Pokémon Go and Social Anxiety: A Therapeutic Platform

A thesis presented to the academic faculty in partial fulfillment of the requirement for the Degree Masters of Science in Game Science and Design in the College of Arts, Media and Design

by

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Abstract

Pokémon Go was the most popular and pervasive augmented reality game during its release in the summer of 2016. In addition to being a popular pervasive game, it has also evolved into a social platform - maybe even more so than its game aspect. Pokémon Go has presented its players with opportunities to form communities and encouraged them to engage others on their own terms, forming a basis for excellent therapeutic conditions for individuals who experience social anxiety. This study investigates these aspects of Pokémon Go and the communities created around the game. Active members of these communities participated, which also include many who self-attested to suffering from social anxiety. The qualitative data collected from them expresses a high degree of acceptance and appreciation of Pokémon Go as a valid and helpful platform affecting social anxiety.

Keywords: Automatic Negative Thoughts, Bonding, Community, Cognitive Behaviour Therapy, introspecting, Pokémon Go, Rational Thinking, Social Anxiety, Therapy, Understanding.

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1. Introduction

This study explores whether the popular pervasive augmented reality game - Pokémon Go - can serve as a valid platform for affecting feelings and behaviours related to social anxiety among its players. Having played the game since early 2017, I have personally noticed a relation between my own mild social anxiety and my participation in the emergent social dynamic of Pokémon Go. As my playtime increased with the game I noticed my aversion towards social interaction with unfamiliar people decreased. This sprung the idea behind this study, was this relation I noticed also observed by more players of Pokémon Go?

Social Anxiety can be defined as feelings of nervousness in various social situations (Schneier, 2002). According to the American Psychiatric Association (1994), its diagnosis is described as “a persistent fear of most situations involving social interaction or even situations that have a potential for scrutiny by others”. The diagnostic criteria for social anxiety or social phobia has been documented to be met by more than nineteen percent of the population (Kessler et al., 1994). Excessive amounts of social anxiety could be classified as Social Anxiety Disorder: the level of fear in social situations is significant causing considerable distress and in some cases impairing individual’s ability to function in social parts of daily life (NCCMH, 2013). Ten percent of people worldwide are affected with Social Anxiety Disorder at some point in their lives making it the most common form of anxiety disorder (Craske & Stein, 2016).

Rapee and Heimberg (1997) talk about how on a scale of low to high social anxiety individuals afflicted would perceive and process information, there is considerable distress that they suffer
based on different social situations. Avoidance tendencies are sort of a symptom or rather coping tactic that individuals afflicted with social anxiety tend to display in response to the distress (Rapee & Heimberg, 1997). This is one form of disruption that would affect the social stability of any locality. If a contributing member of society is unable to interact with society anymore and shuts themselves away from it then surely society would take some damage in its efficiency. Since social phobia is so common in the modern world and deeming its disruptive results to the individual and their social space, one could only imagine how troublesome it might be if large chunks of the population were to become unable to function or interact well with society - similar to the case of the hikikomori population as discussed by Kato (2016).

When Pokémon Go was released in July 2019, the Japanese government commended the game for helping its hikikomori (shut-in) population to getting out and about in the world. The lifetime prevalence of hikikomori was approximately 1.2% in Japan based on a community-based epidemiological survey (Kato et al., 2016). This impacts mental health of the individual as well as population-level education and workforce as mentioned in Kato’s work on the matter. Pokémon Go was shown to effectively motivate the hikikomori population to get out of their houses in large numbers during the early days of the game’s release. There is no current data that has kept up with the game’s performance on this matter since then, though the decline of the game’s immense popularity from its early days of over tens of millions of active daily users must have resulted in some of the hikikomori players returning back to their previous lifestyles. However, those players that have remained active till now have gotten the chance to experience new features and events that have been boosting the hidden potential of Pokémon Go not as a
simple device to get players walking around in the real world, but also as a therapeutic platform which positively affects the core reason behind their shut-in lifestyle - social anxiety.

This study will focus on this hidden aspect of Pokémon Go, by taking insights from its active player base about the social dynamic of the game and comparing their responses to known therapeutic techniques this study will try to form a solid basis for calling the Pokémon Go game/platform “therapeutic” in its essence with regards to social anxiety.

2. Background

What is Pokémon Go?

Pokémon Go is a location based “augmented reality” game developed by Niantic through a license with intellectual property holder Nintendo, released in July 2016. The augmented reality part of the game works well as a novelty, but it maintains a deeper meaning to it - to highlight the kind of genre that Niantic was trying to establish for Pokémon Go’s experience (similar to their first venture into this genre with their game Ingress) - a game that creates a deeper connection to the real world. As such I propose describing Pokémon Go to be more of a location based “interactive” experience. The game revolves around its players going out into the real world to catch Pokémon (monsters/animals that have unique powers from the franchise’s fictional world) that spawn on random locations on the map. The in-game map of Pokémon Go is meant to convey the amalgamation of the Pokémon world that the franchise has come to be known for over the years since its conception with the real world map. The coordinates on this map work based on the GPS of the players mobile, they would move around in the real world to
move their character on the in-game map. If a Pokémon pops up near them they could engage them in a “capture” event. The main objective of the game is to capture all the available Pokémon in the game, followed by forming a stronger Pokémon team. To form a stronger Pokémon roster a player would have to basically rinse and repeat the “capture” event for the same Pokémon until they get one that is strong enough. “Evolving” their Pokémon is also an option the players can use to get stronger and newer Pokémon. Their Pokémon can further be used in the competitive aspect of the game in which players would take over various gym spots present on the map for their respective teams and hold the spot for as long as possible based on their Pokémon’s remaining health.

In the Summer of 2017, Pokémon Go also released its raid and legendary raid update. These are timed cooperative “boss” fights. The players would get an opportunity to battle strong Pokémon in these events and winning against them would grant them an opportunity to “capture” them and add them to their Pokémon team. Since the raid Pokémon are considerable strong, multiple players are needed to take one down especially if it is a legendary Pokémon. This new feature provided Players a new avenue to interact with other players, cooperation aspect of the game had been strengthen beyond anything that had come before. Late 2017, Ex-raids were added which are special raids for the ultra rare Pokémon Mewtwo, players would have to acquire a special pass to be able to participate in these raids. Beginning of 2018, community day update was added to the game. Special shiny Pokémon, rare spawn boosts and other bonus would be awarded during the event period. Providing improved incentive to go out looking for Pokémon which had slowed after the raid update. April of 2018, quests were added to the game which would lead
to bonuses and a special “capture” event for another ultra rare Pokémon - Mew. This covers the entire feature development history for all the major updates and currently present gameplay features to Pokémon Go.

Pokémon Go is not the first game in its genre. Games like Geocaching; or Ingress by the same creators of Pokémon Go - Niantic have had some time on the market making strides in their own unique gameplay that involves outdoors treasure hunting (Geocaching Com, 2009) or AR based turf/portal control (Majorek & Duvall, 2016). These games have garnered a lot of attention from the populace, reaching high player counts of close to millions worldwide at the peak of their popularity (Geocaching Com, 2009) as other games in the same genre of location based “interactive” gaming. However, software development company Niantic’s second dive into this genre and the spiritual successor to their previous game Ingress - Pokémon Go’s popularity is what brought the genre into the limelight reaching almost 500 million downloads worldwide since its release.

Social Anxiety and Relevant Models

Social anxiety in patients has been difficult to track since it is hard to give it a proper conceptual form separated away from the description of being “shy”. However, shyness and social phobia aren’t independent entities. Rather shyness and social phobia can be characterized on the same continuum/scale where shyness is on the lower to medium degree of concern over social evaluation, while social anxiety is on the medium to higher degree range as discussed in the cognitive behavioral model of anxiety in social phobia (Rapee & Heimberg, 1997). Rapee and
Heimberg also discuss as to how Avoidant Personality Disorder classifies the extremes of this continuum. Avoidant personality disorder is similar to Social Anxiety Disorder, but has a broader range of symptoms and the severity of the symptoms is greater. Obviously, there have been other stances concerning the correlation between these different entities, there have been talks about how the behavior pattern of shyness might just be a symptom or coping mechanism to social anxiety. But for the sake of this thesis the model presented by Rapee and Heimberg will be used when considering different levels of social anxiety, the important takeaway from this is that the affecting factors for social anxiety impact across the entire scale ranging from the severe (Social anxiety disorder) to the mild (non clinical).

According to the National Institute of Mental Health (NIH, 2016) the symptoms for Social anxiety disorder include:

1. Feeling highly anxious about being and having a hard time talking with other people.
2. Feeling very self-conscious in front of other people and worried about feeling humiliated, embarrassed, or rejected, or fearful of offending others
3. Being very afraid that other people will judge them
4. Worrying for days or weeks before an event where other people will be
5. Staying away from places where there are other people
6. Having a hard time making friends and keeping friends
7. Blushing, sweating, or trembling around other people
8. Feeling nauseous or sick to your stomach when other people are around
There are many treatments available for social anxiety which vary in effectiveness ranging from person to person. Some of the available treatments available include (NIH, 2016):

1. Cognitive Behavioral Therapy (CBT)¹
2. Stress Management Techniques
3. Support Groups
4. Medication
5. Psychotherapy

In terms of a psychobiological approach/model to social anxiety, it has been argued by Trower and Gilbert (1989) that anxiety plays an integral part in an individual’s well being and social stability in the animal kingdom. As part of the animal kingdom humans are by far the prime example of evolution in terms of complexity on the social scale. They theorized that social anxiety arose from the activation of evolved mechanisms to deal with intra species threat. Conforming to the decisions and stature of the dominant individual in society plays to keep some semblance of stability in the evolution of the social group. There has been increasing recognition that it might be an activation of innately available, primitive appraisal-response systems which has been discussed in Trower and Gilbert’s (1989) work. According to their paper, evolution has given rise to a special-purpose appraisal-response/coping systems which make group living possible in the animal world (social-animals), to which social anxiety is an important component of. The inherent nature of personality of the dominant “entity” in the environment and that of its subordinate make it so that conflict is not created in their world. Therefore, the socially anxious

¹ There exist specific standalone components of CBT to treat social anxiety disorder- Cognitive Therapy and Exposure Therapy
person isn’t able to access the other evolved mechanism for social relating called the “hedonic” mode if the anxiety is too much. In hedonic mode the social groups are structured by cooperation, equality and mutual support. In simpler terms, since the individual's need/fear for approval from the rest of the entities in its social setting are too great that they are unable to form rational thoughts towards a better/less strenuous strategy to engage in their social environment. Trower and Gilbert’s work (1989) have many therapeutic implications related to it. If the socially anxious person is able be taken out of their defensive mental state and be deployed into a hedonic mentality, where status is derived through friendship networks then they would be more focused on exploration and cooperation activities. Positive regard and non-aggressive social characters would be necessary for this. They also mention that simple exposure therapy would benefit a great deal with anxiety management training which has been shown by other papers.

**Pokémon Go and Social Anxiety**

Games have always had a capacity to “bring people”…. “bring friends” together. If we were to break games into categories as to how they “bring people together” then we’d have couch games which would include tabletop games as well split-screen/party video games, online videogames, and outdoor games which would generally include sports. Couch games have steady gameplay to player interaction setup but they only ever bring friends together so the players are in their comfort zone, familiarity helps easing out interaction which makes for good conversational practice but loses out on establishing a rational mindset talking to people (unfamiliar) in general. Online video games bring together unfamiliar players together, but they have been shown to increase social anxiety tendencies with its players (Lo, Wang & Fang, 2005), this is partly due to
the players not getting enough practice interacting with people face to face while playing online especially if the players are engaged in intense competitive online games. Outdoor games are usually too engaging leaving little to no room for player interaction during gameplay, while at the same time requiring high expertise/skill that increased anxiety amongst new players (Norton, Burns, Hope & Bauer, 2000).

Pokémon Go presents a unique opportunity because of its unique gameplay. It sort of merges all the three categories mentioned before. It presents a gameplay loop which is not too activity/focus heavy and brings together not just friends but also other players who love the game. The activity presented by Pokémon Go does not require skill or expertise, only participation and player interaction. Thus, it gets the best of all worlds and balances out the problems from each of the categories.

Prior to the release of Pokémon Go, research was primarily focused on online games in context to social anxiety. There have been mixed results over the years, with some research tending to show that video games had an adverse effect on social anxiety (Lo, Wang & Fang, 2005), while some studies showing the opposite (Pearce, Boellstorff & Nardi, 2011). This is mostly due to the specific distinctions over their subject matter ranging from competitive faceless dynamics for the former to supportive/cooperative avatar relationships for the latter. But, Pokémon Go cannot be put into the same category as online game, it’s a different genre. Since its release multiple accounts of the game helping people with their social anxiety have been noted on the social media (Grohol, 2016).
It has been noted that the gameplay of Pokémon Go mimics certain forms of Cognitive Behavioral Therapy (CBT); specifically, behavioral activation and exposure therapy (Hunley, 2016). Behavioral activation has patients participating in activities they enjoy much more often so that their mood improves overall. Even though this therapy is traditionally for depressed patients, research has shown that it is an effective treatment for patients with anxiety as well (Hopko & Lejuez, 2016). This positively affects the patients when used together with exposure therapy which usually has a tendency of lowering mood. Exposure therapy works by exposing patients to the source of their fears. Patients are slowly exposed to the target of their fears while giving encouragement and support; this method works well with treating social phobia such as social anxiety disorder (Feske & Chambless, 1995). Samuel Hunley (2016) points out Pokémon Go’s game mechanics follow the pattern of both therapies. It gives rewards and fun experiences to its players but only if they leave their home. It also ends up so that different players will encounter each other playing the same rewarding game. Though Hunley later mentions that the game’s player base would decrease in the future and that it had already experienced its peak around the time of its release (which has happened already), the recent Pokémon Go events and new updates have not stopped in fact even after losing much of its player base the game has
maintained a steady stream of millions of dedicated players who are playing the game every day and enjoying all its new content.

Cognitive-behavioral (rational) therapy is not difficult to do (Richard, 2014). But there are factors/excuses by patients in not complying with the therapy like, "I can't remember to do it every day" and "I have a hard time committing to something in which I don't see immediate results". It is suggested that the psychologist or group leader parsing the therapy onto the patient should have time-tested solutions to these irrational arguments (Richard, 2014). However, Pokémon Go addresses this problem by diverting the players' attention away from the actual therapy aspect being provided to them via the game. The players are self-motivated to play the game and if they voluntarily engage with it then there won’t be issues with them forgetting to carry out the task regularly. Since the players are playing the game regularly without even realising the benefits they receive via the platform’s emergent social dynamic and their regular participation in it, the research question for the study can be extended as follows, “How does Pokémon Go’s game structure efficiently promote known/effective treatments for social anxiety such as CBT?”

3. Methodology

Participants

All participants for the study were recruited via online Pokémon Go communities such as its subreddit and multiple Pokémon Go discord channels. The latter was the main source of participants. Each online community’s administrator was personally contacted through their
portal’s private messaging services to request for permission to post on their channel page. Information regarding the study was kept to a minimum to ensure unbiased and fair participant responses. The only criteria for participant recruitment was for them to be an avid player of Pokémon Go (active or inactive), since they were recruited from an active online community it is safe to say that all participants were active players. By clicking the link to the survey they attested to being at least eighteen years of age. The survey was completely anonymous and no personal information regarding the participants was requested.

**Data Collection and Analysis**

A mixed methods survey consisting of five qualitative open ended questions and six questions based on a five point Likert scale was created. The entire survey can be found in the appendix section. The open ended questions were focused on the players experience with the social dynamics of Pokémon Go. They were asked to express themselves based on their thoughts and feelings. They were also asked to describe their regular play sessions and the game’s effect on their outlook. The Likert scale questions reported the players comfort level on a five point scale based on either if they were interacting with familiar or unfamiliar players. These questions were divided into three sets - on the topics of face to face conversation feel, initiating interaction and making plans. Thus covering the entire range of interplayer communication that happens as part of the social dynamic of Pokémon Go.

The online research software Qualtrics was used to collect and analyse survey data. A total of 149 active members of different online Pokémon Go communities participated in this study. Out
of these 91 completed and submitted the survey, the rest were partial responses. The first likert set response got 145 replies, the second likert set got 104 replies and the last one got 91 replies. An average of 72 of all the qualitative questions were answered by the participants, with 85 responses for the first question and 66 responses for the final question in the survey.

A total of 51 codes were created from the ground up based on “open-coding” methodology to understand the qualitative data. After three cycles of coding these were condensed to 29 codes which encompass all the responses and meanings of the participants’ dialogues. Qualtrics was used to keep track of all of these codes on the participants responses. For the remainder of the likert questions, the inbuilt functionality of Qualtrics proved sufficient enough to make sense of the data.

Verification

For the qualitative data, inter-rater reliability was calculated for the five open-ended survey questions. Ten replies for each question were taken and separately coded by two coders. The codes were then cross-checked and were verified for their meaning and frequency. Cohen’s Kappa coefficient was calculated based on these, it was found to be $k = 0.81$. 
4. Results

Qualitative data

The qualitative data from the participants was carefully coded based on the inter-rater coding session of the first ten answers of all the questions, some additional codes were added later on as required. Some of the strongest interpretations visible from the participant responses were “connecting with others over Pokémon Go”, “a sense of community”, “introspecting and understanding yourself” and “appreciating other’s company while playing Pokémon Go”.

Table 1: Codes ordered based on their frequency of use. The colors for each table represent the codes representing the kind of effect they mark on the social dynamic during Pokémon Go:

<table>
<thead>
<tr>
<th>Positive</th>
<th>Interaction</th>
<th>Platform for connecting</th>
<th>Community</th>
<th>Common ground</th>
<th>Appreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>214</td>
<td>198</td>
<td>137</td>
<td>100</td>
<td>99</td>
</tr>
<tr>
<td>Cooperation</td>
<td>Understanding</td>
<td>Supportive</td>
<td>Comfortable</td>
<td>Bonding</td>
<td>Familiarity</td>
</tr>
<tr>
<td>85</td>
<td>82</td>
<td>67</td>
<td>66</td>
<td>58</td>
<td>48</td>
</tr>
<tr>
<td>Learnt expectations</td>
<td>Pre-established group</td>
<td>Only to game</td>
<td>Awkward</td>
<td>Entertaining</td>
<td>Location matters</td>
</tr>
<tr>
<td>48</td>
<td>36</td>
<td>29</td>
<td>28</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>Diplomacy</td>
<td>Still the same</td>
<td>Strange</td>
<td>Good etiquette</td>
<td>Leader</td>
<td>Difficult to talk</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>17</td>
<td>13</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Team loyalty</td>
<td>Easy to talk</td>
<td>Franchise</td>
<td>Try to engage</td>
<td>Safety</td>
<td>No chatting</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Fear of rejection</td>
<td>Self conscious</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
➤ Green refers to codes that promote social play and make them easy to follow for everyone in the group.

➤ Yellow refers to codes that make the social easy but still promote the aspect.

➤ Orange refers to codes that don’t promote the social but also don’t have a negative effect on the players mindset on the social dynamic.

➤ Red refers to codes that hinders the social to develop. But only in response to the players participation with the social, so interaction might still present among the rest of the play group.

The social dynamic goes beyond just moment to moment gameplay opportunities. Since, “the game” happens at certain spots on the map that are GPS locked, there exist longer periods of people left to their own devices, sure they can manage their inventory during this. However, participants show more interests in the rest of the group if they decide play together. Therefore, the codes themselves represent various aspects relating to the social dynamic of Pokémon Go that should be explained. Each used code is mentioned ahead, for more difficult to explain codes examples will be used.

1. **Positive** - any dialogue expressed by a participant with clear appreciation towards Pokémon Go providing them with any general positive feeling associated to its social aspect is marked as this code. This was the most marked code 230 times, it was used on average 3.19 times per individual participant responses. The following quote is a good example of this:
“Yes! I've overcome my social anxiety almost entirely. What used to be one of my greatest fears is now something I enjoy.”

2. **Interaction** - marks instances when face to face interaction between multiple players is triggered. This represents mutually agreed upon interactions and does not refer to forced experiences. On average this code was marked 2.97 times by each participant’s responses, this was the second most used code and it marked the most basic of the social aspect without which the social dynamic cannot be formed.

3. **Platform for connecting** - this code refers to instance in participant dialogue in which they describe and mark Pokémon Go or simply its influences as the reason behind them coming together and connecting with the other people they meet during a play session. 2.75 times on average this code was marked on each participant’s responses.

4. **Community** - marks whether players consider themselves part of a community formed around Pokémon Go and makes active use of the community to either better their social/game experience. 1.90 times this code was used on average to mark responses from each participant.

“A great sense of community.”

The sense of community mentioned has also been associated alot with the online channels the community interacts on. Usually when a participant mentions them interacting and spending any
time on a discord channel (which is the primary platform from where participants were recruited), usually reaffirms their role in an active Pokémon Go community. The following quote is also a good example of “interaction”, “platform for connecting”, “common ground”, “positive” and “appreciation”:

“Honestly, I'm not sure if it's really Pokémon Go that has affected my outlook, or if it's really Discord. Discord has been the primary tool to bring all sorts of people in one spot. Though, yes at the heart of it all is Pokémon Go. Through both, I've been able to meet so many people of all different backgrounds, lifestyles, age, personal stories, etc... Many of which I would have never crossed paths with otherwise. We all hold a common interest in Pokémon Go, and through that we would strike up conversations. Once we grow more comfortable with each other, the conversations could expand. The unfamiliar would become familiar over time.”

5. **Common ground** - marks Pokémon Go presenting a common footing for multiple players to converse about and interact on, whether the similar interest is purely concerned with the game or leads to other in franchise or game related discussions. On average each participant responses mentioned “common ground” 1.38 times.

“Everyone I've met is very easy to talk to and it's been hugely beneficial for me to get over social anxiety. It provides something simple in common to talk about to start a friendship”

The above code is an excellent example of “interaction”, “bonding” and “common ground”. The participant mentions easier initiating interaction when “common ground” is present.
6. **Appreciation** - marks the participant’s appreciation of attitudes or actions of other players towards either them or the general group/community, independent of their performance in game. Per participant the average number of responses which showed this code was 1.37.

“I basically nerd out with fellow Pokémon nerds. Probably the only time I'm happy to hold a conversation with someone as I am a rather extreme introvert.”

7. **Understanding** - this works as a code to signify the participants realising something introspective about themselves or either them learning something about their playgroups social dynamic that directly affects them as well. This includes feelings of acceptance and rational thought which establishes seeds for Automatic Rational Thought. On average this code was marked 1.13 times for each participants responses.

“I started playing with my mom and my younger brothers when it first came out. (I'm almost 30, my brothers are 25/26) so it was a really fun family thing when it started. Now my uncle plays and it’s been fun when he travels to see the new monsters he gets in different countries. I enjoy going to the parks and meeting new people who share this interest and since they’re all about my age I don’t feel embarrassed by it.”

Many players started off playing the game with a “pre established group” which soon expand out to other players they meet because of the game. As seen in the above quote, the participant ends up rationalizing their own behavior by the end. This marks “understanding”. This sort of realization is what develops rational thoughts about their situation as a whole, once players realize themselves they can move forward.
8. **Cooperation** - marks instances when participants work together and strategize to achieve a singular goal present within the gameplay opportunities of Pokémon Go. With the addition of the raid feature in Pokémon Go, “cooperation” has increased tremendously. Before it was easy for players to imagine playing alone but now to beat a stronger raid boss one has to cooperate with other players, each players mentions 1.18 times on average about cooperating with others.

9. **Supportive** - when players are actually providing help to other players, either the participant would provide assistance to others or other players of the play group would be providing some sort of help to the participant. On average each participant mentioned “supportive” feel from the social dynamic 0.93 times.

10. **Comfortable** - this code is marked during active or passive interaction with a players play group if they express comfort and ease. On average 0.91 times was used to mark responses by each participant.

   “Yes, it has decreased my social anxiety and I feel more comfortable interacting with strangers playing Pokémon GO than in other scenarios”

11. **Bonding** - marks the participants first expressions of forming relationships during their Pokémon Go play sessions. For every participant on average 0.80 times this code was marked on their responses. The game provides an opportunity for the players to interact and
presents subtle nudges towards easier interaction, however forming actual bonds is entirely up to the players. The 58 instances of “bonding” referred to in the responses are explicit expressions of true acquaintance to friendship level relationship forming from the eyes of the participant, this should be considered separate from being part of a “community”.

“This was one of my goals for actually playing in the first place and I've achieved it. I meet people regularly and make friends.”

12. **Familiarity** - this marks the participants expectancy of familiar faces during a group play session. This is generally followed by a positive affect in other areas of expressions by the players, such as comfort and interaction. On average 0.66 times this code was marked on individual participant responses. This code forms the basis for the identification of one the simplest coping/de-stressing strategies when interacting with a huge group. A familiar face is established as a friendly figure someone who does not encroach on their comfort zone and cause anxiety, this is positively pushes them in the right mental state (Trower & Gilbert, 1989) to relax and think rationally. This can be considered as an early reaction on the difficulty scale fighting against their anxiety. This hypothesis of familiarity maintaining comfort was further reinforced by the data by the likert information (report and statistics section).

13. **Learnt expectations** - this refers to the learning curve surrounding the participants expectations from the game and the social dynamic. It marks different considerations the
player gives to a certain aspect of the game which has changed over time. This was used on average 0.66 times for each participant responses.

14. **Pre-Established group** - this marks instances where the participants clearly mention having known associates formed before/outside (like friends and family) of Pokémon Go as their primary playgroup. Forming new bonds over Pokémon Go or learning to expand their play circle is not beyond their abilities but they are not actively do so. On an average this was marked 0.50 times per participant.

15. **Entertaining** - marks expression of pure excitement and joy, but only concerned around instances when the social dynamic of the game is left from participants dialogues, 0.36 times on average each participant’s responses were marked as Pokémon Go being simply “entertaining”. However, out of the 26 instances with this code only 2 had no mention of any form of social interaction mentioned in it.

16. **Only to game** - the participants main and only priority is to achieve their in game objectives. They do not consider any outside effectors such as other players present in the social dynamic of Pokémon Go’s to be of any concern to them. This was marked 0.40 times on average for individual participant responses. This is the only red code which has a significant response rate. This might be because it is the only one out of them that is purely related to gaming and nothing else. This is not saying anything against the social dynamic around each play, but would disrupt the dynamic forming around them because of their attitude.
“I am a nerd and computers scientists I just want to catch Pokémon and not be forced to be social.”

17. **Awkward** - marks the participants feeling uncomfortable or awkward when interacting with other players or with simply being in a playgroup with others without interacting with anyone else and still feeling uncomfortable. On average the number of responses per participant marked “awkward” was 0.38

“I’m shy. I try to engage in conversation but it usually peters out after a bit. Sometimes it’s very awkward and sometimes it’s nice when they engage back.”

Players report being awkward to new people and interacting with them, this seems to be a natural step before they get engaged with the ever present social dynamic and get somewhat familiar being around other players. This code does not mean a positive climb towards the social but was often paired (58% times) with the “positive” code based on later comments in their responses.

18. **Location matters** - marks expressions of if and when locations in real world affects player motivation and experience in some form. This could either be a positive experience or not. This was marked 0.30 times on average for each participant’s response.

19. **Diplomacy** - this marks diplomatic decisions that players make with others to maximize their own in game rewards or experience. This is close to strategizing, however this code is only concerned with instances when the decision made is not to cooperate and find a separate way
that benefits primarily the player themselves and then maybe the other party. On average “diplomacy” was marked only 0.27 times for individual participant responses. The following is a good example for this. Even though the participant mentions feeling open and comfortable talking to strangers, they also mention having to be careful as to what they say. This is to maintain careful balance in the community’s team based ecosystem surrounding gyms.

“I feel more open & comfortable talking to strangers while playing PoGo. It's the players I'm friendly with that I have to watch everything I say or it will be flipped & used against my team & I.”

20. **Still the same** - special code marking no significant effect on the participants outlook towards bonding and interaction towards other people because of Pokémon Go. This code is only restricted to one of the questions asked during the survey (“Has playing Pokémon GO affected your outlook on interacting with unfamiliar people? If yes, then explain in detail how it has done so.”). 68 participants responded to this question, 70.6% of them reported Pokémon Go helping them with their social interaction abilities.

21. **Good Etiquette** - this refers to good/accepted player form by the rest of the player base. For example, polite conversations with other players one runs into or not raging out during gym takedowns. This code was only used 0.18 times on average per participant’s responses.
22. **Leader** - this code marks the go getters and leaders in the play group or community that make things happen. They take the charge and direct the motivations of the other players in the required direction. 0.15 times on average this was marked on each participants responses. A “leader” always presented themselves as a positive influence on the social scene of Pokémon Go.

23. **Strange** - code signifying unclear and un-markable quote by the player. This refers to mentions that might be significant to the game but do not contribute to this study. This was marked 0.23 times on average by individual participants. For example, in the following quote, the participant mentions the game being fun to play with others. For that it was marked with “appreciation”, but the following response about Niantic’s management/development capabilities though important for the game experience as a whole it does not tell us anything helpful about it helping with social anxiety or other related factors.

“at first it was fun since so many people where playing. But because of the incompetence of Niantic that either didn't had the resources or the will to keep the game alive the experience of playing became frustrating and bad.”

24. **Difficult to talk** - marks instances when players expressed tension and difficulty trying to communicate with other players. This is independent of whether they wanted to converse with other player or not. Each player mentions “difficulty to talk” to others only 0.12 times on average. Since the game has been out for quite some time now and most of the active
player base has been around since long time, they have grown accustomed to the social
dynamics of the game. Running into to players was always a pattern present to Pokémon Go
players, now with raids introduced it is the inevitable for any active player. So even newer
players have had higher levels of experience and practice interaction (maybe even forming
“bonds”), thus it would make sense for lesser active players feeling “difficult to talk” to
others. One might even say that the platform is working against social anxiety.

25. **Team loyalty** - marks instances of loyalty or preference towards the participants Pokémon
   Go team in different emergent social scenarios around the game. On average 0.12 times each
   participant responses were marked as so.

26. **Easy to talk** - this marks responses which clearly state participants being able to easily and
    successfully initiate conversations and/or maintain them with other. This was used 0.09 times
    on average per participant response. Even with the low frequency of reports for “easy to talk”
    code among the participants response it should be noted that “common ground” was used
    71.42% of the time with this code. The following participant’s response is a good example of
    this:

    “*It was really easy to start up a conversation with anyone playing. You could easily ask what*
    *kind of Pokémon they've caught, which team they picked etc*”
27. **Franchise** - this is when the name of Pokémon alone is enough to form the basis for interactions and experiences between players. On average only 0.08 times this code was marked on each participant’s responses.

28. **Try to engage** - marks the participants attempts to wanting to interact with other players, but being unable to follow through with their tries due to doubts about oneself or other reasons. Only 0.08 times on average were participant responses marked with this code.

29. **Safety** - this code marks participants wariness. It should be noted that 100% of all the responses with this code were also marked “positive”, suggesting that all these participants have had a good social experience with Pokémon Go. On average only 0.05 times participant responses mentioned “safety” as being a concern.

30. **No chatting** - participant is not interested in interacting with other players at all. No chatting was only marked 3 times out of all the participant responses.

31. **Fear of rejection** - marks the participants apprehension over interacting with other and being ignored or rejected.

   “In the city it's the expected rejection that causes the most apprehension. Elsewhere there's no issue as people are more inclined to chat.”
This is an interesting response since it is very specific as to what it wants to say. The code “fear of rejection” fits perfectly. However, this is the only instance of this code being used throughout all the responses for all the questions. It was still kept because even though there aren’t clear references to “fear of rejection” in other responses there are still hints to it. It felt as though the participants hinting towards such feelings without clearly stating it. For example a different participant mentions:

“Typically kept pretty short personally and always try to give people their space as not to seem threatening, after all it’s just a game.”

Even though they do not mention or allude to it, it could be interpreted that their desire to not threaten the other players stem from a “fear of rejection”. This also works as a good example towards no response being marked based on conjecture. All coding is based on clear responses, as such the above quote is marked with “understanding” and “interaction.

32. **Self-conscious** - this marks participants’ attitude towards interaction when they actively feel too self-conscious about themselves resulting in poor social experience. Only 1 participant mentioned being too “self-conscious”. However, since individuals with social anxiety don’t readily inform others about their ANT’s (Richards, 2014), so any mention of a person’s negative thoughts should be taken as an indicator of the ever present distress of all who suffer from social anxiety.
Reports and Statistics

Familiarity plays an important role while interacting with others, this was also an important code that was reflected in many responses by the participants like:

“I love the international online community. I love talking on discord and Reddit with my peers in the game, but I do not feel the same connections at all to my local groups. I keep to myself and avoid interaction in person.”

But the concept of familiarity was tested based on a likert scale questionnaire as well. The participants comfort based on this factor was tested along three levels of the social present around Pokémon Go. All three question results are listed across their familiar to unfamiliar scale in the following tables. The participant responses were mostly comfortable for familiar instances and closely distributed from somewhat comfortable to somewhat uncomfortable for unfamiliar instances.

Table 2: When talking to familiar(rows) and unfamiliar(columns) players while playing Pokémon Go I feel:

<table>
<thead>
<tr>
<th></th>
<th>Extremely comfortable</th>
<th>Somewhat comfortable</th>
<th>Neither comfortable nor uncomfortable</th>
<th>Somewhat uncomfortable</th>
<th>Extremely uncomfortable</th>
<th>Mean</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely comfortable</td>
<td>15</td>
<td>52</td>
<td>17</td>
<td>13</td>
<td>1</td>
<td>2.32</td>
<td>98</td>
</tr>
<tr>
<td>Somewhat comfortable</td>
<td>1</td>
<td>9</td>
<td>11</td>
<td>16</td>
<td>1</td>
<td>3.15</td>
<td>35</td>
</tr>
<tr>
<td>Neither comfortable nor uncomfortable</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3.00</td>
<td>1</td>
</tr>
<tr>
<td>Somewhat uncomfortable</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2.75</td>
<td>4</td>
</tr>
<tr>
<td>Extremely uncomfortable</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3.75</td>
<td>4</td>
</tr>
<tr>
<td>Mean</td>
<td>1.58</td>
<td>1.15</td>
<td>1.45</td>
<td>1.74</td>
<td>3.40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>61</td>
<td>28</td>
<td>31</td>
<td>5</td>
<td>-</td>
<td>145</td>
</tr>
</tbody>
</table>
Table 3: When initiating interaction with familiar(rows) and unfamiliar(columns) players I feel:

<table>
<thead>
<tr>
<th></th>
<th>Extremely comfortable</th>
<th>Somewhat comfortable</th>
<th>Neither comfortable nor uncomfortable</th>
<th>Somewhat uncomfortable</th>
<th>Extremely uncomfortable</th>
<th>Mean</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely comfortable</td>
<td>12</td>
<td>23</td>
<td>16</td>
<td>11</td>
<td>3</td>
<td>2.34</td>
<td>63</td>
</tr>
<tr>
<td>Somewhat comfortable</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>11</td>
<td>2</td>
<td>3.25</td>
<td>28</td>
</tr>
<tr>
<td>Neither comfortable nor uncomfortable</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3.57</td>
<td>7</td>
</tr>
<tr>
<td>Somewhat uncomfortable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Extremely uncomfortable</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4.00</td>
<td>4</td>
</tr>
<tr>
<td>Mean</td>
<td>1.40</td>
<td>1.15</td>
<td>1.59</td>
<td>1.63</td>
<td>2.78</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>27</td>
<td>29</td>
<td>24</td>
<td>9</td>
<td>-</td>
<td>104</td>
</tr>
</tbody>
</table>

Table 4: Making plans to play Pokémon GO with familiar(rows) and unfamiliar(columns) players I feel:

<table>
<thead>
<tr>
<th></th>
<th>Extremely comfortable</th>
<th>Somewhat comfortable</th>
<th>Neither comfortable nor uncomfortable</th>
<th>Somewhat uncomfortable</th>
<th>Extremely uncomfortable</th>
<th>Mean</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely comfortable</td>
<td>15</td>
<td>27</td>
<td>14</td>
<td>10</td>
<td>2</td>
<td>2.37</td>
<td>68</td>
</tr>
<tr>
<td>Somewhat comfortable</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td>0</td>
<td>3.38</td>
<td>16</td>
</tr>
<tr>
<td>Neither comfortable nor uncomfortable</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3.50</td>
<td>2</td>
</tr>
<tr>
<td>Somewhat uncomfortable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5.00</td>
<td>2</td>
</tr>
<tr>
<td>Extremely uncomfortable</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3.00</td>
<td>3</td>
</tr>
<tr>
<td>Mean</td>
<td>1.25</td>
<td>1.00</td>
<td>1.62</td>
<td>1.47</td>
<td>3.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>27</td>
<td>26</td>
<td>17</td>
<td>5</td>
<td>-</td>
<td>91</td>
</tr>
</tbody>
</table>

The three Likert scale question sets test the comfort of participants against familiar and unfamiliar players on the three different stages of social interaction present for the game. Planning for the game (third question) - online interaction, before face to face; initiating interaction (second question) - going up to other players and starting up a dialogue to play or simply introduce them self (since this is the toughest part of talking to someone it deserves its own section); talking to other players - active conversations with other. The hypothesis that initiating interaction was the hardest aspect in the social, could not be clearly observed. Even
though, initiating interaction with unfamiliar players was the one with the most responses on the “extremely uncomfortable” scale (9 responses), the overall replies on the uncomfortable side (which also include the “somewhat uncomfortable”) was more on the talking with “unfamiliar players” question. This uncertainty was the outcome of uneven survey responses. Dismissing responses to equalize their numbers was not possible to maintain data authenticity. However, from the available data the conclusion maintains that familiarity plays an important role to maintain some comfort for people - close to 50% participants responded as such.

The first likert scale questions were closely related to the first qualitative question which asked the players how they felt while talking to other players. Taking a look at some of the only non-positive codes from participants for this question, they mentioned feeling uncomfortable the most out of the others. There was a clear shift in comfort level for the majority of the answering participants, 93.7% of them clearly answered being comfortable when it comes to talking to familiar players. However, out of the only few participants who did mention feeling uncomfortable also were more likely to show non-positive social responses in their answer to the related first qualitative question. The following pie-chart shows three non positive codes that were used for their answer to the first qualitative answer:
Figure 1.1: When Talking to unfamiliar players I feel:

The number of participants who mentioned “only to game” were 8, “awkward” were also 8 and “no chatting” were 3. Participants who mentioned responses with these codes also reported being more uncomfortable in comparison to participants who weren’t marked with non-positive codes. This is especially visible in their responses to familiar players, even though the comfort values were overwhelmingly positive, the only ones who did show uncomfortable reports were the ones marked with these codes.
Similar trends continued for the following Likert scale question set. All codes were marked with very small number of uncomfortable score, but responses with non-positive codes were still on average more likely to be uncomfortable. In their comfort response against the familiar these codes still showed uncomfortable ratings when the other codes were almost completely marked with comfortable scores. The following chart represents the comfort scores for these codes against unfamiliar and familiar players while they initiate interaction:
The number of participants who reported the codes “only to game” were 4, “awkward” were 9 and “difficult to talk” were 5. This review shows that the codes’ individual meanings holds up. The number of participants who did reflect as such would be more likely to feel uncomfortable. This could be because they still haven’t made enough progress getting out of their comfort zone and practicing so that they might get a hold of their anxiety over the matter.
It should be noted that even for these non-positive codes the number of participants showing discomfort is low and even lower against familiar players. It’s only in its comparison against the rest of the codes (positive codes for social dynamic) that there exists a visible difference in the number of responses in these categories.

Since, there wasn’t a corresponding qualitative answer for the third likert scale question so the codes reflecting the participants comfort along the familiar/unfamiliar is not reported, this was not addressed along with a qualitative question to maintain the survey length. But with comfort
ratings ranging similarly for the familiar and unfamiliar, one can imagine a similar trend following for it as well.

**An Interpretation**

On average the total number of participant responses recorded was 72, but from all of the participant responses a total of 361 replies were given for all the five qualitative questions combined. Out of all these replies 63.7% of them were marked to be clearly “positive” towards players outlook to the social dynamic of Pokémon Go, over 90% of the participants were marked with this code.

Based on the observed responses, an overarching narrative can be created explaining how Pokémon Go’s platform helps with social anxiety amongst its players - Pokémon Go is a “platform for connecting” that presents “common ground”, and promotes “interaction” and “community” building. While, there was presence of non social promoting responses they were comparatively very less. Participants displayed moments of “understanding” and “appreciation” for themselves and the social group they interacted with, which further lead into a general “supportive” feel to player/group behavior in general. The players form a “learnt expectation” of how social situations work through their regular play sessions and “interactions” with other players in them. By introspecting through “understanding” and learning they are able to form rational thoughts about their situation and improve their social anxiety.
Table 4: Percentage of code usage for the interpretation - comparison between total question replies and total participant responses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Replies to all questions</th>
<th>Participant responses(approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>63.7%</td>
<td>99%</td>
</tr>
<tr>
<td>Interaction</td>
<td>59.2%</td>
<td>98%</td>
</tr>
<tr>
<td>Platform for connecting</td>
<td>54.8%</td>
<td>88%</td>
</tr>
<tr>
<td>Community</td>
<td>37.9 %</td>
<td>89%</td>
</tr>
<tr>
<td>Common ground</td>
<td>27.7%</td>
<td>72%</td>
</tr>
<tr>
<td>Appreciation</td>
<td>27.4%</td>
<td>82%</td>
</tr>
<tr>
<td>Understanding</td>
<td>22.7%</td>
<td>65%</td>
</tr>
<tr>
<td>Supportive</td>
<td>18.5%</td>
<td>54%</td>
</tr>
<tr>
<td>Learnt Expectation</td>
<td>13.2%</td>
<td>57%</td>
</tr>
</tbody>
</table>

But do these skills and experiences gained through the game carry over to other normal life scenarios as well?

**Beyond Pokémon Go**

The participants were exclusively asked whether “the game affected their outlook on social interaction in general”, even though the answers were complex and some mentioned they
couldn’t clearly tell how much of a help Pokémon Go had been but even in these instances their responses were always marked “positive”. Out of the 70.6% of the total people who responded to this question reported Pokémon Go helping them with the social interaction abilities. Though to what extent they were affected could not be surely stated, 95.8% of these participants listed “positive” on their responses. These participants also mentioned empathetic codes such as “appreciation” about 27% and “supportive” around 10% in their responses, empathy makes relating to people easier which helps with getting in a hedonic mental state. However, the most important codes to their responses were “understanding” which was mentioned around 49% and “learnt expectations” which was reported 60% of the time. These participants were introspective about their situation, they thought about the different social situations Pokémon Go put them through and learnt through experience how they work/behave - rational thinking can be formed in place of Automatic Negative Thoughts. This forms for the ideal mental processes that would allow them to take their experience from Pokémon Go and actually benefit in other scenarios.

5. Discussion

Therapeutic Pokémon Go

A number of participants’ responses showed signs and mentions of instances that reflect the use of various treatment techniques that have been known to help with social anxiety. As mentioned before Pokémon Go mimics techniques of CBT - Cognitive Behavior Therapy (Hunley, 2016). CBT is easy, but having the patients carry it out thoroughly over a long period of time is always a challenge (Richards, 2014). Patients also struggle with when and how to practice it. Pokémon Go accomplishes this wonderfully - 88% of the participants reported the game as a “platform for
"connecting" and 33% of them clearly reported the game as “entertaining” - the game requires its players to go outside in real life to play the game with other players; it gives them a time and place to go to and carry out an activity - the players can then decide whether they want to challenge their anxiety or not. Voluntary and habitual practice are the optimal conditions for CBT to be most effective with patients. CBT works on three main areas, the cognitive, the behavioral and the emotional (Richards, 2014). The aspect of how CBT succeeds in Pokémon Go are mentioned in the following sections:

**Voluntary Practice and Control - CBT**

The behavioral part of CBT deals with actually putting therapeutic techniques to practice into the everyday of the patient and works best by using this together with cognitive therapy.

One of the strongest aspects of Pokémon Go is perhaps it bringing unfamiliar players together and bringing forth an opportunity for them to interact with each other. The interaction could be long in depth conversations or a simple acknowledgement of each others presence before a *Pokémon Raid* or even no interaction at all - players might just stay far enough from each other to play the game and not talk at all. The game gives them a base to start off an interaction, it is purely voluntary and up to the players themselves. Thus, giving the players who suffer from social anxiety complete autonomy as to how they want to progress with their play time. As in exposure therapy, Pokémon Go is bringing them closer to the source of their anxiety and exposes them to it, but it doesn’t force them to go face their anxiety head on - they only need to go to the point that they decide upon. Since, they have already decided to play the game they are aware of
the gameplay loop and the particular sort of enjoyment Pokémon Go is providing them. They have been playing the game because it feels rewarding to them. Behavioral activation provides its patients rewards based around the activity that is supposed to help their problem. The game itself being the reward provides them the necessary appeasement required after being surrounded by multiple people whether they decide to interact with them or not.

At this point the brilliance of Pokémon Go comes about, the game itself is not pushing treatments for social anxiety, rather it is providing its players a platform to do so themselves. It exposes them to ideal situations in which they might experience social anxiety and tells them to play a game instead, completing the gameplay opportunity presented to them offers them a reward which they associate with their activity at hand (Pokémon Go). But, the emergent social dynamic from the game itself will be ever present and ever encroaching their comfort zone, the simplest way to get accustomed to the uncomfortable is to form a hobby out of it slowly at their own pace (Richards, 2014). With each gameplay loop they get accustomed to the situation more and more, giving them the option to either keep on playing the same way or perhaps change up how they play each game-loop. Since the gameplay activity available to the players is very limited and the only other dynamic going around each game-loop is the social the players are left with only one option to changing up their play style - engaging with the social. Some participants mention how the light gameplay makes them think about other things surrounding the game, which they address with the rest of their playgroup as shown in the following quote by a participant:
“It's interesting to see the different ways players enjoy what is, admittedly, a game that's relatively-light on gameplay.”

They can use this opportunity to pace their interaction with the other players and assign for themselves what is easy and what they deem difficult while engaging with the other players. They obviously start off with the easy and once they get habituated with that they have the option of moving further to what was difficult for them before - one step at a time, Hopko (2004) in his paper mentions that brief sessions of exposure to increasing levels of anxiety can assist with the patients going through with the therapy and also the therapy’s efficacy. There have been multiple accounts of participants mentioning how the pacing of the game has helped with them interacting with other people. The following quote by one of the participants sums it up nicely: “yes, I tend to be a very socially awkward introvert. This game has allowed me to meet people at a pace and medium that i’m comfortable with.”

After the player has moved into the social dynamic surrounded around each game session, they are also able to associate this experience with that of the game itself. A social to game feedback loop keeps the players resources divided up between the two during player conversations. Automatic Negative Thoughts (ANTs) are one of the major factors that keep up the anxiety among patients of social anxiety (or any anxiety for that matter), they need to drown out the ANTs so that they are able to think rationally (Richards, 2014). With the players attention resources divided between the social and the game, it allows them to keep themselves distracted with the game if the Automatic Negative Thoughts start to arise. Similarly, the feedback loop
mentioned earlier would also allow the players to associate the rewards and goals they achieve in the game with their interaction with the other players. If they choose to be part of a regular playgroup, their interaction with other players would increase exponentially based on how much Pokémon Go they play. Many participants have mentioned how strongly they feel about the community they have made through the game (important codes “appreciation” and “community” and also “supportive”), as noted in the following quote:

“I've made friends, I have a community I love and belong to, I've found a support system to get through probably what's been the roughest 6 months of my life... the game isn't what's important to me, per se, but the community it provides is one of my top priorities.”

**Introspection and Rational Thinking - CBT**

The Cognitive part of CBT deals with the thinking/belief processes of the patient. They learn new methods and techniques to use that help interacting with others and as an effect reducing their social anxiety. For example slow talk/thinking, it is helpful and practical because it slows down a person's physiological responses and relaxes them; or rational self talk, where the patient can talk and rationalize to themselves about the Automatic Negative Thoughts they have. Slow thinking/talking similarly follows the same principles as that of one pacing themselves while following to or from an interaction, but slow talking is operated during an interaction. Pokémon Go players need to manage their attention between playing and talking with others at the same time. If for example, the players are engaged in a raid then they would be focused on defeating the raid Pokémon boss. Even though this is supposed to be a boss not much attention is required, the players usually only tap on the screen (this is the action to attack) and not do any other
actions. This leaves them free to engage others in light chatting, but the game itself works as a limiter stopping their thoughts from running rampant. By essentially distracting them from Automatic Negative Thoughts (ANTs) and even over analyzing the social scene that is going around them, Pokémon Go provides opportunities to introspect about items current to situation presented during gameplay (the social scene). Once the Automatic Negative Thoughts aren’t bothering them, they can slowly think over their scenario and clearly form rational thoughts as to how and what the social situation truly is to them. As Thomas A. Richards mentions in his book “Overcoming Social Anxiety” (2014), replacing Automatic Negative Thoughts with Automatic Rational Thinking is perhaps the best possible technique to fighting against social anxiety. Many participants mentioned introspective thoughts and ideas that they learnt by playing the game and being around other players that actually pointed to their outlook towards the social, this was marked by the “understanding” code (82 instances mentioned). A quote that mentions this well is:

“It has, however, opened my mind to the concept of actually seeing other people who play the same games as me. Usually with team gaming, you won’t ever see the others, you may hear them through a voice channel though. It’s a lot different seeing them in person, and for the most part, makes it a lot more human.”

Slow talking and rational thinking would also help with developing their conversational skills which in turn would give them confidence in conversing with others. Dr. Viveka Adelsward mentions how conversational patterns cannot be learnt without actually participating in
conversations and understanding which parts they need to work on (Richards, 2014). After this point it is all practice.

**Face to Face Friendlies - CBT**

The last part of CBT deals with the emotional state. There are lot of feelings going around when anxiety takes over, they need to be able to calm themselves and control their emotions to manage their anxiety. If their external state or their environment is stable then the one thing they can be sure of is that their internal emotions won’t be disrupted by the external and they would not require constant supervision of their surroundings.

As mentioned by the model for social anxiety discussed by Trower and Gilbert (1989), a Hedonic mental state is required by the person who suffers from social anxiety to be able to form other relations to their social environment other than just anxiety over approval from the masses. This would include a sense of cooperation, mutual support and equality from their surroundings. The best way to implement this as so is by placing greater stress on maintaining a friendly environment. Interacting with friends is always pleasant and comfortable, but having them interact with friends alone would not help with their anxiety. They need to face unfamiliar faces. The Pokémon Go community has been noted to generally nice and friendly, this is focused in on the responses with a combination of the codes “community” and “positive”. Many participants noted this in their responses:

“The majority of the community is friendly and willing to engage in conversation, making initiating interactions with them fairly comfortable.”
The main reason behind the friendly nature of the Pokémon Go community might be a topic for another study, however the general sense behind it is the IRL face to face component of the game. Since the active player base of the game knows that they would be coming into contact with other players of the game eventually they have to put their best foot forward. Presenting any form of negative output during a raid or generally being difficult would mean them being unable to fit with the play group and in turn would mean that they wouldn’t be able to play the game. There definitely could be more behind the theory of how people behave IRL in contrast to how they behave online, but even if the current theory mentioned isn’t enough we should only focus on the result. That is the community being friendly, the ideal place for someone with social anxiety to start interacting with other people and practicing.

Once they realise that the community they are interact with is friendly and without any aggressors dominating over their space. Anxiety becomes easier to manage, they can keep increasing their social circle through the game. Many participants noted how the game worked to bring them effectively closer to more people helping them with their own identified problems. Pokémon Go’s role as a “platform for connecting” is promoted vastly because of its pleasant community; a great response mentioned by one of the participants:

“Before POGO, I knew less than a dozen people within a 5 mile radius of my house (and consistently spoke with less than a half dozen). Now my sphere is pretty large in comparison. I now regularly speak and interact with about 20-30 people that live within 5 miles of me. It's done wonders for me in terms of my feelings of loneliness.”
Some other worthy techniques observed in the game’s structure are listed below, though these factors are not necessarily linked to CBT they do assist in the platforms ability to help with anxiety:

**Looking at your Phone**

“I feel like I am becoming more social as a person but the more I use online forms of interaction for the game the more weird it becomes when i see the actual person and talk with them in person.”

The above quote by one of the participants mentions how putting them face to face with other players makes things awkward for them. Having to look people in their eyes or face to face is a source of anxiety to them (Richards, 2014). This is another point of social anxiety that is very common. Meeting people in real life is important for the techniques discussed till now to be effective, but having things be awkward by simply looking at people can disrupt interactions. The problem with any normal conversation arises, is that looking away from the person they are talking to is considered to be rude and does not feel natural causing additional stress.

At this point, Pokémon Go provides them with an option to which they can point their sights to. Since the game is the primary reason for all the players gathering it is completely natural to be looking to their phone screens while talking and engaging in whatever gameplay activity is on.
There were instances mentioned by the participants in which just looking at their phones helped them to calm down such as the following remark by a participant:

“We can just talk about Pokémon, so it’s less awkward and stressful for me than a lot of other social interactions. Plus it’s normal for people to just be looking at their phones too”

**Team Identification**

The Team based gym capture system is the only true in-game available competition aspect of Pokémon Go. During this the players have to place one of their Pokémon in an empty gym and hold it for as long as possible (in game currency as reward), if another team kicks out all the Pokémon from the gym then it becomes empty again and they can place their Pokémon in it; the cycle repeats with players progressively taking over or losing gym at multiple locations. Roger Caillois (2005) mentions competition to be one of the four important rubrics while designing for engaging play. Competition gets people together to instinctively test their levels (skills or hard work or dedication even) amongst each other.

Since the gameplay provided here is team based, players would also run into situations in which they might need their team’s assistance to clear out a gym. This sort of factioned based rivalry has been noticed amongst the participants responses as seen below:

“We have a very strong instinct following in the North Shore area of Massachusetts… Specifically Peabody, Danvers, Middleton, and parts of West and northern Lynn. There is a specific group of valor spoof or’s that piss us off on a regular basis… But we are all level 40 or very close to it and the roughly 12 of us do our damndest to keep things yellow”
Earlier in the game’s life the rivalry was stronger, which sometimes resulted in heated interactions between the teams (bad for the hedonic mental state). This is a personal observation from the early days of Pokémon Go, the participants did not mention any instances of such incidents happening in the current state of the game, the rivalries are still there but the players now are more respectful of all the other teams. The team aspect of the game is also important in terms of “bonding”, it forms another point of commonality between players that gives rise to a sense of camaraderie.

“The crowd is generally very kind and welcoming. I love my instinct buddies.”

**Therapeutic Summary**

The friendly/non-aggressive social environment is an entirely emergent dynamic of Pokémon Go which boosts player participation in the social, they are not averted away from the game’s social dynamic and keep coming back of their own volition. The players are able to naturally direct their gaze towards the game’s activity and drown out their Automatic Negative Thoughts. The Self-regulated play facilitated by a light cognitive load allows them to practice “interaction” and “bonding”, while at the same time introspect their situation by “understanding” and forming Automatic Rational Thoughts (Richards, 2014) on the matters concerning their social anxiety. Team camaraderie and/or identifying themselves as being part of the game’s “community” allows them to habituate the unfamiliar. A combination of all these interconnected processes allows them to improve upon their social anxiety little by little via each play session.
6. Conclusion

This study started off with a simple question, “Does Pokémon Go serve as a valid platform for affecting social anxiety positively in its players, if at all?” Based on the results of this study it is safe to address Pokémon Go as a platform which helps with social anxiety. Many participants self reported themselves to suffering from social anxiety and the game helping them:

“Yes, it has decreased my social anxiety and I feel more comfortable interacting with strangers playing Pokémon GO than in other scenarios”

The extended analysis of Pokémon Go’s game structure promoting known effective treatments, also seemingly fit well with the reported participant responses. The game effectively fills in the shortcomings of these treatments by providing a completely self-motivated and self-regulated activity which provides just the right amount of cognitive load with its light gameplay. This allows the players to mitigate their ANTs by distracting themselves with the game, but at the same time maintain their attention with the “positive” and “supportive” social dynamic present around the game. By keeping their attention here they are able to introspect and form rational thoughts about their situation which is the next step to managing/reducing their anxiety. Repeated exposure to this scenario via multiple play-sessions form an excellent practice routine for these and other hidden treatment techniques associate with the game.

Since they were already active players of Pokémon Go, and had already made progress on their social anxiety by playing the game they could not be tested through actual measures, now it is impossible to realise how severe or mild their anxiety truly was before and after their Pokémon
Go experience. The participants who self reported suffering from social anxiety did not classify their level of anxiety. Though this should not be a problem, as Rapee and Heimberg (1997) mentioned the scale for social anxiety ranges from the severe to the non clinical and the entire scale can be treated by the same methods. Though the efficiency over time of these methods might vary along the scale, they are still valid and effect methods.

So, even though the participant's social anxiety is self reported, their reports on Pokémon Go helping them with it are still valid responses for the entirety of the social anxiety scale. In conclusion, Pokémon Go has effectively shown to be a valid platform for providing opportunities that help the players face and work on their social anxiety on their own terms by practicing CBT techniques hidden around the platform. Given the success of Pokémon Go as an emergent form of auto therapy, it might be worth pursuing creating pervasive games specifically designed with this application in mind. This would give rise to games in the genre of location based “interactive” games that would be created with an objective/meaning to truly help people, popularizing further the different applications that games can be used for other than just being there for fun.

References


Craske, MG; Stein, MB (24 June 2016). "Anxiety.". The Lancet


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Appendix

SURVEY:

Q1.1 When talking to unfamiliar players while playing Pokémon Go I feel:

- Extremely comfortable
- Somewhat comfortable
- Neither comfortable nor uncomfortable
- Somewhat uncomfortable
- Extremely uncomfortable

Q1.2 When talking to familiar players while playing Pokémon Go I feel:

- Extremely comfortable
- Somewhat comfortable
- Neither comfortable nor uncomfortable
- Somewhat uncomfortable
- Extremely uncomfortable
Q1.3 Describe in detail your feelings/thoughts talking with other players while playing Pokémon Go.

Qualitative data

Q2.1 When initiating interaction with unfamiliar players I feel:

- Extremely comfortable
- Somewhat comfortable
- Neither comfortable nor uncomfortable
- Somewhat uncomfortable
- Extremely uncomfortable

Q2.2 When initiating interaction with familiar players I feel:

- Extremely comfortable
- Somewhat comfortable
- Neither comfortable nor uncomfortable
- Somewhat uncomfortable
- Extremely uncomfortable

Q2.3 Describe in detail your thoughts while initiating interaction with other Pokémon GO players.

Qualitative data

Q3.1 When making plans to play Pokémon GO with unfamiliar players I feel:

- Extremely comfortable
- Somewhat comfortable
• Neither comfortable nor uncomfortable
• Somewhat uncomfortable
• Extremely uncomfortable

Q3.2 Making plans to play Pokémon GO with familiar players I feel:
• Extremely comfortable
• Somewhat comfortable
• Neither comfortable nor uncomfortable
• Somewhat uncomfortable
• Extremely uncomfortable

Q3.3 Describe your average Pokémon GO raid/play session with other players.

Qualitative data

Q4.1 Has playing Pokémon GO affected your outlook on interacting with unfamiliar people? If yes, then explain in detail how it has done so.

Qualitative data

Q4.2 Give a brief description of your Pokémon GO experience since its release till now, in the context of social engagement. Write from your heart.

Qualitative data