The Sigrid-Secrets Geocaching Trail: Influencing Well-Being Through a Gamified Art Experience

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Abstract: Location-based game experiences such as geocaching in combination with art represent a new way of delivering socially sharable, playful and engaging experiences within urban spaces, which may contribute to mental, physical and social well-being. This study investigates the well-being effects gained by geocachers who have experienced the *Sigrid-Secrets Art Experience* – a geocaching trail enhanced with visual artworks based in the cityscape of Pori, Finland. The primary goal of our study is to gather information on how the users of the *Sigrid-Secrets* geocaching trail evaluate the gamified art experience and its potential effects on their own mental, physical and social well-being. Secondly, our aim is to investigate how these effects correlate with the general well-being effects associated with geocaching, experienced and reported by the members of the Finnish geocaching community, who participated in our survey.

Keywords: Gamification, Physical well-being, Mental well-being, Social well-being, Geocaching, Art experience

1. Introduction

In the study at hand, we explore the effects of gamification on mental, physical and social well-being in an experience delivered through an urban geocaching trail enriched with visual artworks. Our study is interested in user experiences related to the various dimensions of well-being by mapping out ways of users' participation and the sharing of their own experiences. We aim to form an understanding how the inclusion of the logic of gamification effects on the experiencing of and participation in the art exhibit and in this way, influence the overall experience of well-being.

Our research question is twofold: We ask first how the art experience delivered and gamified through the framework of geocaching may contribute to mental and physical well-being. Further, we ask how the exploration of the geocaching trail, enriched with artworks, enhances social well-being. We target the questions by a triangulation of data collected from three sources of geocachers; through the comments made on the Geocaching.com *Sigrid-Secrets* website player feedback, semi-structured interviews with the test users of the trail and a survey focusing on the general well-being effects of geocaching collected from the geocacher community in Finland and Geocaching.com blog. By asking the users about their experiences regarding the *Sigrid-Secrets* trail and investigating geocachers' general understandings of the well-being effects of the activity of geocaching, our aim is to find out the potentiality of a gamified art experience to provide health benefits.

2. Geocaching as a Gaming Platform

Modern play develops alongside the introduction of new technologies: As Hjort writes,"mobile technology to create gameplay within urban and online spaces – is becoming a viable area of education and experimentation" (Hjort 2011). Geocaching, which we in this paper consider a gaming platform, is a form of digital treasure hunting, where players utilize GPS devices or geocaching applications on smartphones when searching for geocaches in different environments. Currently, geocaching is practiced in 185 countries and there are over 10 million registered users on the Geocaching.com service online. Geocaching is a game, which can encourage its users to mobilize themselves through the use of GPS location devices in the context of these contemporary 'treasure hunts'. In geocaching, one gets the

hints of the geocaches by coordinates, stories and even poetical texts. The geocache may be some kind of a box that contains a logbook in where a player needs to write his/her nickname and date when they have found the geocache. Players get points when they find a new geocache. Geocaching creates positive experiences for users who discover new geocaches, as they first get physical exercise and positive energy and second, acquire points on the geocaching game. There are geocachers who already have achieved 30 000 points in the game, which means that they have visited over 30 000 different geocaches.

2.1 Gamification of Art Experiences

Games represent a perceivable part of the digital media industry and considering them as an art form is one way of investigating them. Through games, we may explore human interaction with the environment and others. Furthermore, games offer a possibility to investigate social reality through the technologies employed (Eskelinen 2005, 18). During the past few years, it has become more prominent to 'gamify' art experiences by integrating game-type mechanics into them, for example in terms of interacting with art collections or urban installations (See e.g. Ruis, 2015-2016, Romualdo, 2013). In this way, then, it is viable to consider the merging of two art forms – games and physical, threedimensional art works installed both indoors and outdoors – an emerging hybrid form of interactive media that offers ludic experiences, often physically displayed in urban surroundings but linking with digital (and social) communication platforms.

Brett Terill was one of the first to use the term gamification in his blog writing (Terill, 2008). According to Terill, gamification means the use of game mechanics in web applications in order to commit their users. As the use of the term spread during 2010 it came to mean the employment of the structures and elements of games in other contexts (Deterding et al 2011). Zichermann (2011) notes that gamification means the importing of experiences, elements and mechanics familiar from games into other environments. Gamification can be used in a variety of contexts, such as in the development of art experiences and the inclusion of user experiences, for example by activating the users to share their own experiences with each other. Gamification is used because it can attract and encourage users to participate. For example, according to Huotari and Hamari (2011), gamification may be considered a process in which game-style experiences are used to deliver added value to the users. Gamification as part of an art exhibition invites and motivates the users to interact with the artworks and participate in activities familiar from game mechanics as the playful elements known from games bring added value to the users. Scrutinizing the implications of the gamification of art experiences offers an interesting starting point to the investigation of possible added value of the converging artistic media forms. Through gamification, many benefits, such as the commitment of users to participate in various activities and sharing of experiences that have potential well-being effects on the users may be reached. In the study at hand, we explore the effects of the convergence of two art forms (an established and popular urban gaming platform and a series of visual art works) and the health benefits of gamifying an art exhibition. In the study, we present Sigrid-Secrets, an art experience based on visual artworks, which is gamified trough using the ludic framework and gaming 'platform' of geocaching. We believe that the gamification of the presented art experience plays a significant role in activating and motivating its users to physical engagement and social interaction, which again both contribute to individual and social well-being.

2.2 Sigrid-Secrets: an Art Experience Gamified Through Geocaching

The Sigrid-Secrets art experience based on a geocaching trail is a part of the national Vihervuosi 2016 thematic event in Finland. It was launched as a part of the Hidden Art ('Kätketty taide') exhibition in May 2016. The geocaching trail including physical artworks stands as a permanent exhibit after the ending of the event. The hybrid and social art experience holds six artworks placed in the city center of Pori. The Sigrid-Secrets art experience includes a fictive story presented on the trail's own website. The 'treasure hunt' conducted together with the character of Sigrid presented in the photographic works, includes playful elements, e.g. mini games, such as riddles and trivia questions. In this way, the Sigrid-Secrets experience represents a convergence between playful and gameful experiences and contemporary art – a gamified art exhibition that involves interaction with the artworks themselves, urban space and digital technologies.

"In a convergent communication environment, audiences have participated further and have taken advantage of the opportunities opened up by new media technologies. Thus, convergence, interactivity and user-generated content become relevant," Arango-Forero et al. note (2016). Consequently, convergence may be interpreted both as a technological issue and a social phenomenon. In terms of technology, "convergence suggests a digital revolution that eases the share of media" (Manovich 2006). As a social phenomenon, "convergence also reflects a change in the way audiences interact, participate and respond, across multiple digital platforms, to both media and personal content flow" (Jenkins, Ford & Green 2010 c.f. in Arango-Forero et al. 2016).

The Sigrid-Secrets geocaching trail is letterbox hybrid cache type of urban experience. Letterboxing predates geocaching by more than 100 years and involves a combination of poetic texts, map, and clues to search for containers. Letterbox coordinates are posted online, but are also shared through a network of written notes and via word-of-mouth. Letterbox hybrids are a twenty-first century variation in which the containers function as both a letterbox and conventional geocache (Gillin and Gillin 2010, 33). In the Sigrid-Secrets letterbox hybrid cache posted on Geocaching.com website the cache has a story, which is the same time a clue to find the artworks and finally the cache itself. In the Sigrid-Secrets trail visual art works are placed along a geocaching trail. The trail is located in the urban cityscape of Pori parks in Finland and features photographic art works depicting the character of Sigrid (a contemporary doll). The art works are attached to existing structures in the park (such as benches) with bolts. Following the tradition of geocaching, one must try to find the artworks in unusual, 'hidden' places. Alongside the artworks placed on the trail, Sigrid-Secrets also features a final object to be found, the actual cache. What presents an additional dimension to the overall experience is the fact that besides the artworks connected to Sigrid-Secrets trail, the parks also hold more traditional landmarks, such as statues and installations. As a possible positive outcome then, the users of the Sigrid-Secrets trail may by participating in the gamified art experience, also discover new aspects of the parks they have not paid attention to when passing by outside of the gaming situation. As one geocacher describes on the Geocaching.com Official Sigrid-Secrets website "The secrets have been glanced and the well-hidden cache found. Various works of art on the way there were. Thanks for the cache!" (Geocacher Arto Aulis 27.7.2016). So far, we have not been able to find any other geocaching experience, which would have a similar execution. For example, photographic artworks have not been used in geocaching trails prior to our project. At this time, the static photographs feature playful visual elements, which may be interacted with by searching for clues in the pictures. Using an app on the mobile phone (a work in progress feature), which helps the user to locate the artworks on the trail through coordinates, will also open up new dimensions to the narrative of the Sigrid-Secrets experience. In the future, the physical artworks may function as portals to digital game worlds, which enable further possibilities to enrich the geocaching experience through AGEs, i.e. Augmented Game Experiences.



Figures 1, 2 and 3. Exhibition poster for *Sigrid-Secrets* as a part of the *Kätketty taide* ('Hidden Art') exhibition and *Vihervuosi 2016* event; Map depicting locations of the artworks in the parks of Pori; An example of how the artworks are displayed on existing structures such as park benches.

McCarthy et al. (2014) divide users of gamified services into observers, spectators, apprentices and performers. In our study, we position the players of Sigrid-Secrets as performers: Performers point to users who actively participate in the experience. Until this day, some 158 geocachers have found and participated in the Sigrid-Secrets geocaching trail. The users have written about their experiences on the Geocaching.com Official website and shared their experiences for instance through formulating their comments as rhymes. The trail including art works enables the sharing of experiences and stories and even inspire viewers to creative writing: "Through the many parks, into a resin-dripping tree I

delved! Thank you for letterboxing!" (ehiki, 15.7.2016). (The original Finnish phrase reads like a rhyme."Läpi monen puiston, pihkaisen puun suojiin tein loppuluiston! Kiitos letteristä!" (Pseudonym ehiki, 15.7.2016)). The physical art works have been considered as a part of the 'secrets' on the geocaching trail: "We toured around six art works and finally came here. Nice places to see and the presentation of the final cache simply clever. Thank you for letterboxing!" (Jippihiiri 14.8.2016)



Figure 4. Test group interacting with the artwork at the starting point of the *Sigrid-Secrets* geocaching trail in Raatihuoneenpuisto, Pori, Finland.

As a case of the converging of two artistic media - visual art works and the gaming platform of geocaching including elements familiar from other games - *Sigrid-Secrets* represents both a new type of art and geocaching experience. In this experience convergence of media forms, user interaction and the content users create and share, all present fruitful points of departure for research in terms of the examination of well-being effects.

3. Well-Being and Gamification

According to Diener et al. (2010), the desire of well-being reveals two major traditions in philosophy. The first of these traditions is *hedonism*, which postulates the goal in life as maximization of the positive and the minimization of the negative atmosphere. The focus on hedonistic moments leads to the assessment of experienced moments and life elements on a good/bad affect scale (Diener et al. 2010). The other major tradition is *eudemonism*, or pursuing the goals which make one the truest to oneself. Eudemonism means that one emphasizes personal growth and personal effort in order to flourish. (Ryan et al. 2001) Viewing well-being as a multidimensional concept, which includes both hedonic as well as eudemonic facets, is presented by Huppert and So as "a combination of feeling good and functioning effectively" (Huppert, So 2013). WHO gives the following definition for well-being on its website: "*the positive dimension of mental health is stressed in WHO's definition of health as contained in its constitution: Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.*" Hence, well-being must be considered to have many dimensions.

Gamification offers several advantages for motivating behavior change for health and well-being. Johnson et al. (2016) have identified seven potential advantages of gamification from existing research and conducted a systematic literature review of empirical studies of gamification and well-being. They found that current state of evidence supports that gamification can have a positive impact in well-being and health, particularly for health behaviors. As described, geocaching represents a contemporary form of locative playing and a game of sorts. The idea of using games to promote "serious" purposes came up in physical activity (well-being) for young people. Motivating pupils to be active in playing outdoor games and having physical activities has always been a key issue. The geocaching for exercise and activity research (GEAR) launched in January of 2013 with 1 000 geocachers volunteering to be part of the first major research of geocaching and its effect on health. Each of the participants were given devices to track their movement and a logbook to record their level of geocaching intensity. The first results showed the effects of regular geocaching. The research reported that people who have participated in geocaching once a week or more are more likely to meet national guidelines for physical activity and are morel like to the good or very good health status compared to those who geocache less frequently. (Geocaching Blog, 21.11.2013) In the geocaching community, well-being is a clear

indicator that calls a community to action. For instance, every time a player creates a new geocache there is someone to evaluate that geocache before it is published. In this way, users are continuously motivated to voluntarily contribute to social well-being. To summarize, the reason why gamification is relevant to well-being from the viewpoint of geocaching, and other digital health and well-being interventions, may be considered from the following viewpoints based on categorization made by Johnson et al. 2016 and further developed by the authors:

- 1) Intrinsic motivation of geocaching. Robinson and Hardcastle (2016) describe two main motives for geocaching: social activity and challenge and discovery of new places. O'Hara (2008) suggests that for many geocachers, the online community provides a social context that encourages ongoing participation through log responses to caches and friendly rivalry. It is common for geocachers to set their own targets for numbers of caches to find, to attempt to find a large number of caches in one day, or to be the first to find a new cache (O'Hara 2008). Adding a competition element to geocaching has motivated engagement for extrinsic reason initially, longer-term behaviour change is likely to require autonomous motives (Ryan & Deci 2000). Geocaching may provide autonomy to the intrinsic challenge of geocaching, whereby individuals willingly choose to take part in the treasure hunt and the discovery of new geocaches.
- 2) Broad accessibility through mobile technology geocaching apps. Mobile technology is a necessary part of geocaching. Geocaching® By Groundspeak Inc. treasure hunting is the official app for geocaching. The Geocaching app 'walks you through the adventure of hiding your first few geocaches.' There are tips, hints and instructions for geocaching as well as using the app. (Geocaching® on the App Store). There are now more than 18 different languages for the app. Further, computers are a natural extension for technological devices that are used to take a player to a geocaching journey to other places, a mental landscape (Ihamäki 2015b). Geocaching is a very technology-orientated activity and there are different possibilities for interactive communication for example through the geocaches own website, through which the user who has created the geocache, gets instant feedback from other players for his/her geocache.
- 3) Broad applicability geocaching possibilities. Geocaching's applicability to be used as an educational tool (Ihamäki 2007, 2014, 2015a). Geocaching enables players to develop the game itself continuously by the use of players' creativity. Co-creation adds a new dynamic to the player relationship by engaging players directly in the production or distribution of value (Kambil et al. 1999). High-quality interaction that enables the individual user to co-create unique experiences with the geocaching community are the key to unlocking new sources of competitive advantage in all variations of user involvement. The geocaching community influences the nature of the shared experience and it depends on how each player chooses to co-create his or her own unique experiences (Ihamäki 2016).
- 4) Cost benefits efficient Geocaching is a free game. One may download the geocaching app for free. There is also the possibility to acquire a Premium Membership and Geocaching.com gives a 30 days' trial premium membership to free of charge. A Groundspeak Premium Membership provides additional tools and support to enhance the geocaching experience. The tools allow the user to track his/her geocaching trips. (Geocaching.com)
- 5) Everyday life fit Geocaching has become a positive habit for the players. Groundspeak Inc.'s mission is to inspire outdoor play using location-based technology. They recommend location-based tools to users that inspire real-world discovery and global play. Geocachers spend time on forums and interact socially with the other players. Exploring, puzzle solving, planning and making caches and running to find them can be done in the real world. The whole world thus constitutes a gaming area, which means that players are sometimes required to travel long distances (Ihamäki and Tuomi 2009).
- 6) Supporting well-being Geocaching provides mental, social and physical well-being. Geocaching supports overall well-being. In the data collected for this study, many participants expressed a need for outdoor activities carried out in nature. In the survey focusing on the general well-being effects of geocaching, one geocacher described to have "physical and mental well-being experiences e.g. through long trail hikes and, mental, multi-sensory wellbeing experiences in nature". Some geocachers, who participated in the same survey, described mental well-being in the following way: "Finding a cache contributes to mental well-being in general. It is like finding a treasure. This feeling takes one back to childhood and to a 'time more simple, before the worries of adulthood'. Moreover, the presence of

fellow geocachers and the way we have found a new dimension in our common humour brings such a feeling of well-being that we will be hooked for as long as possible in this [activity]." Social well-being results e.g. from geocaching with friends, co-workers and family and participating in geocaching events. One participant discussed the social aspect of geocaching by saying that "We have gotten to know other geocachers at meet-ups, at caches and on social media. Sometimes we travel for geocaching to island-destinations or abroad." Besides mental and social well-being, geocaching offers physical well-being experiences: "I have searched for caches by hiking long distances, by skiing, paddling and cycling. The caches that require climbing always offer a nice challenge."

4. Data and Method

Here we present a case study of *Sigrid-Secrets*, an art experience gamified through the geocaching trail. The case study may be viewed as a story: Producing a good story (Dyer and Wilkins 1991) has often been considered the goal of a classic case study. However, producing a good story itself creates theory. This thought is based on the conception that one of the qualities of human activity is to look for relations, to bring pieces together to construct wholes, and in this way gain understanding about the world (Bruner 1991). Therefore, a classic descriptive case study is not solely narrating the case or general descriptive writing that has no connections to theoretical reasoning. This kind of case study is known as an *illustrative case study*. This kind of descriptive case study can also be useful in yielding information on the shape and nature of existing uses (Ryan et al. 2000).

Our illustrative case study depicts geocaching as a way of experiencing a gamified art exhibition and aspires to understand geocaches situated along the Sigrid-Secrets trail in Pori, Finland. Materials used for this paper are the scientific articles and literature of the subject matter, test group interviews, geocachers feedback on the Geocaching.com website and a survey. Our primary data is based on Sigrid-Secrets geocache website players' feedback for the geocache itself. The study employs data from Sigrid-Secrets website on Geocaching.com, as every cache has its own website on which users need to write feedback of the cache. The Sigrid-Secrets website under the Geocaching.com website currently holds 158 feedback comments on the Sigrid-Secrets, which we have analyzed. Altogether, we have analyzed data with three different areas of inquiry in mind, which are exploring 1) the overall geocaching experience including the reception of the arts, 2) geocaching through the perspective of mental and physical well-being and 3) geocaching through the perspective social well-being. Secondary data has been collected through a survey with 274 participants ("Geocaching and Wellbeing" Survey) interested in the general well-being effects of geocaching. The survey participants are 80.4% female and 19.6% male. The participants age groups separate in the following way: 41-50 years (29.8%) 31-40 years (26.8%), 51-60 year (25%), 21-30 years (8.8%), 61-70 years (6.6%), 10-20 years old (2.6%) and more than 70 years (0.4%).

Meanings in connection with the areas of study as described above were searched for in the geocachers feedback material. When using direct interpretation, the researcher analyses the material without coding it. This form of analysis is more intuitive and usually requires understanding the subject as a whole, an intimate knowledge of the subject matter, and experience as a researcher. The idea is that the researcher analyses and writes results in the form of a story, without specific classification. This way, writing is an activity that produces information and gains more weight, and the narrative method of producing knowledge is accentuated (Eriksson and Koistinen, 2005). Accordingly, in this study the descriptions of geocaching feedback are highlighted as stories created by different geocachers.

5. Results and Discussion

5.1 Sigrid-Secrets as a Potential Provider of Mental Well-Being

Gillin and Gillin (2010) present that geocachers add up to their mental well-being when participating in this activity. For example, in their study, one gamer explained, "I find geocaching to be very good for my mental health. It allows me to gather my thoughts, relieve stress, get exercise and learn about new places and things that I would never think of or even consider going to without geocaching!" (ibid.)

Individually experienced, mental well-being has also been described in our study through positive commentary. At many times, the participants consider outdoor exercise, the elements of the townscape and weather conditions that make the geocaching experience enjoyable as the important factors of

overall experience: "Thanks for the cache, the cache I visited was located in the urban, public space of Pori, which had sunny weather and is a nice town!" (Joni & Ritva 3.8.2016). "Spending time outdoors whatever the weather has increased [through geocaching]. The common family activity has increased the social cohesion. The physical condition has improved significantly. The mental well-being has improved." (Geocaching and Well-Being Survey). Moreover, the Sigrid-Secrets geocache trail has contributed to the mental well-being of geocachers, for example, by providing a new perspective on public artworks separate from the art works included in the actual trail. One player describes her experiences "Pori indeed has interesting works of art, I looked at them all day in the parks and in front of public buildings. I reached the final cache at nightfall. The final cache on the outskirts was very dark and I wondered already if I would be able to find this before next morning and the departure of the train, but I found it well" (annema6, 13.1.2017). Further, mental well-being could also be seen as a result of learning new things in the way one geocacher described accumulating new knowledge in the city of Pori: "My knowledge of Pori has grown quite a bit during this trip. Well done letterboxing! Thanks for the cache and trail." (mainarit 19.6.2016). What is considered adding to the mental wellbeing of the geocachers in our survey interested in the general well-being effects of the activity, is the accomplishment of solving puzzles along the geocaching trail: "Mystery caches present mental challenges for the mind and the whole family participates in solving them" (Geocaching and Well-Being Survey).

Besides individual well-being, our geocaching game has generated *social well-being* by inviting its players to *social walking*, which means that players have found an opportunity to get out and walk together, thus experiencing both mental and physical well-being. Social walking defines the activity as not simply a destination or a find. Instead, an integral part of the experience is the walking to arrive at the geocache. This sense of purpose helps, according to Elder, to motivate a participant to walk and engage in both a mental and physical activity (Elder 2011). The social aspect of geocaching is also stressed in many player comments when referring to a game that they have played *together*, for example "I was with Lasse and Maripe in Pori for geocaching together" (markkaLM 12.10.2016).

5.2 Sigrid-Secrets as a Potential Provider of Physical Well-Being

Despite the physical and mental health benefits obtained from outdoor exercise, many people do not utilize green spaces as much as intended. Interventions that increase levels of green exercise and reconnect families with green spaces as parks therefore have the potential to both increase physical activity and improve mental well-being. Geocaching has given its players new activities in green areas and reasons to use the mental activity of discovering and solving problems for finding geocaches and physical activity to exercise and take fresh air by moving about in the park and looking for geocaches.

The results of the survey part of our study point to that the activity of geocaching has increased the physical activity of geocachers. One geocacher who participated in our survey describes geocaching to have brought a significant amount of physical well-being to her life: "Geocaching really has offered physical well-being [in our lives]. We have run quite a way on the artic hill of Rovaniemi because of a geocache and neither our spring condition, nor a hungry stomach would have been able to concerned with such a run of 20 km. Also, we have bicycled around the lake Levi although the meaning was original to "just explore the place a bit". Of course, all the climbing into rocks and trees make one to go that extra mile. Last summer, I climbed to two quite tall pine trees during the same day and when arriving back home, both my thighs and biceps trembled quite a lot."

The potential for geocaching to increase physical activity has been noted in previous studies. Chavez et al. (2009) found that more than 80 percent of the geocachers surveyed reported increased visits to parks and recreation areas. Elder (2011) suggests that parks are considered as an excellent area to set up geocaches. Parks offer multiple geographical dynamics where simple as well as creative geocaches can be hidden. In addition, parks are centrally located within cities, offering easy access and meet the 'one mile' comfortable walking distance criteria. With these criteria in mind, in the *Sigrid-Secrets* trail, we have placed 6 art works within a comfortable walking distance of one kilometer. The *Sigrid-Secrets* geocaching trail offers some light physical exercise as one of the players have mentioned in their commentary and in this way, contributes to well-being: "Fine autumn air inspired to investigate this *Sigrid-Secrets* geocache. The trail was done fairly quickly and the final cache was very beautiful. Thank you for a wonderful park cache!" (tuoppi36 6.10.2016). Another geocacher saw walking the trail as a good way of combining seeing the artworks with some late evening exercise. "I made a nice

round by looking at art. The end-point would have been easier to see during daylight hours. Thanks for a nice cache!" (BigBadFatCat 18.10.2016).

The results of our survey interested in general the well-being effects of geocaching a point to that the geocachers enjoy physical challenges and consider long hikes and other exercises to contribute to their long-term, physical well-being. As the *Sigrid-Secrets* art experience leans less on a straining work out and more on the possibilities a park environment may offer in terms of sociable, 'slow' and 'green' walking and exploration with some light mental exercises and challenges involved, it becomes possible to see this particular gamified geocaching trail to offer its users a casual game experience. This experience includes the possibility to enjoy the urban space through playful interaction more than through the physical challenges a geocaching trail located in natural surrounds would. Perhaps then, exploring the *Sigrid-Secrets* trail could be compared with walking in an outdoor museum with the exception that the framework of geocaching suggests that the works of art are accessed in a certain order and that the goal of completing the trail is to find the actual cache at the end of the trail.

6. Conclusions

Geocaching is an activity, which is enjoyed in nearly every corner of the Earth, and the Internet allows people to share experiences with a global Geocaching community. Most people are naturally inclined to be curious, to seek out things that are hidden, to solve puzzles and mysteries. Geocachers realize that inclination and take action. Geocaching may give one a sense of adventure, curiosity, creativity, gadgetry, exploration, competition, positive experiences, storytelling and socializing. According to our study, the geocachers who have participated in our *Sigrid-Secrets* trail are interested both in the surroundings the trail is located in and the hidden locations of the artworks as they increase tension prior to finding the final cache and generate new experiences for users in a multitude of ways.

To sum up, one geocacher in our survey focusing on the general well-being effects of geocaching, describes all dimensions of well-being which geocaching has given her, in the following way: "Physical well-being: [Geocaching] makes one more mobile. Mental [well-being]: [Geocaching] is doing something reasonable. Social: One meets people who are like-minded". In a similar manner, according to the findings of this study, the gamified art experience and geocaching trail that Sigrid-Secrets is, offers many possibilities to gain well-being effects. First, the trail contributes to mental wellbeing by providing a light mental exercise - it represents a game with a goal: It presents its users with the mental and physical challenge of the 'treasure hunt' of locating the artworks and finding the final cache in the park surroundings. Second, it invites its users to take part in a walking tour around the parks and in this way contributes to the physical well-being - it requires the participants to become mobile within the playscape of the urban surroundings and to physically move from artwork to artwork while proceeding towards the actual cache. Finally, the trail, as any other geocaching game, offers its participants the possibility to take part in a social experience, which through the enjoyment of being mentally and physically active together with friends and family offers the chance to experience increased social well-being. Thus, it becomes possible to see how the convergence of visual art works, physical activity and gamified experiences in reference to geocaching, enrich user experiences by adding gamified value to both the exhibit of physical artworks along the geocaching trail, and by activating the users to share their experiences of mental well-being and physical exercises with fellow geocachers in social ways.

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