Dietz, 2010; Stalmatakis & Weiler, 2010). While the fad of Pokémon Go© has come and gone, there are compelling elements of the application that professionals can learn from for the future development of application-based games that get individuals interacting with the physical world. Parks professionals can utilize these applications to draw people into their facilities and properties. Recreation programmers can use the applications to get people more physically active. Educators can use the applications as an educational component to introduce new challenges and new locations. Pokémon Go© tapped into a particular market of Pokémon fans. Programmers could look into other theme-based games, e.g., hunting, Harry Potter©, Transformers© to see if new individuals could be drawn into participating in more physically active games.

The fast-paced world of technology has opened doors for new innovative forms of recreation. The implementation of technology into peoples’ physical activity has brought a unique subset of individuals who might not have otherwise gone to the parks or exercised regularly. Practitioners and scholars should endeavor to be on top of trends, so they can use technology to motivate today youth and adults, and hopefully, provide opportunities for individuals to live healthier lifestyles.
References


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http://apps.who.int/iris/bitstream/10665/148114/1/9789241564854_eng.pdf?ua=1