

Together you can create something
more

*Social Structures and Practice of 21st
Century Skills in Mass Collaboration*

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Abstract

In this master's thesis I explore the learning that happened through mass collaboration on the virtual canvas hosted by the website Reddit, known as *Place*. Place was a virtual canvas of 1 000 x 1 000 tiles or pixels. The canvas was opened to the Reddit community in the end of March/beginning of April (depending on time zones) 2017. Everyone with an existing Reddit account could place (sic) a tile of any of the available 16 colours anywhere on the canvas. As the users placed their tiles, the canvas was “painted”, but once a tile was placed, the user placing it was unable to place more tiles for 5 to 20 minutes. Within the first day of the experiment, the users of Reddit organized themselves into communities that collaborated on creating and maintaining images on the canvas. Flags, video game characters and sports team logos were but some of the things people worked together to create. As more groups claimed the virtual territory on the canvas, conflicts and collaboration arose both within and across the communities.

Without warning the canvas was closed for further placement, 72 hours after opening.

According to Reddit there were 1 million users involved in placing a total of around 16.5 million tiles (Wardle & Bassett, 2017), and *The r/place Atlas* (Rytz, 2017) has identified almost 1 500 different objects and phenomena on the canvas.

Research Question

The purpose of this thesis is to describe the mass collaboration aspect of creating the online, non-textual artefact known as Reddit's *Place*. The following is my guiding research question:

How was the social network around Place structured and how did the participants practice 21st century skills in mass collaboration on Place?

The first part of the question explores the network of interactions that took place within and across the different participating communities. Not only will this provide valuable information about the general structure of the interactions and help us understand how Place “worked”, but it can also inform the second part of the question, regarding the qualitative aspects of the interactions.

Relevance

Collaborating over the internet has become an integrated part of many people's daily lives, at work and at school, and simply for fun. The Norwegian government (through the Ludvigsen report (NOU2015:8, 2015)) has stated that *collaboration*, *digital competency* and *creativity* are some of the essential competencies for the future. These are among the skills known as *21st century skills* (Trilling & Fadel, 2009). I want to investigate whether participants of Place practiced these, or other, 21st century skills.

Method

This study is based on an ethnographic approach, more specifically virtual ethnography, or *netnography* (Kozinets, 2015). Within the framework of netnography I've applied and combined two other methods, namely the quantitative *social network analysis* (Borgatti, Everett, & Johnson, 2013) and the qualitative *interaction analysis* (Jordan & Henderson, 1995), making this a mixed methods design.

The primary source of data is posts and comments from 7 openly available community forums on the website reddit.com. I chose to focus on posts that the users themselves, using Reddit's voting system, have considered the most relevant (Van Mieghem, 2011). The data for the social network analysis is based on each community's 25 highest rated posts and their first four levels of comments. Only posts and comments made during the three days of the experiment are included.

The social network data was collected using a Hypertext Preprocessor (PHP) script written specifically for this project. The script extracted metadata from the selected communities and stored it in a relation database (MySQL). Once the data was collected, a second PHP script formatted the data from the database into the .NET-format required by Pajek to perform the social network analysis.

Based on netnography and social network analysis I selected a smaller number of posts that I studied in further detail using interaction analysis.

Conclusion

I have identified three preliminary user types: 1) Single comment participant, 2) Organiser, and 3) Diplomat. Most users were not particularly actively involved in the discussions. There

are signs that Place was structured around a changing, loosely connected social network, that also had some stable features, like the average degree of around 2,7. People were connected with others they did not know before, within and across communities.

We have seen how some participants were practicing 21st century skills, in particular communication, collaboration, creativity, innovation, social and cross-cultural interaction, initiative and self-direction. This indicates that participation in mass collaboration can provide valuable learning experiences.

Foreword

I must admit, sometimes during the past few months I have felt a little awkward sitting – alone – hour after hour, day after day, writing about collaboration and how important it is for the future. On the worst of days, I’ve been paralyzed by the thought of how ironic it all is and been unable to write anything. When I’m in good spirits, however, I realize that the collaborating people I’m writing about were, in fact, probably much like me; alone in front of their computers. I also realize that this thesis is not the product of my work alone, but a collaborative effort, as it would not be possible to create what you see here today without the many people who have helped me.

Thanks to my friends at the English-Norwegian Language Exchange Discord server, for reading, help with coding and encouragement.

Thanks to all the participants of Place, and everyone who agreed to participate in the study, and to Reddit for allowing me to conduct it.

A huge thank you to my family for reading and commenting my work throughout the process. Not to mention my siblings who gave me a huge print of the final Place canvas to hang on my wall. It has proved to be an important inspiration and motivation.

And of course, a big thank you to my supervisor Anders Mørch. No one replies to emails faster than you do.

Kristina

Asker, May 2018

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1 Introduction

Imagine a big sheet of paper. I'm talking big. About the size of a tennis field. Then imagine thousands of people. Can you imagine 50 000 people? 200 000? It's not actually that important. Just imagine many. All the people have an unlimited number of stickers of 16 different colours, and every five minutes they can place a single sticker anywhere on the sheet of paper, even on top of the stickers already placed. Obviously, you will have to imagine them treading very carefully and having clean shoes. For three days, people from all around the world place their stickers and wait five minutes to place another. What do you think the result would be like? And where would you place your own stickers? How do you decide?

This thesis isn't about imagining stickers or sheets of paper. But what you just imagined: it happened. On the Internet. On a site called Reddit. It was called *Place*: A virtual sheet of paper with virtual stickers. But very real people, placing their virtual stickers and waiting five minutes. And placing again. Waiting again.

1.1 Background

Since I was about 12 years old I've had a keen interest in connecting with people on the Internet. Back then, in 2002, I had to teach myself HTML to participate in the online community I wanted to be part of: A community of Norwegian horseback riders (mostly girls aged 12-18) who made websites dedicated to their hobby. Many things have changed since then, except my interest in Internet communities (and horses).

I was just old enough to experience the shift from the "old school" World Wide Web to what is known as the Web 2.0 (Greenhow, Robelia, & Hughes, 2009), as the community of horse websites died with it. From the ashes rose technologies like wikis, social media and blog platforms that paved the way for new communities; technologies we're all familiar with today. What you see is what you get (WYSIWYG) editors made HTML and other web coding knowledge redundant, lowering the bar for participation and allowing people to focus on making content.

I started using the social media platform Reddit around year 2012 and was fascinated by the community. Although I've never really been an active poster or commenter, I have participated in nine Reddit gift exchanges, where one anonymously sends (and receives) real

world gifts to strangers across the world. This could be the recipe for disaster, but every time I've participated I've gotten a nice something from my "secret Santa". Actually, as many as 99 % of the gifts in Reddit gift exchanges are marked as shipped, with tens of thousands of participants (Reddit, 2017b).

As you understand, Reddit is no stranger to connecting people (in surprising ways). For April Fools' Day 2015, Reddit launched the social "experiment" known as "The Button". It consisted of a mysterious button next to a timer ticking down from 1 minute. If someone clicked the button, the timer was reset, but each user could only click once. There were many theories about what would happen if and when the countdown timer reached 0. After over two months of new users clicking the button, the timer reached 0, and the experiment was over (Reddit, 2015). In the following years they launched other experiments for April Fools'. The 2017 April Fools' experiment was Place and happened right around the time I was studying the course *Social Media and Network Analysis* at the University of Oslo. While I was reading my professor's (and current supervisor's) paper on mass collaboration, I was watching mass collaboration happen in real time right before my eyes.

1.2 Research Question

The purpose of this thesis is to describe the mass collaboration aspect of creating the online, non-textual artefact known as Place. The following is my guiding research question:

How was the social network around Place structured and how did the participants practice 21st century skills in mass collaboration on Place?

The first part of the question explores the network of interactions that took place within and across the different participating communities. Not only will this give us valuable information about the general structure of the interactions and help us understand how Place "worked", but it can also inform the second part of the question, regarding the qualitative aspects of the interactions.

1.3 Relevance

Collaborating over the internet has become an integrated part of many people's daily lives, at work and at school, and simply for fun. The Norwegian government (through the Ludvigsen

report (NOU2015:8, 2015)) has stated that *collaboration*, *digital competency* and *creativity* are some of the essential competencies for the future. These are among the skills known as *21st century skills* (Trilling & Fadel, 2009). I want to investigate whether participants of Place practiced these, or other, 21st century skills.

From a pedagogical perspective, understanding the process of collaborating has traditionally been important for reasons such as increasing motivation in learners (Veerman & Veldhuis-Diermanse, 2001). With the emergence of concepts like *21st century skills* and *collaborative knowledge creation* (chapter 3.1.3), this is changing:

“[V]irtual collaborations online have been shown to increase learning motivation, create better and more innovative results, and develop social and cross-cultural skills.”

Trilling and Fadel (2009, p. 34)

Collaboration is no longer just a means to an end; a tool to motivate learners to achieve something. Learning to collaborate is, in itself, a goal. Since collaboration is linked to both the development of skills (social and cross-cultural skills are also among the 21st century skills), and the creation of better results, learning to collaborate also involves learning many other skills. Collaboration is the means, and the end.

Many studies on collaboration have been focused on small teams (Trilling & Fadel, 2009) and small group collaborations (Stahl, 2013), as *mass collaboration* hasn't really been practically possible prior to people being able to connect through the Internet. Some well-known cases of online mass collaboration include Linux and Wikipedia (Tapscott & Williams, 2008). Place differs from Linux and Wikipedia by being non-textual and having a less specific and more informal goal. This may influence the way people relate to the mass collaboration process, making Place a novel context to understand the process of mass collaboration.

1.4 Clarifications

The project focuses on how people worked together while talking about and placing tiles on Place. The following is outside the scope of my thesis:

- Design (why Reddit made Place)
- Technical (how Place is built)
- Art (Place as a piece of art)

1.5 Structure of the Thesis

Chapter one (which you are currently reading) is an introduction to the project and chapter two describes the chosen case. It is followed by a presentation of relevant theoretical perspectives, and previous research on the area (chapters three and four). Chapter five describes the research method. Chapter six contains the empirical results and is closely related to chapter seven, which is a discussion about the results. Finally, chapter eight contains the conclusions and some final remarks.

2 Case Description

The purpose of this chapter is to give you, the reader, a deeper understanding about the case in question (Place) and its context (Reddit).

2.1 What is Reddit?

Reddit (www.reddit.com) is a social media site founded in 2005 (Wikipedia, 2018b). It is currently one of the most visited sites on the web (Alexa, 2017). Reddit is a commercial business, with established rules (Reddit, 2017e). This is important to keep in mind while one tries to make sense of what happened on and around Place.

The communication on Reddit is asynchronous, much like a traditional internet forum. The site is based on three activities: share, vote and discuss (Reddit, 2016). Users share posts that consist of stories (text), images or links. Other users can then “upvote” the posts that they find the most interesting, valuable to the discourse, funny etc. Users can also “downvote” posts they don’t feel are up to par. “The community is the editor”, as Tapscott and Williams (2008, p. 144) put it. Finally, users can comment on posts, and the comments themselves can also receive comments, up- and downvotes. Comments are always targeted at a single post or a single other comment, unlike a forum where comments are placed in a chronological stream. Users can edit their posts and comments, unless the post is “archived”, meaning it is locked for all further discussion or edits. Users can delete posts and comments at any time, making them anonymous. Figure 1 shows a screen shot of a post on Reddit (a pixelated image of the Mona Lisa) and some of the top-rated comments. I will talk more about this post in the results chapter. Usernames have been removed for purposes of anonymity. (See method chapter.) In the right menu bar, you can find some information about the community.

All posts on Reddit are organized into communities of interest (Fischer, 2001) known as “subreddits”. Anyone can create new communities at any time. Users can subscribe to the communities they are interested in, but many are open to anyone (to share, vote and discuss) without subscribing, and to read without a registered account. The communities are referred to by the prefix “r/” followed by the name of the community. This is also the web address of the community. For instance, the community “r/place” (the general subreddit to discuss Place) is found by going to www.reddit.com/r/place.

Communities have moderators that moderate the discourse according to the community (and site wide) rules. The community rules can be set by the community itself, by the moderators or the creator of the community. My preliminary observations indicate that the communities may have been important for how the work on Place was organized.

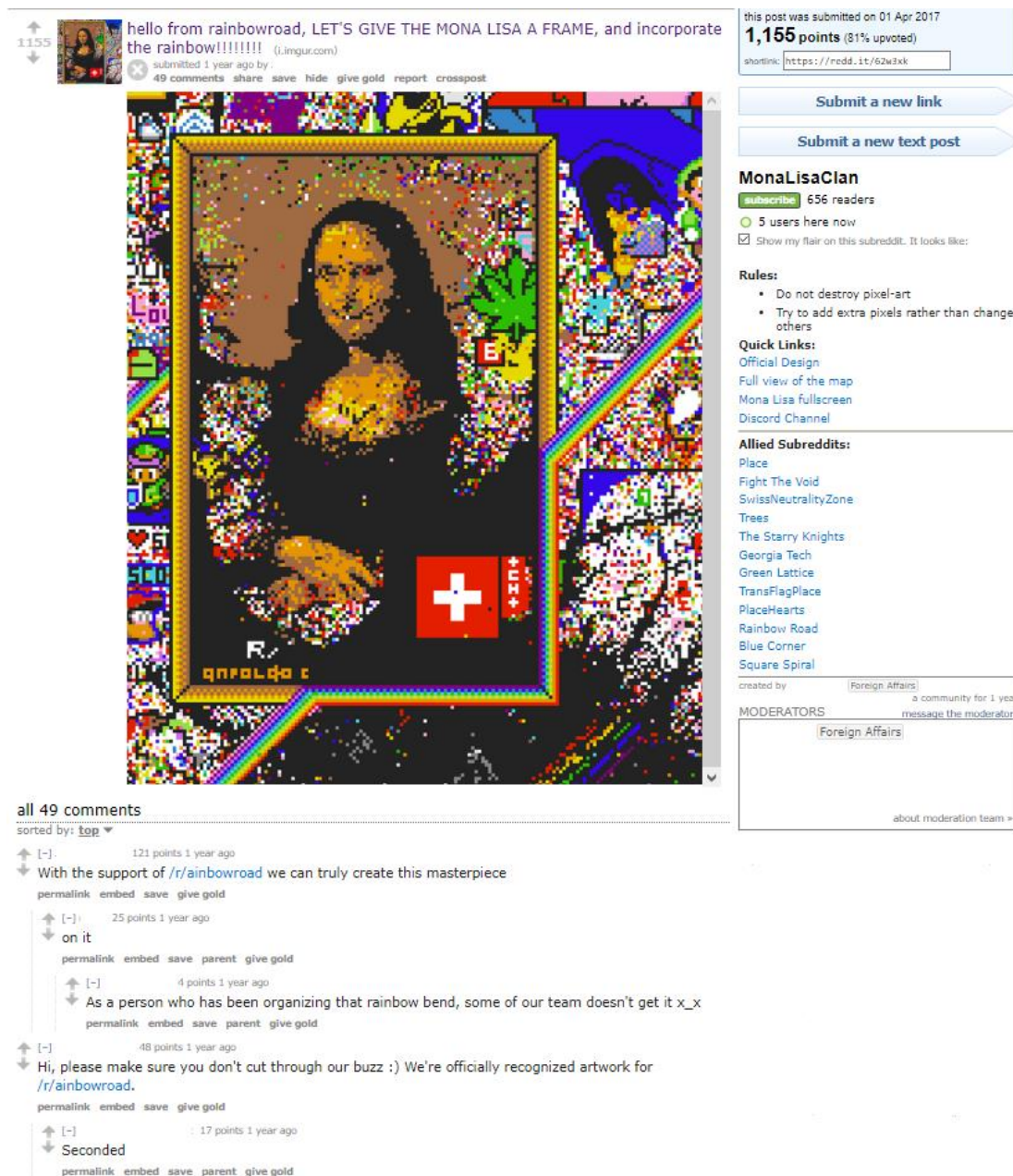


Figure 1: Screen shot of post and comments in the "Mona Lisa Clan" community

2.2 What was Place?

Place (known on Reddit and by its participants as “r/place”) was a “social experiment” (Asarch, 2017), directed by Reddit, for April fools’ day 2017. The following message introduced Place:

“There is an empty canvas.

You may place a tile upon it, but you must wait to place another.

Individually you can create something.

Together you can create something more.”

Reddit (2017d)

Apart from a link to the canvas and a list of five Place rules (see Appendix 1), there was no further introduction. It was up to the participants to find out and understand what Place was.

Place was a virtual canvas of 1 000 x 1 000 tiles or pixels. The canvas was opened to the Reddit community in the end of March/beginning of April (depending on time zones) 2017. All the one million tiles were white. However, everyone with an existing Reddit account could place (sic) a tile of any of the available 16 colours anywhere on the canvas. As the users placed their tiles, the canvas was “painted”, but there was a catch: Once a tile was placed, the user placing it was unable to place more tiles for 5 minutes (periodically, the waiting time was even longer). They simply had to wait, and while they were waiting, someone else might paint over their tile(s). The canvas was updated synchronously, so everyone could see others placing tiles in real time.

Within the first day of the experiment, the users of Reddit organized themselves into communities (known in the Place discussion as *factions*) that collaborated on creating and maintaining images on the canvas. Flags, video game characters and sports team logos were some of the things people worked together to create. As more groups claimed the virtual territory on the canvas, conflicts and collaboration arose both within and across the communities.

Without warning the canvas was closed for further placement, 72 hours after opening. At the time of closing, 90 000 users were viewing the canvas (Weinberger, 2017). Figure 2 shows what the final canvas looked like. We don’t know why Place ended after three days, but since it is considered an April Fool’s event, it couldn’t be expected to last forever.

I was a participant of Place and placed a total of 18 tiles. One of which remained on the final canvas.

It is claimed that around 200 000 people participated on Place (Ullrich, 2017). According to Reddit themselves there were 1 million users involved in placing a total of around 16,5 million tiles (Wardle & Bassett, 2017), and *The r/place Atlas* (Rytz, 2017) has identified almost 1 500 different objects and phenomena on the canvas. Many of these can be seen in the final version of the Place canvas, as seen in Figure 2 (Reddit, 2017a).

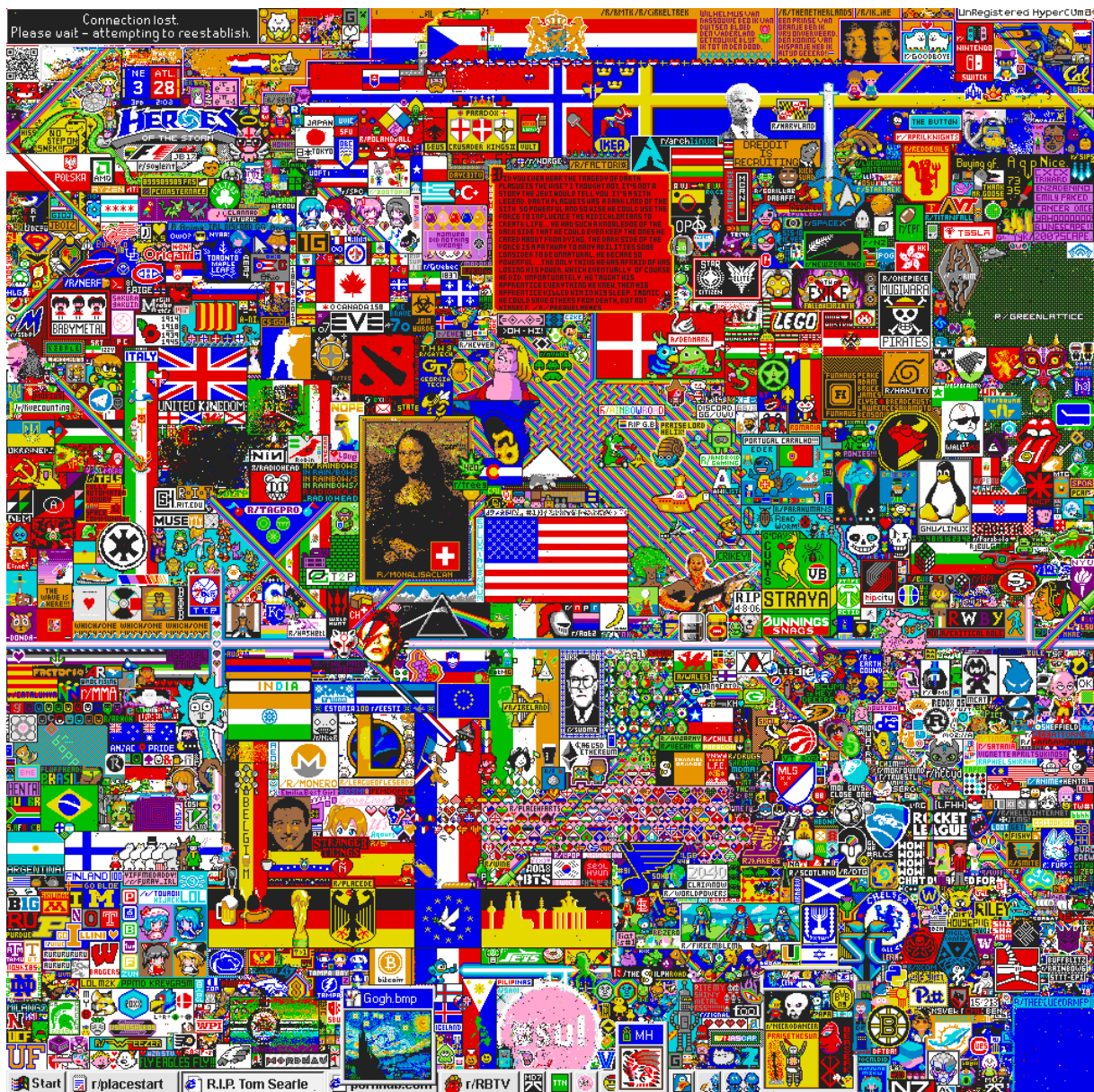


Figure 2: Place final canvas

After Place ended, several web sites made open canvases of their own. Before Place there are few examples of similar sites, if any at all. The Million Dollar Homepage (Tew, 2005) is perhaps the only one that slightly resembles the Place concept.

Place was not an organized activity with set learning outcomes that we know of. The participants were not students, except perhaps “students of life”. Place can perhaps best be defined as absurd: it has no meaning that we know of, other than the meaning the participants make out of it.

2.2.1 Was Place a game?

According to Young et al. (2012) games can be defined as an activity that (1) has set rules, (2) is voluntary and evokes emotions in the player, and (3) has quantifiable feedback of reaching (or failing to reach) some set outcome. For a game to be considered an *educational game*, learning or understanding must be integrated parts of the game’s outcome (Kapp, 2012). The rules of Place were quite clear, and participation was voluntary, but Place had no winning or losing state, no points to collect, and no simple way to compare player/user performances (Young et al., 2012). Since it did not have a set outcome, it can’t be defined as an educational game, either. Yet it’s not unlikely that the users themselves had ideas about whether they were succeeding (“winning”) or not. This could perhaps better be explained by something like internal motivation (Csikszentmihalyi, 1996) in the users than the design of Place itself.

Place was therefore not quite a game, but it was also not quite a sandbox: an environment where there are no rules at all (Mørch & Thomassen, 2016). *Block building* is an activity that is based on construction of artefacts using more (or less) simple materials, often in the form of square “bricks”. Minecraft is a relatively commonly known example of a block building game that also has a sandbox mode (Mørch & Thomassen, 2016), and the tiles of Place are perhaps not so different from the blocks of Minecraft. The limitations of Place stimulated certain behaviours, opening for new possibilities and creating a piece of “art” that one hardly can imagine being created any other way. Despite Place not being a game, but rather an environment that facilitated certain types of activities, the similarities between Place and games allows us to view some aspects of Place through a gaming “lens”.

2.2.2 Evolution of Place

The arguably best way to understand Place is by viewing its evolution in animated form.

Since the printed medium does not allow animations, I have included some snapshots of the evolution (figure 3). For an animated version of the evolution of Place, see (Reddit, 2017c).

The animated version reduces the 72 hours of Place down to a few seconds.

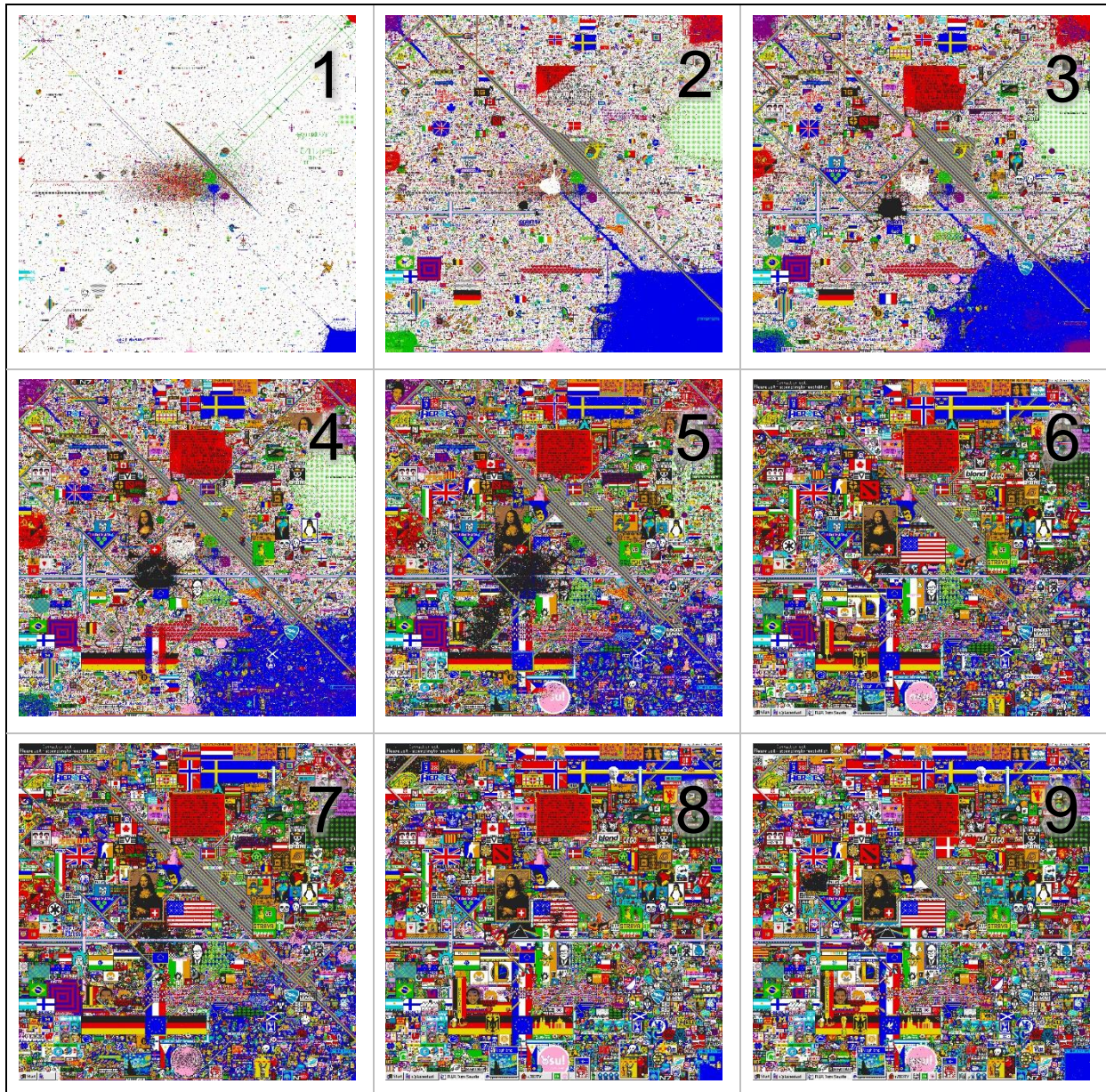


Figure 3: Evolution of Place

3 Theoretical Perspective

How can a project like Place be understood from a learning perspective? What *is* learning?

The purpose of this chapter is to situate the study theoretically and establish a common understanding about the different concepts that will be discussed, and to help understand why things were happening the way they were.

3.1 Sociocultural Learning Theory

In sociocultural learning theory, learning is understood to be something inherently social (Vygotsky, 1978). This is opposed to, for instance, the more traditional *cognitive theory*, where learning is considered to be something that happens within each individual person's brain (Verenikina, 2010). Learning starts with a social act. Reading a book and going to school are examples of social acts. The way we learn differentiates humans from animals (Vygotsky, 1978). From the perspective of sociocultural learning, one does not focus on what knowledge is found within a person. Instead, the focus is on how this knowledge is made present in the world through actions or words in social settings, before it is internalised by individuals. In education, the difference in application of learning theory can, although simplified, be exemplified as the difference between multiple choice exams and group projects. The first being “unsocial”, or cognitively based, while the latter is social, as it is more strongly based on sociocultural theories of learning.

The social acts of learning are what Vygotsky called *mediating acts*.

3.1.1 Mediating Acts

Vygotsky (1978) presented the notion of mediating acts for learning. He argued that learning (in humans) is not a simple stimulus → response reaction, but that there is some sort of medium between the object (what is being learnt) and the subject (the learner), as seen in figure 4:

Object → mediating acts → subject

Figure 4: Relationship between object and subject

The mediating acts are sometimes known as signs (Vygotsky, 1978), tools or artefacts (Verenikina, 2010). They can be concrete, like books or computers; or abstract, like symbols. Vygotsky himself lived before the computer age (he died in 1934, but his most known work wasn't published until 1978), but his theories have become increasingly used as a framework to understand learning using technology (Verenikina, 2010).

For a person to learn something, the mediating act has to be suitable. Not only in accordance with the object of the learning, but also with the subject. Hence, we move on to *the zone of proximal development*.

3.1.2 The Zone of Proximal Development

Vygotsky (1978) claimed that there are two developmental levels that are of relevance to a child's learning. The first might seem obvious: a child's learning is related to their actual development level. What can the child do independently today? The other, however, is one of Vygotsky's most important contributions to learning theory. Every child has a second development level, namely what they can do with the help of, or in collaboration with, adults. This is known as the potential development level. The distance between these two development levels is known as *the zone of proximal development* (ZPD). When a child operates in this zone, she learns things she wouldn't be able to on her own. A child operating outside the ZPD is either doing things they already know how to do, or things that are too complicated, hence they are not learning. Operating in this zone is sometimes referred to as an experience of *flow* (Csikszentmihalyi, 1996).

Although Vygotsky based most of his research on the development of children's cognitive abilities, the ZPD is now understood to be a useful metaphor for children and adults learning with the help of more capable peers (Verenikina, 2010). Learning is not independent from the learner's context (Verenikina, 2010).

There is much to be said about the ZPD, but the most important aspect of ZPD in the context of this study is the claim that learning and reaching our potential is something that happens when we collaborate.

3.1.3 Collaborative Knowledge Creation

Sfard (1998) divides the theories of learning into two main metaphors: (1) the acquisition metaphor and (2) the participation metaphor. The acquisition metaphor suggests that learning happens when a person in some way or another acquires knowledge about something, and that this is “stored” in that person’s brain. One could argue that this is the most commonly understood metaphor for learning. The participation metaphor, on the other hand, describes learning as something that happens when a person participates in some sort of community, like during an apprenticeship. While the first metaphor often uses nouns to describe learning (learning is the “things” you learn), the second metaphor uses verbs (learning is what you do). However, Paavola, Lipponen, and Hakkarainen (2004) suggest a third metaphor: what they call the *knowledge creation metaphor*.

“Knowledge-creation models conceptualize learning and knowledge advancement as collaborative processes for developing shared objects of activity.”

Paavola et al. (2004, p. 569)

According to Paavola et al. (2004), learning is what happens when people work together to create objects. Reddit themselves claimed that you could “create something more” (Reddit, 2017d) by working together. Whether the participants of Place are in fact creating knowledge, is debatable, but they are indeed creating *something*. Technology like the Internet is perhaps one of the most important reasons for the need of this third metaphor, because it enables collaboration in new ways (Moen, Mørch, & Paavola, 2012).

Sfard (1998) emphasizes that one should not rely on a single metaphor to understand learning. As the different metaphors relies on different types and sources of data, what data is available guides what metaphors are most suitable in a research setting. Since I don’t have access to any information about what knowledge participants of Place acquired, this metaphor is not suitable for this case. Instead, I will focus on how they participated and collaborated to create the images on the canvas. *Social network analysis* (see chapters 3.5 and 5.3.2) is particularly suitable for understanding participation, while the qualitative *interaction analysis* (see chapter 5.3.1) is suitable to understand how people collaborated to create.

3.2 Formal and Informal Learning

There is an established tradition within the learning sciences that one distinguishes between formal and informal (and sometimes non-formal) learning (Malcolm, Hodkinson, & Colley, 2003). Formal learning is (traditionally) something that happens within educational institutions. Classes are planned and taught by a teacher, and outcomes are measured. On the opposite side of the spectrum, you find informal learning. Informal learning happens during the learners' free time, outside of school or work. There isn't a teacher involved, no tests, hence learners are often internally motivated (Csikszentmihalyi, 1996). These are but some of the differences between how formal and informal learning is understood.

Malcolm et al. (2003) argue that very few learning situations are purely formal or informal; most have attributes of both formality and informality. Although I agree that the tight distinction between formal and informal is oversimplified, I will still use the terms in lack of better alternatives. I will therefore also use some literature regarding traditional formal educational settings, despite Place having many informal attributes. One reason being the lack of research regarding informal learning experiences like Place, the other being that the distinction itself is inaccurate.

Instead of spending more time on this discussion, I will introduce one example of a mode of learning that appears in both formal and informal settings, namely *self-directed learning*.

3.2.1 Self-directed Learning

Self-directed learning (SDL) happens when the learner takes initiative and responsibility for their own learning process (Hiemstra, 1994). SDL is a collection of attributes that are not limited to the traditional informal learning contexts but can be relevant in formal educational settings as well (Malcolm et al., 2003).

“Self-directed learning is a continuous engagement in acquiring, applying and creating knowledge and skills in the context of an individual learner's unique problems.”

Fischer and Scharff (1998, p. 1).

From this definition, we can see that SDL concerns all three main metaphors for learning: acquisition, participation, and knowledge creation. It also takes into consideration the context

of the learner. As long as the learner is self-directed, SDL can occur in formal and informal contexts. Because of the design of Place, SDL seems to provide a helpful perspective on the learning that might have happened.

Self-direction is one of the characteristics of *mass collaboration*.

3.3 Mass Collaboration

Mass collaboration is characterized by large numbers of people who are involved with learning or working together using digital tools (Cress, Moskaliuk, & Jeong, 2016; Tapscott & Williams, 2008). Working with others is becoming an essential skill, as companies, organisations, governments, and people increasingly use mass collaboration as a tool. Mass collaboration is the future, and it can make huge changes to the world (Tapscott & Williams, 2008).

There are different types of mass collaboration. Place, like Linux and Wikipedia, are examples of peer production, which is characterized by individuals self-organizing into communities to coordinate work. People who both produce and consume content are known as *prosumers* (Tapscott & Williams, 2008).

However, allowing people to prosume doesn't mean that everyone will. The 90-9-1 rule (Nielsen, 2006) of user participation says that one can expect that 90 % of users won't participate in any production, 9 % will contribute from time to time, and that a hyperactive 1 % of users are responsible for 90 % of all production. This means that even though Web 2.0 technologies allow users to prosume, most people don't. According to Wikipedia themselves (Wikipedia, 2018a), they had 374 million unique visitors monthly as of September 2015, and 71 000 contributors. Meaning less than 0,02 % of the users are actively prosuming. Although Nielsen wrote about *participation inequality* in 2006, it is still an issue today.

3.4 Creativity

As this study regards the creation of an artefact, we have to talk about the concept of creativity. In creativity research, creativity is understood as either *little-c creativity*, or *big-C creativity* (Sawyer, 2006). Little-c creativity, or the individualist approach to creativity, can be defined as “*a new mental combination that is expressed in the world*” (Sawyer, 2006, p. 7),

while big-C creativity, or the sociocultural approach to creativity, can be defined as “*the generation of a product that is judged to be novel and also to be appropriate, useful, or valuable by a suitably knowledgeable social group*” (Sawyer, 2006, p. 8). I believe it is unclear what social group would be suitable to judge the creative contributions of Place, so I will be focusing on little-c creativity in terms of how creativity on Place is understood. However, this doesn’t mean that sociocultural creativity is irrelevant, as Place was made by groups of people in a sociocultural context.

Sawyer (2006) states that creativity cannot be explained by the metaphor of a finished idea popping into a person’s head, but claims that creativity is, in fact, action. In the individualist approach, Sawyer (2006) has identified eight stages of the creative process:

1. Find and formulate the problem.
2. Acquire knowledge relevant to the problem
3. Gather a broad range of potentially related information.
4. Take time off for incubation.
5. Generate a large variety of ideas.
6. Combine ideas in unexpected ways.
7. Select the best ideas, applying relevant criteria.
8. Externalise the idea using materials and representations.

As creativity is about creating something new, some people argue that creativity is opposed to learning, since learning something means that what is being learned must be known. However, in more recent views on creativity and learning, all learning is understood as a creative process (Sawyer, 2006).

An important aspect of sociocultural creativity is understanding the social context in which (groups of) people develop their creative products, as creativity is rooted in social connections (Glaveanu, 2010). Because of this, social network analysis has become an important tool in creativity research (Sawyer, 2006).

3.5 Social Networks

Social network analysis (SNA) is used to achieve an understanding of subjects based on their position in a network, in contrast to other methods where understanding is often based on internal attributes of the subjects (Borgatti et al., 2013). To give an example, using SNA one can try to understand who a person is based on who they know, instead of basing it on what one knows about the person, like age, gender, occupation, etc. This is SNA at a *micro-level*. Micro-level SNA is known as *ego-networks*, as they concern an individual person, the “ego” (Hanneman & Riddle, 2005). SNA is also used at a *meso-level*, where one analyses communities or other groups of individuals, departments, and the like, and at a *macro-level*, where one analyses networks of larger populations. SNA is based on *graph theory*, which is the mathematical study of the relation between objects (Hanneman & Riddle, 2005).

When describing networks, we use the terms *node* and *tie*. Nodes are the subjects that are connected within the network, and ties are the connections between them. The nodes often represent individual people, but they can also represent organizations, countries, or any other group of people. They can also represent entirely different things that connect people, like physical places, internet forums, meetings and so on. Sometimes different types of nodes are included in the same network. These networks are called two-mode (or even multi-mode) networks (Borgatti et al., 2013).

Social network data can be collected using surveys or by collecting interaction data (Borgatti et al., 2013). Both are increasingly being collected online.

3.5.1 Sociograms

Visualisation, or the construction of *sociograms* (figure 5), is a central part of social network analysis, as it is with many other sciences. In fact, visualisation is said to be one of the most important factors for the success of modern science (Freeman, 2000). Visualising social networks is critical in creating human understanding. With the development of computers, visualisations are no longer hand drawn. This enables the use of automatic algorithms to create the most accurate representations of even very large networks (Freeman, 2000), and a much simpler way of creating networks in 3 dimensions.

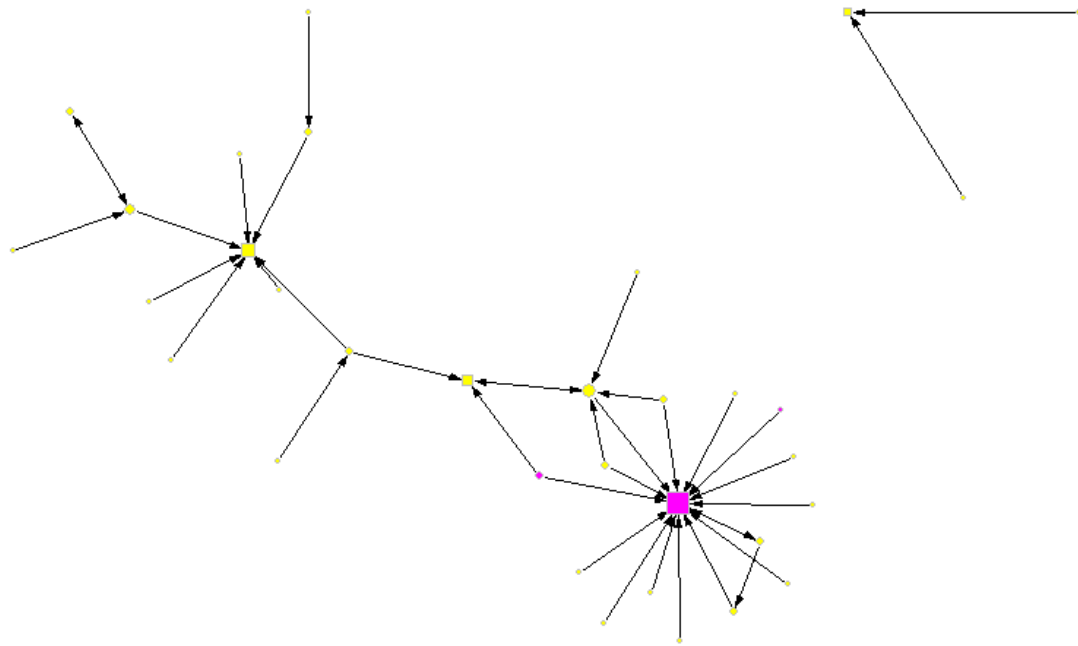


Figure 5: Sociogram representing interactions in the community The Black Void (day 1)

A common way to determine the quality of a sociogram is by considering the number of lines that are crossing each other, where fewer crossing lines equates to a better sociogram. The lines should also not be longer than necessary (Freeman, 2000). This implies that sociograms shouldn't consist of too many nodes or ties, as this will decrease the quality and not support human understanding.

3.5.2 Tie Strength

Tie strength says something about how closely connected two nodes are (Granovetter, 1973). It can be based on variables such as emotional connection, amount of time spent together, or how often the nodes interact, to mention a few examples. An acquaintanceship is generally considered a weaker tie than a friendship.

In the case of this thesis, tie strength is based on the number of interactions between two nodes. Hence, the ties have a value which is equal to the number of interactions.

3.5.3 Directed and Undirected Networks

Social networks can be *directed* or *undirected*, referring to whether the ties between the nodes have a direction. A marriage proposal could be represented by a directed tie (arrow) that moves from the proposer to the proposee, while a marriage tie is a common example of an undirected tie (line), as a marriage per definition doesn't have a direction.

The social networks in this thesis (with the exception of the community networks presented in chapter 6.1.1), are directed, as the ties represent replies (comments), and these replies are always directed at the person who wrote the parent post/comment.

3.5.4 Centrality

There are several different *centrality measures* that can provide information about how networks are structured (Borgatti et al., 2013). For the purposes of this thesis, I will only use *degree centrality*.

Degree centrality tells us the number of ties a node has in a network (Borgatti et al., 2013). In directed networks, we distinguish between *input* and *output degree centrality*, as ties can go either towards the node (input degree), away from the node (output degree) or both ways. *All degree centrality* sums input and output degree into a single value. If ties have a numerical value, *weighted degree centrality* takes the value into account, instead of only counting the number of ties alone. In the case of this report, *weighted input degree* represents the number of times a user has received replies on their posts or comments, *weighted output degree* is the number of times a user has replied to other users' posts or comments, while *weighted all degree* is the sum of the two.

The *average degree* of a network is the average unweighted degree of all the nodes in the network.

4 Literature Review

In this chapter I will present some research on topics related to learning and mass collaboration. First, I will talk about learning for the 21st century. Then I will move on to present some of the history of research on learning and social networks and media, mass collaboration and games.

4.1 Learning for the 21st Century

It's a cliché, but the world is changing. Climate change, and the increasing global population – these are just some of the things that have or will change how people live and work (Trilling & Fadel, 2009). Rather obviously, this should also change how we prepare our children for the future. Knowledge in the core subjects and mastering basic skills is no longer enough (Trilling & Fadel, 2009). In professional life, few need to be able to read or write for the sake of reading or writing. It is the practical application of communication and what you can achieve through it by collaborating that is valuable and is believed to become even more important in the years to come (Tapscott & Williams, 2008), because “together we can create something more” (Reddit, 2017d). Communication and collaboration are some of the skills known as *21st century skills*. And 21st century skills are, according to Trilling and Fadel (2009, p. 45), about “learning to create together”.

Trilling and Fadel (2009) divide the 21st century skills into three groups. The skills that are underlined are those I have chosen to focus on in regard to understanding the collaborative processes of Place. The 21st century skills are:

1. Learning and innovation skills
 - Critical thinking and problem solving
 - Communication and collaboration
 - Creativity and innovation
2. Digital literacy skills
 - Information literacy
 - Media literacy
 - Information and communication technologies (ICT) literacy
3. Career and life skills

Flexibility and adaptability
Initiative and self-direction
Social and cross-cultural interaction
Productivity and accountability
Leadership and responsibility

(Trilling & Fadel, 2009)

These are all skills that, traditionally, have not been prioritized in the educational system, as they are generic and not subject specific (Trilling & Fadel, 2009). As the *knowledge society* is growing, the boundaries between school and work are beginning to fade (Fischer & Scharff, 1998). In the future, an educated person is not someone who has completed high levels of education, but “someone who is willing to consider learning as a lifelong process” (Fischer & Scharff, 1998, p. 2).

As problems of today, and of the future, are becoming increasingly complex, we also need tools for solving these complex problems (Fischer, 2001). If we can create more together, the tools must also support working together, including social interactions.

4.2 Social Networks and Media

Research on social networks started long before the notion of social media. Granovetter’s (1973) article on “the Strength of Weak Ties” found that weak social connections may increase a person’s opportunities, and that communities with weak social structures are more capable to organize, while strong social ties cause fragmentation of social networks. Sawyer (2006, p. 258) discusses the same topic from a creativity perspective: “strong friendships aren’t good for creativity” and claims that having many acquaintances increases creativity. Ideally, social networks should have both dense and loose connections (Sawyer, 2006).

Hommes et al. (2012) applied social network analysis to investigate the interrelationships between formal and informal aspects of student learning and found that there is a correlation between students’ grades and their position in the social network. The results indicating that the concept of a clear difference between formal and informal learning is outdated, and also that learning is, in fact, inherently social.

Windschitl (1998) drew some of the first outlines for researching the use of the world wide web (WWW) technologies in the classroom. During this time, the WWW was heavily focused on one-to-many interactions, and accessibility to information. Today, the most important websites foster many-to-many interactions. This is known as the shift between WWW and Web 2.0 (Greenhow et al., 2009). Instead of simple web sites displaying information, web sites of today allow the visitor to interact, and not just consume the information provided. In the WWW, YouTube would perhaps have been a website where you could watch YouTube's own videos. In the YouTube of Web 2.0, you can watch videos made by anyone, and add your own videos for others to watch. According to Greenhow et al. (2009), students use social sites for learning purposes, in the sense that they use the sites to talk about school related topics. They also argue that research should focus more heavily on learning through the informal use of Web 2.0 technologies.

Arnseth and Ludvigsen (2006) discuss the importance of researching how established social practices affect the use of technology in learning. Using examples from their own classroom research, they emphasise that researchers should consider not only what is being learnt, but how tools are used and situated socially.

Java, Song, Finin, and Tseng (2007) studied the social media platform Twitter, identifying, among other things, communities and user intentions using social network analysis. Unlike Reddit, Twitter interactions are not organized into determined communities – the communities were instead identified based on the connectedness of the users and the topics they were discussing. In similar fashion, Buntain and Golbeck (2014) found that most Reddit users (97 %) are active in a single community, and that users follow interaction patterns of either being answer-persons or discussion-persons. Understanding Twitter and Reddit's social structures could be important in order to understand how one might learn using it. Verenikina (2010) states that successful implementation of learning technologies in education is dependent on a supporting socio-cultural context.

Jahreie (2011) states that future educational research should focus on how to effectively blend formal and informal learning. In 2013, Ferguson, Gillen, Peachey, and Twining (2013) wrote an article on how two learning communities (one formal and one informal) worked together using an online learning environment.

In their research on the social networking site Space2Cre8, Vasbø, Silseth, and Erstad (2014) studied how the participatory culture of the web 2.0 can be integrated into an educational setting. One of their findings being that the integration can help students bridge everyday knowledge with school knowledge.

Daer and Potts (2014) present some best practices for using social media in teaching and learning. While the emphasis seems to be on teaching, not learning, they have at least one important point: “Technology is a tool, not a learning outcome” (Daer & Potts, 2014, p. 26). Learning to use technology is not about practicing technical or mechanical skills, but about learning to make use of the opportunities the technology enables. One of which being mass collaboration.

Mass collaboration is a relatively new term, and research is limited to the last decade. The popular science book by Tapscott and Williams (2008) is still one of the most important works in mass collaboration literature. According to Tapscott and Williams (2008) a group of people have to learn to collaborate internally before they can collaborate successfully with external groups, as participation is dependent on following the norms of the community. The participants are often highly internally motivated: “[P]eople who participate in peer production communities love it.” Tapscott and Williams (2008, p. 70). Some of the challenges regarding mass collaboration, and specifically peer production, is that there is a lack of shared culture and difficult (or even impossible) to protect intellectual property (Boudreau & Lakhani, 2013). According to Sawyer (2006) individuals become more creative when they collaborate compared to when working alone, even if they are practicing general creativity skills.

Fischer (2013), on the topic of computer supported collaborative learning at work, describes the importance, and even necessity, of externalisations (such as visual representations of ideas) in collaborative work.

In the study by Andersen and Mørch (2016), mass collaboration through a social media platform is analysed using social network analysis and interaction analysis. The platform is used by both professionals and casual users, bridging the formal and informal. They identified four mass collaboration interaction patterns: (1) gatekeeping, (2) bridge-building, (3) general development and (4) user-user collaboration.

4.3 Games and Sandboxes

In their creatively titled review article “Our princess is in another castle”, Young et al. (2012) discuss game-based learning of subject specific knowledge and skills, focusing not only on game-play alone, but also on the social context that surrounds a game. They found that an important challenge with games is bridging any learning that might happen in the game to the world outside, as games may cause misconceptions. They also found that games that encourage the use of written language, provide opportunities for language learning. Chat logs can be used for reflection and other purposes by both learners, teachers, and researchers.

Kluge and Dolonen (2015) studied the use of mobile games in an educational setting. They mention the term “stealth learning”: the idea of purposely “hiding” learning aspects of a game, so that the people engaged with the game don’t feel like they are in a learning situation.

5 Method

This study is based on an ethnographic approach, more specifically virtual ethnography, or *netnography* (Kozinets, 2015). The study is case based and descriptive (Lund, 2002). Within the framework of netnography I've applied and combined two other methods, namely the quantitative *social network analysis* (Borgatti et al., 2013) and the qualitative *interaction analysis* (Jordan & Henderson, 1995), making this a mixed methods design. However, the different methods aren't directly removed from each other. Instead they are highly integrated, using a *concurrent approach* (Creswell & Creswell, 2017).

The challenge is to create a research design that can provide some insight into the research questions, that also stays within economical, human and time limits, while not crossing any ethical boundaries. The research design isn't – and can never be – perfect. By working reflexive (Alvesson & Sköldbberg, 2009) it is possible to avoid that weaknesses in the design and in myself become weaknesses in the conclusion.

5.1 Case Study

Case studies are used to obtain a deeper understanding for what happens within the chosen case (Silverman, 2015). Flyvberg (2006) has identified five critical points, or normal misconceptions, about case studies. These are that (1) general knowledge is “better” than contextual knowledge, (2) one cannot generalize from a single case, (3) case studies are unsuitable for testing hypothesis, (4) case studies only confirm the researcher's predetermined views, and (5) one cannot develop theories based on a single case. However, Flyvberg argues why these misconceptions are exactly that (misconceptions) and believes that case studies are suitable to answer many questions within social science. For instance, I am willing to argue that everything social is contextual, so the concept of “uncontextual” (general) knowledge in social science is impossible. Mass collaboration always has a context, meaning it has to be studied in its context.

In the aftermath of Place, other websites have adopted the idea of a mass collaboration canvas. However, my netnographic studies indicate that these are not of the same scope as Place and are therefore not as relevant for the study of mass collaboration, although they would make it possible to study the phenomenon in real time.

5.2 Data Collection

The primary source of data is posts and comments from openly available community forums on the website Reddit, collected in the period February to April 2018, meaning the collection of data has been a continuous process through most of this study. I have followed the traces (Geiger & Ribes, 2011) of Place on Reddit, but also other websites such as YouTube and blogs, and through search engine searches. Field notes were stored digitally in the form of lists of communities, links, and quotes, screen shots, images, videos, and my own reflections.

Initial netnography indicated that over 800 communities were represented on the canvas. Because of the scope of the thesis, it was necessary to narrow these down to a more manageable selection. This was not a simple task. However, Kozinets (2015) suggests seven criteria for selecting netnographic field sites. The criteria were given a weight between 1 (low importance) and 10 (high importance). In addition to Kozinets (2015) criteria I added one of my own, namely language. The communities should for practical reasons use English or Scandinavian languages. See table 1.

Criteria	Weight (1-10)
Relevance for research question	10
Recent activity	1
Interactivity	8
Substantial amount of communication	8
Heterogeneity	5
Richness	7
Experience	9
Language	10

Table 1: Netnographic field selection criteria

I looked for communities that were relevant to the research question (the communication had to revolve around Place), and that gave me some sort of netnographic experience that there was something interesting going on. Communities that used images or other kinds or artefacts were prioritised, as well as those where there seemed to be a relative amount of interactivity within and across communities. Finally, I wanted to find communities with a substantial amount of communication, that seemed relatively heterogenous in terms of what was discussed. Signs of recent activity were not important.

Using the criteria, the 800 communities were reduced to the following 7 (table 2):

Community Name	Subscribers
Rainbow Road	4 640
The Black Void	3 736
The Blue Corner	3 115
Place Start	1 735
Place Hearts	851
The Mona Lisa Clan	668
Starry Knights	294

Table 2: List of selected communities

All the communities are among the top 16 largest communities in terms of subscribers.

In many of the communities the total number of posts and comments is too high to include everything within the scope of this thesis. I chose to focus on posts that the users themselves, using Reddit's voting system, have considered the most relevant (Van Mieghem, 2011). The data for the social network analysis is based on each community's 25 highest rated posts and their first four levels of comments as research by Weninger, Zhu, and Han (2013) suggests that more deeply nested comments have lower scores.

Only posts and comments made during the three days of the experiment are included. A similar approach to data selection on Reddit has been applied by other scientists (Buntain & Golbeck, 2014). Comments that, through netnography, were identified as being written by bots or deleted users were ignored.

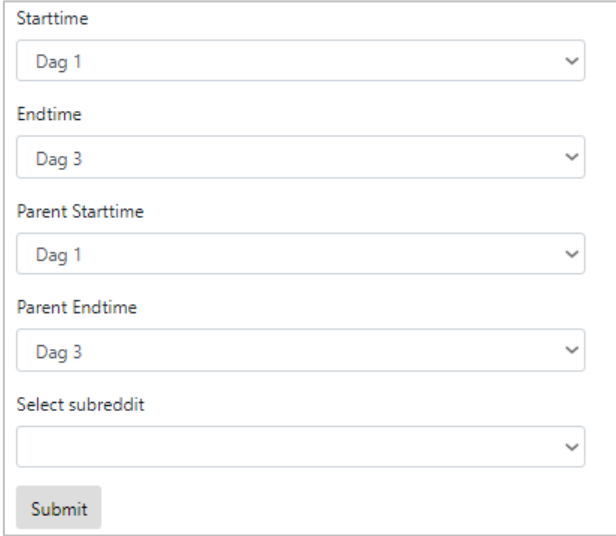
The data was collected using a Hypertext Preprocessor (PHP) script written specifically for this project. All pages on Reddit are found in a machine-readable format known as JavaScript Object Notation (JSON). The script extracted metadata from JSON-files related to the selected communities and stored it in a relation database (MySQL), making sure to limit the number of calls made to the Reddit servers. The metadata consisted of post and comment ID-numbers, author, community, timestamp, and parent post/comment (if applicable). Storing the data in a relation database allowed me to do direct searches

```
*Vertices 22
1 User67 0 0 0 box ic Yellow x_fact 2 y_fact 2
2 User68 0 0 0 circle ic Yellow x_fact 2 y_fact 2
3 User69 0 0 0 circle ic Yellow x_fact 2 y_fact 2
4 User70 0 0 0 circle ic Yellow x_fact 2 y_fact 2
5 User71 0 0 0 circle ic Yellow x_fact 2 y_fact 2
6 User72 0 0 0 circle ic Yellow x_fact 2 y_fact 2
7 User73 0 0 0 circle ic Yellow x_fact 2 y_fact 2
8 User74 0 0 0 circle ic Yellow x_fact 2 y_fact 2
9 User75 0 0 0 circle ic Magenta x_fact 2 y_fact 2
10 User76 0 0 0 circle ic Yellow x_fact 2 y_fact 2
11 User77 0 0 0 circle ic Yellow x_fact 2 y_fact 2
12 User79 0 0 0 circle ic Yellow x_fact 2 y_fact 2
13 User80 0 0 0 circle ic Yellow x_fact 2 y_fact 2
14 User182 0 0 0 circle ic Yellow x_fact 2 y_fact 2
15 User300 0 0 0 box ic Yellow x_fact 2 y_fact 2
16 User301 0 0 0 circle ic Yellow x_fact 2 y_fact 2
17 User302 0 0 0 circle ic Yellow x_fact 2 y_fact 2
18 User303 0 0 0 circle ic Yellow x_fact 2 y_fact 2
19 User304 0 0 0 circle ic Yellow x_fact 2 y_fact 2
20 User305 0 0 0 circle ic Yellow x_fact 2 y_fact 2
21 User306 0 0 0 circle ic Yellow x_fact 2 y_fact 2
22 User307 0 0 0 circle ic Yellow x_fact 2 y_fact 2
*Arcs
2 1 1 w 1 c Red
3 1 1 w 1 c Red
4 1 1 w 1 c Red
5 4 1 w 1 c Red
5 6 1 w 1 c Red
6 5 1 w 1 c Red
7 6 1 w 1 c Red
8 4 1 w 1 c Red
9 8 1 w 1 c Red
10 4 1 w 1 c Red
11 1 1 w 1 c Red
12 1 1 w 1 c Red
13 1 1 w 1 c Red
14 22 1 w 1 c Red
16 15 1 w 1 c Red
17 16 1 w 1 c Red
18 16 1 w 1 c Red
19 16 1 w 1 c Red
20 15 1 w 1 c Red
21 15 1 w 1 c Red
22 21 1 w 1 c Red
```

Figure 6: Pajek .NET file

and calculations on the data, complementing the SNA. As a side note, PHP and MySQL are both products of mass collaboration (Tapscott & Williams, 2008).

Once the data was collected, I wrote a second PHP script which formatted the data from the database into the .NET-format required by Pajek to perform the social network analysis (figure 6). Loops (users replying on their own posts or comments) were not included. A simple *graphical user interface* (GUI) enabled me to select different data sets by, for instance, including data from single days or communities (figure 7).



The figure shows a web-based form with the following elements:

- Starttime:** A dropdown menu with 'Dag 1' selected.
- Endtime:** A dropdown menu with 'Dag 3' selected.
- Parent Starttime:** A dropdown menu with 'Dag 1' selected.
- Parent Endtime:** A dropdown menu with 'Dag 3' selected.
- Select subreddit:** An empty dropdown menu.
- Submit:** A grey button at the bottom left of the form.

Figure 7: Simple graphical user interface for filtering and formatting SNA data

My sample includes $N = 1\,837$ unique users (ignoring bots and deleted accounts). The data consists of 3 240 comments on 166 posts. This data created the basis for the SNA.

As there was a high number of participants and discussion threads, it was necessary to narrow them down for the interaction analysis. Using netnography, I had some ideas about what was being discussed, and using SNA it was possible to identify some interaction patterns that could be examined in detail. As mentioned earlier, I used a concurrent approach. This means that, although this chapter presents the data collection as a sequential process, the collection and analysis of SNA and IA data were more or less concurrent, moving back and forth between the methods as new insights occurred.

Based on netnography and SNA I selected around 10 posts that I studied in further detail using interaction analysis. 3 of them are included in this thesis. For this part of the study,

comments by deleted users were included, as long as the comment itself wasn't deleted. The selected posts consists of discussions that represent different types of interactions.

5.3 Mixed Methods

Mixed methods define a type of *method triangulation* where qualitative and quantitative methods are combined. This allows the researcher to benefit from the quantitative methods' strengths in hypothesis testing, generalizability and objectivity, and the qualitative methods' strengths in hypothesis generation and deeper understanding of meaning (Lund, 2012). It allows me to get a broader perspective of the interactions around Place, and a deeper understanding of a selection of discussion threads.

Lund (2012) has identified four benefits of a mixed methods approach; benefits that one does not gain by using qualitative or quantitative methods alone: (1) Mixed methods is suitable for answering complex research questions; I believe my research question can be defined as complex. (2) Mixed methods can give a more complete picture. Different perspectives can give a more complete and correct impression about what happened around Place. (3) Mixed methods can increase validity, if the results of the qualitative and quantitative methods are coinciding. (4) Mixed methods can encourage reflection. If the results are not coinciding, the researcher can be stimulated to reflect and to perform further research.

The idea about mixed methods approaches is that the combination of methods will allow the researcher to apply the pros within both traditions (Lund, 2012). However, this obviously means that the researcher needs to be competent within a broader spectrum of methods. Without this competency, one could end up with all the cons instead. As this is my first attempt at any kind of research, I realise that there is a certain chance that this could happen.

5.3.1 Qualitative Method

The project is based on *netnography*, which is a form of ethnography practiced online (Kozinets, 2015; Silverman, 2015). The netnography has been guiding the use of other research methods, and vice versa. For instance, doing a social network analysis depends on having some knowledge of where to find the relevant social networks, and social network insights can guide further netnographic research.

As mentioned previously, I was a participant of Place. However, this is not an *autoethnographic* (Kozinets, 2015) study. I will not be examining my own practices on the canvas or in the discussion, but there is no denying my participation has been important for my choice to study the phenomenon.

An ideal approach to this study would have been to conduct what Hine (2015) calls pop-up-ethnography. Instead of studying Place after the event, the ethnographer should have studied it during the 72 hours the events unfolded. This would allow the ethnographer to experience things as they happened and would allow a more participative approach. For obvious reasons this isn't possible but take it as a reminder that whenever the next *something* happens, perhaps we should take notes. As a side note, I have learned through the work on this project that some of the participants worked specifically on saving netnographic data of the events while they took place.

I'm inspired by Kozinets' (2015) call to not only focus on the humanity of the people I'm studying, but also the human nature of my readers. In humanist netnographies, the human is in focus throughout the research process, including representation. By using visualisations, images, and dramatic narratives (and by writing in English), I hope to make this text accessible, also for people who don't read a lot of research, and even the participants of Place themselves.

Interaction Analysis

Interaction analysis (IA) is originally a method for analysing video recordings of interactions (Jordan & Henderson, 1995). However, there are some similarities between analysing video recordings and online discussion threads that make IA a suitable method for analysing the latter, and Jordan and Henderson (1995) themselves state that IA is suitable for the analysis of technology-mediated settings.

The first similarity between video recordings and (open) online discussion threads is that both can be reviewed. The data material is openly accessible, unlike the case of, for instance, traditional ethnographies, where the data material is based on field notes and the experiences of a single person.

The second is *turn-taking*, that is, the chronological arrangement of the interactions. The discussion on Reddit is chronological in the sense that comments are always replies to other

posts or comments, but the default representation of the interactions is based on a combination of chronology and post/comment scores. I understand turn-taking in discussions on Reddit not only in a chronological sense, but also by what posts/comments a person decides to reply to.

A difference between the two is that video recordings enable us to view participants' body language, gestures, and tone of voice, unlike discussion threads that are almost purely in writing. One could argue that gestures and a metaphorical "tone of voice" are present in written language, but we can't say anything about participants' actual, physical behaviour. Simply because we cannot see or hear it.

What we can and can't observe is an important principle in Interaction Analysis. Learning in the eyes of an Interaction Analyst is not what happens in the participant's head (acquisition metaphor), but what can be observed (participation metaphor), and is highly embedded in sociocultural learning theory (Jordan & Henderson, 1995).

The Place canvas itself is also an important data source, and the evolution of the canvas is perhaps best represented in video form. Hence Interaction Analysis could help us understand this data as well.

Silverman (2015) is an advocate of always having a theoretical perspective for all analysis, in contrast to more data driven approaches (Jordan & Henderson, 1995). Despite this, I used a data driven approach, based on the insights made through netnography and SNA. However, I have a more general theoretical perspective, which creates the basis for understanding what is happening on Place, but it isn't an analysis tool per se.

Once I had selected a discussion thread to examine, I gained a general understanding of what was being discussed. Often it was necessary to view the animated version of the canvas or other visual artefacts, and to read other discussions threads to understand the context. I have included some visual artefacts in the analysis, where possible, as the artefacts are often the topic of discussion. I focused on the interaction heavy parts of the discussion, meaning comment threads displaying active discussions and turn-taking.

After achieving a general understanding of the discussions, I wanted to identify topics, interaction patterns or other concepts that could become the basis for understanding how participants practiced 21st century skills. Using a bottom-up approach, I identified some codes

that guided my analysis. These were: Suggestions to expand, enhance or collaborate; use of resources, both social (e.g. “manpower”), technological (e.g. bots and browser plugins) and visual (e.g. images); making arguments, esthetical, ethical, or other; linguistics; and relationships between users and communities (e.g. friends, partners, competitors).

5.3.2 Quantitative Method

Silverman (2015) believes the ethnographer (or in this case, the netnographer) should focus on what people do. The social network analysis (SNA) does exactly that, and has become an important method of netnography (Kozinets, 2015). The SNA is based on when, where and with whom people have interacted, and not on what they have said or thought, said to have thought, or thought to have said (Kozinets, 2015). While interaction analysis tells us about the qualitative aspects of the communication, the social network analysis will help us understand how and when people communicate within and across communities.

The SNA played two roles in this project. The first was describing the general structure of the interactions in the network of people discussing Place, through calculations (Hanneman & Riddle, 2005) and visualisations (Freeman, 2000). The second role was to guide the further research. Using social network analysis, I could identify communities and individuals that had characteristics that were of relevance to the second part of research question.

Pajek

Pajek (figure 8) is a piece of computer software that enables the user to analyse and visualize social networks by importing SNA data in the Pajek .NET-format. Pajek can calculate many of the most common SNA measures, like centrality (figure 9) and density. Pajek also allows exportation of data to Excel for additional analysis.

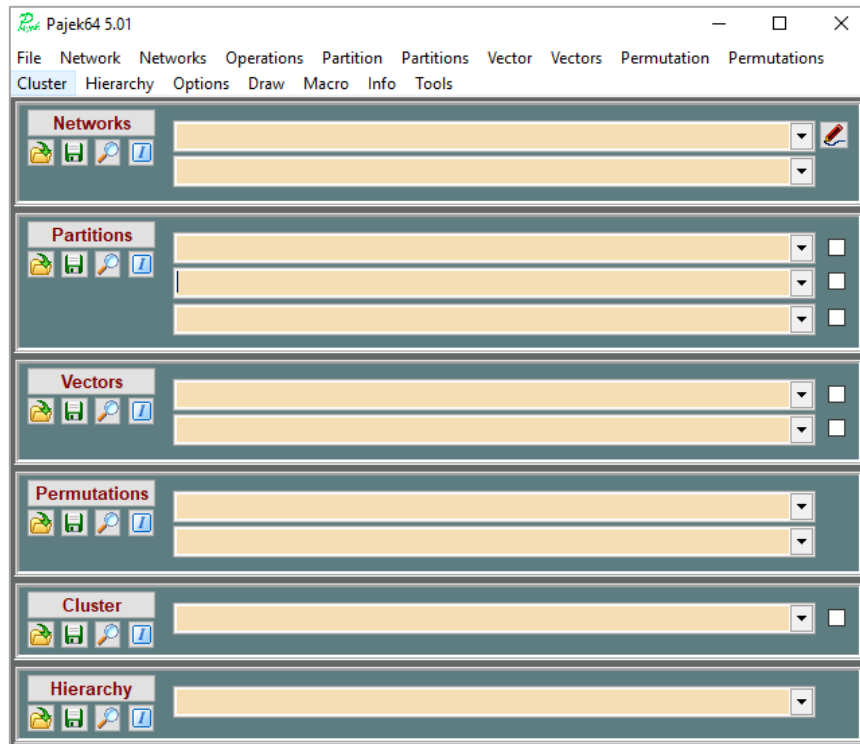


Figure 8: Pajek interface

Editing Vector: 1. Weighted Output Degree of N2 (599)

Redisplay

Vertex	Val	Label
1	2.000000	User1
2	1.000000	User34
3	1.000000	User57
4	0.000000	User67
5	1.000000	User68
6	1.000000	User69
7	1.000000	User70
8	2.000000	User71
9	1.000000	User72
10	1.000000	User73

Figure 9: List of user weighted output degrees in Pajek

Pajek includes a few algorithms that produce different visualisations, which is an important aspect of describing social networks and seeing the “bigger picture” (Borgatti et al., 2013). In this research I have applied the algorithm developed by Kamada and Kawai (1989). Although the algorithm is developed for undirected graphs, Kamada and Kawai (1989) suggest that the algorithm can be widely used and is based on creating human understanding. The algorithm

considers tie weight; I find it to be the most suitable of the algorithms provided by Pajek for providing a visual overview of the networks.

5.4 Reflections on Method

Will this research design successfully enlighten the research questions? What are some of the strengths and weaknesses? In this section I will reflect on the validity and reliability of the methods I have chosen, and the ethical considerations regarding the study.

5.4.1 Validity

To what degree are the results I get valid for what I want to say something about? As this is a mixed methods design, validity must be considered for both the qualitative and quantitative methods (Silverman, 2015). Within quantitative tradition validity is about concepts such as statistical validity, construct validity, internal and external validity (generalizability) (Lund, 2002). Silverman (2015) presents an alternative list of tools to consider the validity of qualitative studies: (1) analytical induction, (2) the constant comparative method, (3) deviant-case analysis (4) comprehensive data treatment, (5) using appropriate tabulations. In addition, he mentions what he calls “obvious” criteria for validity, namely that the researcher should not influence the studied phenomenon, directly or through personal values or views, and that the researcher should have a clear idea on how to handle respondents not speaking the truth. By using existing posts and comments, known as *unobtrusive methods* (Hine, 2015), I avoid the Hawthorne effect (Brown, 1992), that is, affecting the participants. Because of this, participants can’t really “lie”, as all interactions are “true” interactions, whether the participants are lying or not.

If a substantial amount of important discussion about Place has taken place outside of Reddit, it will not be caught by my social network analysis or interaction analysis, substantially affecting validity. Netnography is a suitable approach to create understanding on these kinds of questions. I have found that the voice-over-Internet Protocol (VoIP) software *Discord* was widely used among the different communities. This does not mean that the interactions on Reddit are less valuable in terms of researching Place, but that future research should look into synchronous discussions as well. This might pose some challenges, as voice

conversations aren't automatically recorded in the same way asynchronous discussions threads are.

This study has essentially been completed by a single person, so inter-rater reliability is not a relevant concept (DeWever, Schellens, Valcke, & Van Keer, 2006). This might mean that some of the criticism of case studies is relevant, in that it may simply confirm the researcher's own views and conceptions. This would be a serious infliction on validity (Silverman, 2015). As I was a participant myself, this might have inflicted the views I have on the events, and there is a risk of "going native". The use of SNA has assisted in getting an overview of the material and allowed me to make selections further removed from my own personal experiences.

As mentioned, I only gathered data from the first four levels of comments, meaning some comments are missing. Missing data has negative implications on the validity of social network analysis (Hommes et al., 2012). If I had time to collect SNA data again, I would rewrite the data collection script to include an infinite number of comment levels. Although there are arguments for not including lower levels of comments, I realised that the most interesting interactions (in terms of answering the research questions) were, in fact, those that included low levels of comments. With more computing power, it would also be possible and interesting to gather data from a broader selection of communities, if not all 800 communities.

Since I don't have any control groups or conducting pre/post-tests (Lund, 2002) of the interactions, I can't say if the interactions (or lack thereof) is something typical for Place or for Reddit or the web in general, if Place actually has changed anything in terms of how people interact or if these changes could be persistent. However, this has not been prioritised in this study, but surely is an interesting topic for future inquiry.

5.4.2 Reliability

A study is reliable if one gets the same results when repeating the study under the same terms (Lund, 2002). Within quantitative research this means to what extent one avoids random error. For the quantitative part of this study, the SNA, reliability relies heavily on the collection of SNA data. It is critical that the script I wrote collects the exact SNA data I claim to collect, hence testing the script was an important part of the early stages of the project. This would be difficult without the use of netnography, as I needed a clear understanding of what

kind of data I could and wanted to collect, as well as how this data was structured. It is also important to understand that, although some of the communities on Reddit are “archived” (they cannot be edited), users can still delete their comments and posts at any time, meaning the data material also can change at any given time.

In qualitative research Silverman (2015) writes that reliability is safeguarded by an open and «transparent» research process, and being open about the theoretical perspectives of the study. In that sense, this thesis is a contribution towards its own reliability. This is achieved by thorough descriptions of the research process, its limitations, and choices I have made and how this creates the basis for my conclusions.

5.4.3 Generalizability

Generalizability, to what extent these results can say anything about other selections/populations, is probably low. The study considers a single case, and is opposed to Silverman’s (2015) constant comparative method: the researcher should strengthen validity by comparing different cases. However, the case in question has not been selected based on purely convenience or accessibility, but because it is a case of mass collaboration. The sampling is based on both purpose and theory (Silverman, 2015).

Generalizability hasn’t been the most important aspect of this study. If any findings seem interesting, one should instead consider doing further research where one works more specifically towards generalizability.

5.4.4 Ethical Considerations

All research is subject to ethical considerations. According to Marcus (1998, referenced in Hine (2015)) the ethnographer can’t always have a predetermined ethical stance. Especially important is how one considers the privacy of the people one studies. Is the web in general (and Reddit in particular) public or private? There is no simple answer to this question. It poses – in my opinion – one of the biggest challenges in this type of research.

The study is mainly based on open communities on Reddit. Even though Reddit is a social medium, it is organised in a different way than for example Facebook. Facebook is centred around individual people and their personal “time lines” and posts, while Reddit is organised

around the communities. One could argue that the open communities are very much like a public space. This characteristic of the study increases reliability (data being accessible online) but is at the expense of privacy. Publishing personal information is strictly prohibited on Reddit (Reddit, 2017e). However, I am not simply assuming this rule is being followed. Netnography is a helpful tool to finding out whether people are posting personal information or not. Generally, the rule seems to be followed.

Even if the users of Reddit are fully aware of their posts and comments being public (openly accessible on the web), they might not agree to their contributions being taken “out of Reddit” and used for research purposes. Even if the data on its own is anonymous, the act of combining data from different places (for instance by doing social network analysis) can reduce anonymity. The Data Protection Official for Research (NSD - Norwegian Centre for Research Data) has approved this research, and all quoted participants have received an information letter regarding the research, including information on how to withdraw. No participants have chosen to do so. (See appendices 2 and 3.)

I have chosen to hide usernames, so that the connection between usernames and quotes isn’t readily available. Hine (2015) is an advocate of rewriting quotes in a way that makes it difficult for readers to find the original quote by using search engines. However, it would still not eliminate the chance of someone finding the original quote. I have therefore chosen to include quotes in their original form, as this allows a more accurate representation of the interactions.

6 Results

In this chapter, the results will be presented and in the following order: First, I will present the results of the social network analysis (SNA). Then I will proceed with interaction analysis, building on the SNA. Throughout the presentation of the results, day 1 represents the first 24 hours of the canvas being open. Day 2 represents hours 24 to 48, and day three represents the final 24 hours, 48 to 72.

6.1 Social Network Analysis

The social network analysis will be presented in two separate parts, macro-level and micro-level. This allows us to first get an overview of all the participants and communities, and I will “zoom in” on single users based on their roles in the larger network.

6.1.1 Macro-level

The macro-level of analysis concerns the whole network, and the data will be presented from two different perspectives: user network and community network.

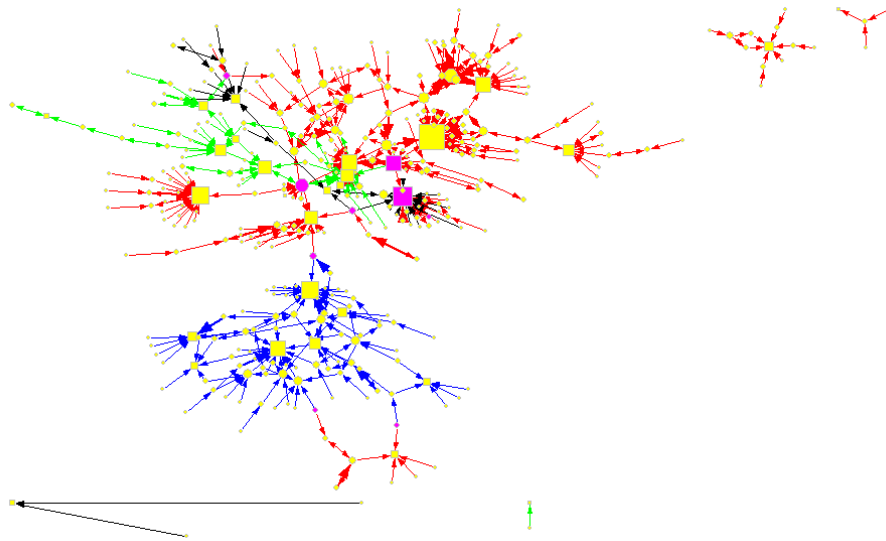
User Network

In the following visualisations (figure 10) each node represents a single user, and the ties represent interactions between users. The data is based on comments made on posts that were posted on each day. This means that comments made to posts that were made the day(s) before are not included, hence the networks are noncumulative. The reasoning behind this choice is that it reduces the size of the network. The placement of the nodes are based on the algorithm proposed by Kamada and Kawai (1989), and is not related to the communities placement on the canvas. The thickness of the ties indicates the number of interactions between two users, and the direction indicates the direction of the communication (whether a user wrote or received a reply). Node size represents node all degree centrality.

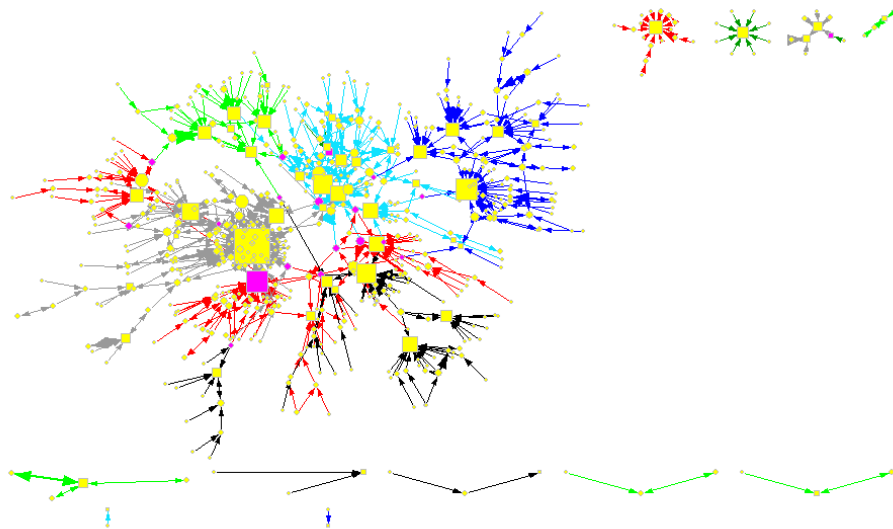
	Rainbow Road
	The Blue Corner
	The Black Void
	Place Start
	Mona Lisa Clan
	Place Hearts
	Starry Knights
	Node only wrote comments
	Node wrote at least 1 post
	Node active in 1 community
	Node active in > 1 community

Table 3: Network colour/symbol codes

Day 1



Day 2



Day 3

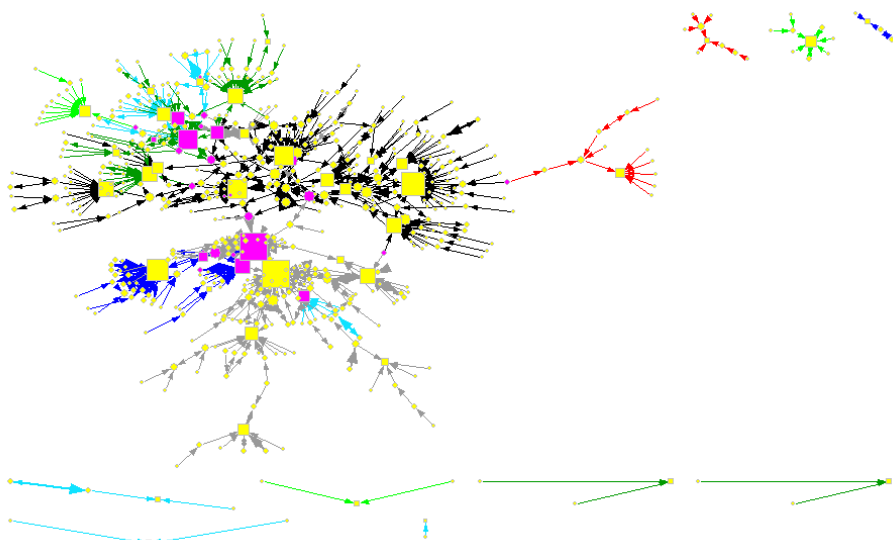


Figure 10: Evolution of user network according to shape, size and colour of nodes and ties

The colour of a tie represents the community where the interaction took place. However, if two users interacted with each other in more than one community, the colour of the tie will only represent one of the communities. Yellow nodes interacted in a single community, whereas magenta nodes interacted in more than one community, chosen at random. Circle nodes only wrote comments, whereas box nodes made one or more posts, regardless of commenting. This should not be confused with a two mode affiliation network (Borgatti et al., 2013), as all nodes represent users, and my symbol (shape) choice has the strength that it allows easy identification of users who took initiative by starting new discussion threads (posts). Note that the users don't belong to a community per se, but rather their interactions happened within a community. In table 3 there is a description of the different symbols and colours that are used in the user network (figure 10).

A general remark is that throughout the three days, most of the users were connected with the main network of interactions, but there are a few relatively small groups of users that are disconnected from the main network. These are included in the calculations of the social networks, but I will not investigate them further.

Based on the colour of the ties, we can see that most users were more closely connected with users within the same community, while the Rainbow Road community, and partly the Black Void community were more spread out and connected with other communities on the first and second days. The communities were connected, but also segregated. Considering the width of the ties (tie strength), most ties are “weak”, since they imply few interactions. This is represented by thin (single pixel) lines. Few users seemed to have frequent interactions, which can indicate that they interacted for the purpose of accomplishing a task and were not “friends”.

Looking at the size, colour, and position of the nodes, we can see that the magenta nodes in general seem to become bigger, meaning they are more active, at least during the last day. Furthermore, the magenta nodes seem to be relatively central throughout the three days.

The shape of the nodes, whether the user made posts (box) or only replied to others (circle), seems to correlate to some extent with the importance (degree centrality and position) of the node. There are few large circle nodes, and most of the nodes in the periphery of the main network are circle nodes. Many of the magenta nodes during the second day are circular, but

during the last day, more are box shaped. In summary, the biggest nodes are boxed, yellow nodes, meaning the most important users wrote posts and were active in a single community.

Average Network Degree

The following tables show the average degrees of the network over the course of the three days. The first table (table 4) is based on noncumulative data, one for each day. The second (table 5) shows the data accumulated, meaning the data from the previous day(s) of the experiment is included in the current. Pajek calculates unweighted average degree.

Noncumulative			Cumulative		
	<i>Nodes</i>	<i>Average Degree</i>		<i>Nodes</i>	<i>Average Degree</i>
<i>Day 1</i>	370	2,71351351	<i>Day 1</i>	370	2,71351351
<i>Day 2</i>	657	2,49010654	<i>Day 2</i>	1 074	2,71880819
<i>Day 3</i>	599	2,62437396	<i>Day 3</i>	1 837	2,83832335
Table 4: Noncumulative average degree			Table 5: Cumulative average degree		

It is interesting to notice that the average degree of the network stays relatively constant throughout the three days, at around 2,7, which means that the participants on average interacted with around the same number of other participants each day, namely 3.

Some readers might question how the average degree (unweighted) can be 2,7 when there is an average of 2 posts/comments per user. This is because the average degree considers both input and output degree, meaning a single comment can contribute with two degrees. When a user writes a comment, the user itself and the user that receives the reply gets an increased degree, meaning the average degree will always be higher than the average number of posts/comments per user.

Using Excel, it was possible to calculate the weighted average network degree for the cumulative network. It is approximately 3 (on day 3) meaning that each participant, on average, were involved in three interactions. This means that most participants did not have frequent interactions with any one particular participant.

Weighted Output Degree

A participant's weighted output degree tells us how many comments this participant has written. Posts don't trigger output degree centrality, as they are not directed towards anyone in particular. Figure 11 displays the number of users according to weighted output degrees. The data is based on the accumulated data from all the three days.

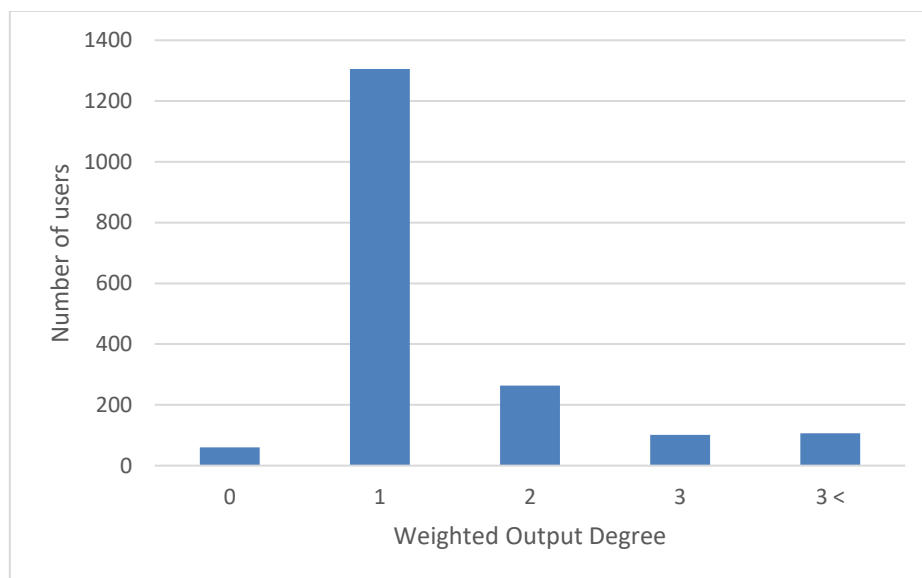


Figure 11: Weighted output degree

1306 users (71,1 %) had a weighted output degree of 1. This means that 71,1 % of the users that participated in the discussion on Reddit only made a single comment each.

In total, 471 users (25,6 %) commented more than once in the seven selected communities. This means that around 25 % of the users produced 60 % of the comments.

60 (3,2 %) users had a weighted output degree of 0, meaning they never replied to other people's posts or comments. They are present here because they wrote one or more posts, without ever replying.

Weighted Input Degree

A participant's weighted input degree tells us how many replies they have received on their posts and/or comments. Figure 12 displays the number of users according to weighted input degree. The data is based on the accumulated data from all the three days.

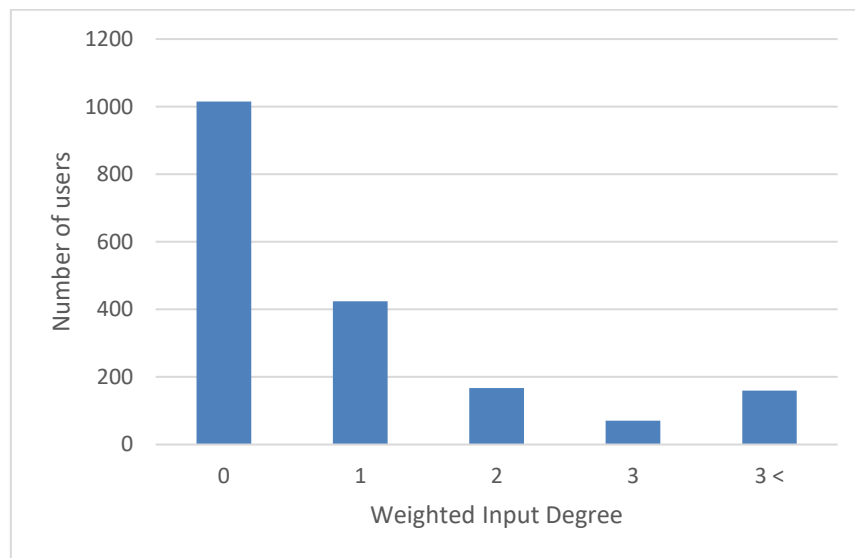


Figure 12: Weighted input degree

At the end of day 3, 1015 users (55,3 %) had a weighted input degree of 0. This means they made posts or comments but did not get any replies. This could mean that the replies they potentially created were to (later) deleted users or chat bots, or the replies were simply not included in the data selection because the comment level was too deep, or comments were made after Place ended. In hindsight, recording deeper comment level (or including all comment levels) could have been a simple way to increase the quality of this data. (See section 5.2.)

The rest of the users (44,7 %) received at least one reply.

49 % of users had both a weighted output degree of 1 combined with a weighted input degree of 0, meaning they only commented once and didn't get any replies.

Most Central Users

The following table (table 6) displays the 10 most central users, based on weighted all degree centrality (WAD). The data is based on the accumulated data from all the three days.

<i>Label</i>	<i>Weighted Input Degree (WID)</i>	<i>Weighted Output Degree (WOD)</i>	<i>Weighted All Degree (WAD)</i>
<i>User 1674</i>	99	6	105
<i>User 3</i>	58	11	69
<i>User 1712</i>	63	3	66
<i>User 1494</i>	40	16	56
<i>User 1758</i>	50	5	55
<i>User 341</i>	50	4	54
<i>User 21</i>	46	5	51
<i>User 539</i>	30	18	48
<i>User 1283</i>	23	19	42
<i>User 1284</i>	34	3	37

Table 6: Most central users according to weighted all degree (WAD=WID+WOD)

As the average (unweighted) degree is approximately 2,7, these users do not represent the mean user. We can also see that most of the WAD can be attributed to the weighted input degree. The majority of the most central users were central because they received many replies on the posts and comments they wrote, not mainly because they were very active themselves.

Community Network

The visualisations in the following figure (figure 13) is based on the same data set as the previously discussed networks, but each node represents a community, not a single user. While the user networks with the high number of nodes can prove a little chaotic, these visualisations provide a clearer picture of how the different communities were connected. The ties represent the number of users that interacted in the two connected communities.

The placement of the nodes indicates the placement of the communities' artworks on the final canvas in the background of figure 13. The width indicates the number of users who interacted in the two connected communities. Node shape and colour is identical for all nodes,

whereas node size indicates all degree centrality. The networks are undirected. As with the previous networks, these networks are also not cumulative.

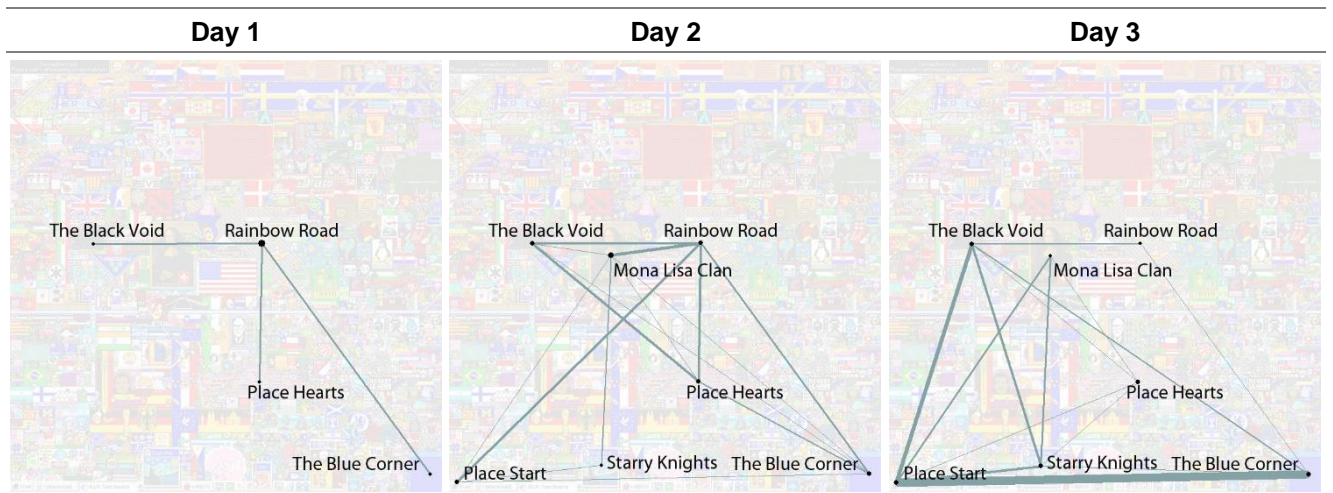


Figure 13: Evolution of whole community network

On the first day, it is evident that the Rainbow Road was the most central community. During the second day, a greater number of communities started making artwork, and interactions among the communities seems to rise in general. On the final day, there were still many interactions, but there was a shift in the structure of the network. Rainbow Road had lost its leading central position, and the relatively late “player” Place Start became a more important and active community in terms of having users interacting with other communities.

Interactions Across Communities

The following table (table 7) displays the number of users who were active in different numbers of communities. The data is based on the accumulated data from all the three days.

<i>Number of Communities</i>	<i>Users (%)</i>
1	1 730 (94,1)
2	100 (5,4)
3	5 (0,3)
4	2 (0,1)

Table 7: Interactions across communities

1730 users (94,1 %) interacted in a single community. 100 users (5,4 %) interacted in two communities. Five users (0,3 %) interacted in three communities and two users (0,1 %) interacted in 4 communities.

The users who were active in more than one community are potential Diplomats, as will be discussed in the next section.

6.1.2 Micro-level

The micro-level analysis describes the social networks of individual users. With a foundation in the macro-level analysis, and general netnography, it is possible to zoom in on some specific communities and identify what types of users who interacted according to particular patterns. As both the Rainbow Road and Place Start communities had central positions as judged by the analyses in the previous section, I have focused on these two communities. I have selected three users from these two communities who are representative of different user types. In the sociograms presented in this section, node size is equal for all nodes. Otherwise, they follow the same design (symbol use) as the user networks shown above (figure 10).

Single Comment Participant

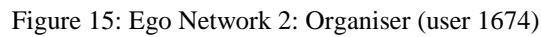
The single comment participant, in lack of a better name, wrote only a single comment. As we saw in the macro-level analysis, 71,1 % of users had a weighted output degree of 1, meaning they belong in this group, and by far it makes up the most common type of user. User 2101 is one of the many users belonging to this type, and used here as an example:



Figure 14: Ego Network 1: Single Comment Participant (user 2101)

Many of these users did not receive any replies (49 %, see section 6.1.1 Weighted Input Degree), like the one depicted in figure 14. This interaction pattern is fairly easy to identify, as it only concerns the quantitative aspects of interaction. Later on, we show how using a combination of quantitative and qualitative methods best identifies the user types.

Organisers are recognised by being active mainly by posting (initiating discussion) in a single community. Organisers write posts, instead of just replying to other users, about how the community could organise their work. User 1674 is an example of the organiser user type:



There were 118 users (6,4 %) who wrote at least one post and were active in a single community, meaning they are potential organisers. In order to clarify whether or not this user actually organised community efforts, we will investigate their interactions from a qualitative (content) perspective in chapter 6.2.

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Diplomats

Diplomats were members of the communities who operated across communities in order to initiate collaboration to resolve disputes regarding shared objects with divergent interests.

User 341 is an example of the diplomat user type:

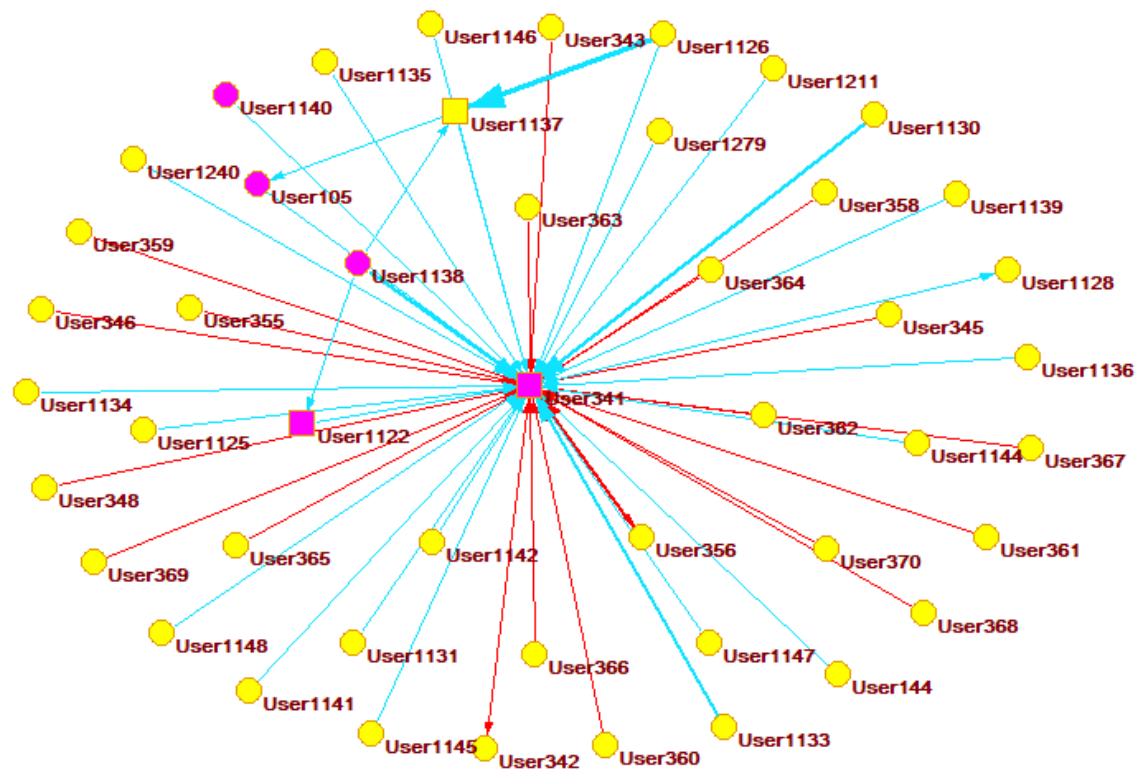


Figure 16: Ego Network 3: Diplomat (user 341). The magenta colour shows user interacted in more than one community

Diplomats are active in more than one community, hence the magenta node. They wrote posts to initiate collaboration, hence the boxed node. As the colour of the ties represents different communities, we can see that user 341 is almost equally active in red (Rainbow Road) and light blue (Mona Lisa Clan) communities. This user is also more closely connected with other users who are active in more than one community, and these are also more connected with each other.

However, this user could just be a member of both communities who happened to send a post, without that necessarily meaning he or she is a diplomat. If we look at the noncumulative evolution of this user's ego network (figure 17), we see that user 341 were active only in the Rainbow Road community on the first day and became active in the Mona Lisa Clan on the

second and third days. As being a diplomat also includes qualitative attributes, it is not possible to identify diplomats using SNA alone. It is therefore not possible to calculate the number of diplomats in the same way as we calculated single comment users, which is a well-defined (mathematically solvable) problem. In the table of interactions across communities (table 7), we saw that around 6 % of the users were active across communities, meaning they are potential diplomats.

We argue that using Interaction Analysis, we will be able to achieve a better understanding of the role of this user, as it allows us to include content elements in our analysis, which is required for addressing problems that can not be solved by mathematics and visualization alone.

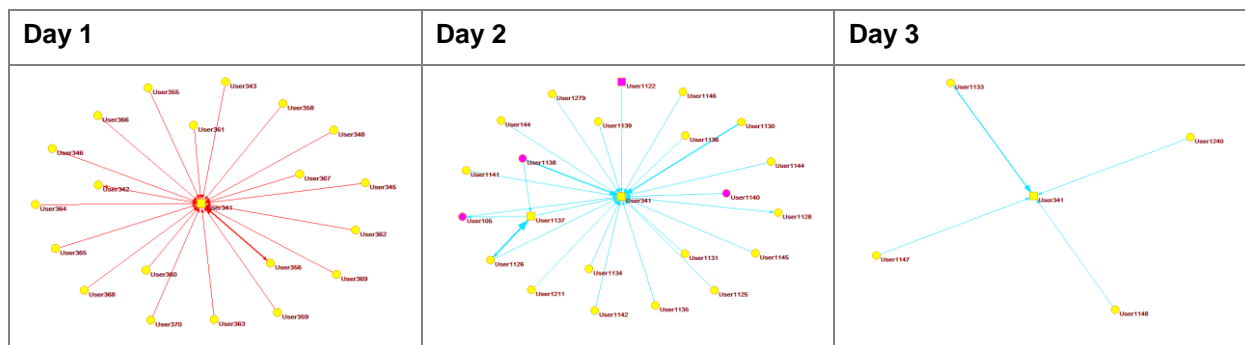


Figure 17: Noncumulative Evolution of user 341 ego network

6.2 Interaction Analysis

In the previous chapter, we explored the structure of the social network surrounding Place. We saw that some communities were more central than others, and that the roles of communities changed over the course of the three days. We saw that some users participated in specific ways and some users interacted across communities.

Moving on, we will dig into the qualitative (content specific) aspects of the interactions, to see if we can find out more about what the interactions were about. What did people discuss within the communities, what did people discuss across them? What was the nature of the interactions of the different user types? How did the discussions refer to the objects they were creating on the canvas?

Based on the insights made using netnography and SNA, I have narrowed down the thousands of discussion threads regarding Place to a handful that I will examine more closely.

In the following I will present some excerpts from these discussion threads. Unlike many other discussion forums where comments often are ordered chronologically, each level of comments is ordered using the Top algorithm. It organizes comments in each level in each thread based on the number of upvotes minus the number of downvotes, from highest to lowest. I.e. the turn of the conversation is based on (1) which post/comment is being replied to, and (2) how highly this reply has scored. The main post is labelled turn 1, and the first comment is labelled turn 2.

The first column in the excerpt's table specifies the turn in the conversation. The User column specifies who has written the post/comment; based on the anonymous user number I have assigned each user. The Content column includes the content of the interaction. The last column contains each user's weighted all degree centrality (WAD).

To enhance readability, each user is assigned a colour for quick recognition. The colour is chosen at random and is therefore not related to the users' role or any other qualities.

6.2.1 Theme 1: Creative Processes

The following is an excerpt from a post in the Rainbow Road community that was made early during the first day. The poster (user 341, see figure 16) suggests that the community should enhance the rainbow pattern they have started on (Figure 18a) by weaving it into itself. They provided a representation (Figure 18b) of what the weaving could look like (a picture, not on the canvas). Figure 18c shows the results of the actual weaving on the canvas.

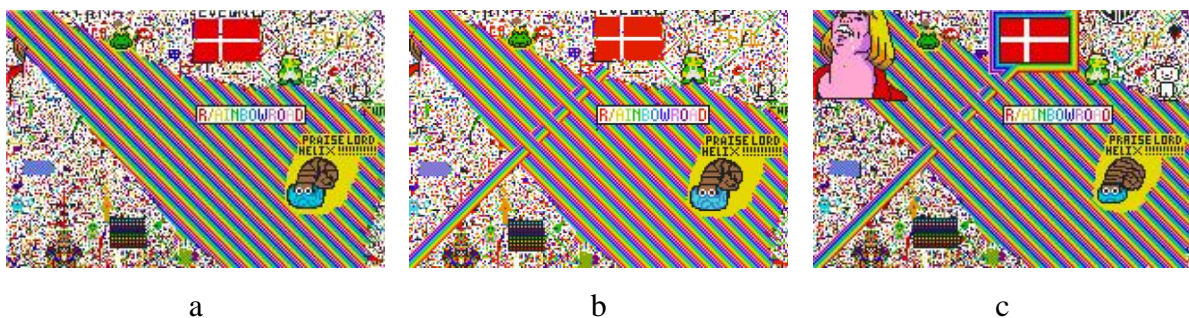


Figure 18: Before weaving (a), weaving suggestion (b), actual weaving (c)

Figure 19 provides some further information about the objects that are discussed the following two excerpts.

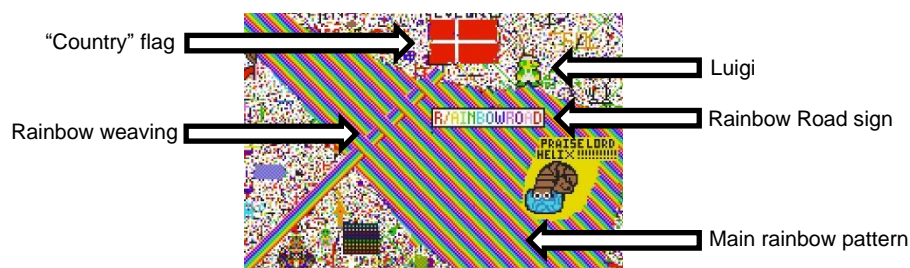


Figure 19: Rainbow weaving context

Turn	User	Content	WAD
1	User 341	WE MUST WEAVE THE RAINBOW! (rendering)	54
2	User 348	What do we do when we hit the country flag? go right towards Luigi?	4
2.1	[deleted]	Bounce down and tie in with original rainbow? Then fill out from there?	-
2.1.1	User 342	We'll have to see how well it lines up probably	3
2.2	User 349	Go through it. Flags are not art. We should consume it.	4
2.2.1	User 350	Dont destory our flag plz...	3
2.2.1.1	User 349	It's ok, we're going to split and go around each side instead: <i>[link to post about how to split the rainbow around the flag]</i>	4
2.2.1.1.1	User 350	Thanks i will join you. Once our flag is safe!	3
2.2.1.1.2	User 351	Good. I'm fine with this.	1
2.3	User 353	I'm in.	1
2.4	User 354	We get really close to it, then at 12:00 PM midnight, we strike! /s	2

Table 8: Excerpt 1: Weaving the Rainbow (1)

The interaction starts with user 341 posting a suggestion about weaving the rainbow. User 348 then questions what will happen when they expand the rainbow to reach the “country flag” (Danish flag), as the rainbow pattern is drawn from the bottom left corner and diagonally upwards. The user wonders if they will have to “turn” the rainbow to the right and avoid the flag (turn 2). This means they are instead headed towards the video game character Luigi, which is located to the lower right of the Danish flag. Other users reply with different suggestions, like doing a “bounce” where the rainbow is “reflected” off the flag (2.1). User

349 suggests going through the flag since “flags are not art” (2.2). User 350 requests that their flag isn’t destroyed (2.2.1), implying they wish to represent the Danish (flag) community in some way or another. User 349 then links to a post about how they are going to “split” the rainbow and go around the flag (2.2.1.1). User 350 and user 351 both support splitting the rainbow (2.2.1.1.1, 2.2.1.1.2). User 353 supports the idea of turning right towards Luigi (2.3), while user 354 suggests expanding the rainbow close to the Danish flag, and then “strike” at “it” (the flag) at midnight, only to conclude the comment indicating that it should not be taken seriously (the affix “/s” implies sarcasm, turn 2.4).

User 341, who posted the suggestion, is a relatively active and/or influential user (WAD = 54), compared to the other users in the excerpt (WAD between 1 and 4).

6.2.2 Theme 2: Community Building

The following excerpt is another comment thread from the same post about weaving the rainbow. The users are discussing how they can make “random people” work together to weave the rainbow.

<i>Turn</i>	<i>User</i>	<i>Content</i>	<i>WAD</i>
3	User 356	The only problem is getting random people to work it all together. x3;	4
3.1	User 341	well good thing we are unified force for rainbowage, not random people!	54
3.1.1	User 356	True! But there could be some stray helpers that do not know of /r/ainbowroad.	4
3.1.1.1	User 357	Well I was a stray helper, but luckily there was a big sign that led me here	1
3.1.1.2	[deleted]	They may have seen our sign	-
3.1.1.2.1	User 356	Yeah, I noticed it but didn't really bother going to the reddit until later when someone linked it on the main sub. So there could be others who just are laying down pixels. But it looks like you guys are pulling it off! So, grats!	4

Table 9: Excerpt 2: Weaving the Rainbow (2)

User 356 states, in turn 3, that to create the weaving pattern “the only problem is getting random people to work it all together”. User 341 (the author of the post) replies that the

people working on the rainbow are “not random people”, but a “unified force for rainbowage”. User 356 then replies that some people might be “stray helpers” and that they don’t know about the Rainbow Road community. User 357 and a deleted user both point out that the “sign” is important for stray helpers to become part of the rainbow community. User 356 then answers that they noticed the sign but didn’t visit the Rainbow Road community until it was linked in the main Place subreddit. The user explains that there could be other people who are “just laying down pixels” without knowing about the plans of the community. They then conclude the comment by acknowledging that the weaving pattern seems to be successful and congratulates the others.

The sign they are referring to can be seen in figure 19 and is an integrated part of the rainbow pattern on Place. The phrase “r/ainbowroad” refers to the web address of the community.

Again, the poster, user 341, is the most central actor, while the others are typically average. We don’t know the degree centrality of the deleted user.

6.2.3 Theme 3: Compromise

The following is an excerpt from a discussion thread in the Mona Lisa Clan community about how to solve the problem of the rainbow currently crossing over the lower right corner of the Mona Lisa, and “hitting” the Swiss flag on the way (Figure 20a). You might recognise the Mona Lisa from the image of the post that was presented in chapter 2.1 (figure 1).

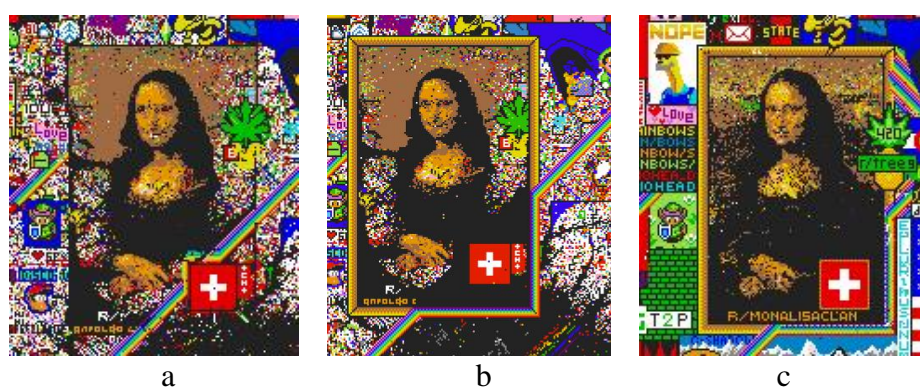


Figure 20: The Mona Lisa before collaboration (a), frame design suggestion (an intermediate representation) (b), and after collaboration (final results) (c)

User 341 (the diplomat user type, who also suggested the weaving of the rainbow) posted an image (Figure 20b) of a possible solution. The suggestion was that the Rainbow Road

community collaborated with the Mona Lisa community to make a frame for the Mona Lisa, and that the rainbow could follow the frame around the “painting” instead of going through it. However, members of a third community, “r/trees”, were not pleased with the frame as it crossed over (and would therefore destroy) their pineapple and leaf, located to the right of Mona Lisa’s face. The Trees community is a forum for discussing recreational cannabis use, and has a special relationship with the number 420, which is why they wanted to place their artwork over the tile with the coordinates $x = 420$, $y = 420$. This tile happens to be within the area claimed by the Mona Lisa community. Figure 20c displays the Mona Lisa after the collaboration.

<i>Turn</i>	<i>User</i>	<i>Content</i>	<i>WAD</i>
1	User 341	hello from rainbowroad, LET'S GIVE THE MONA LISA A FRAME, and incorporate the rainbow!!!!!!!	54
2	User 1131	Please go around the pot leaf and pineapple. Leave us stoners be. /r/trees wants to leave their mark too. We set it up at 420/420, and there it will stay.	6
2.1	User 286	I like the idea and i get it, 420,420, but don't you guys think that was a bit inconsiderate?	18
2.1.1	User 1132	I agree, it is inconsiderate for someone to put their artwork over another's, especially when they were there first.	3
2.1.1.1	User 286	They could have put that pineapple anywhere and it would've been fine if it was just overlapping a bit like the hornets up top, but they made it way too intrusive. And why are you stalking me? Kinda cool i have a girl stalking me though.	18
2.1.1.2	User 1133	Our pineapple was in unclaimed territory first? Then r/monalisaclan proceeded to square out their picture and completely wipe out our pineapple, tag and leaf overnight.	7
2.1.2	User 1131	Nope. It's our holy right to set it up at 420, 420.	6
2.1.2.1	User 286	No it's not. You guys are just being hard-headed.	18
2.1.2.1.1	User 1131	Hey, you can take it up with the rest of us fighting over at /r/trees, but it's not a fight you're gonna win. 420 is 420 man	6
2.1.2.1.2	User 1133	Uh, you wiped out our pineapple with your HUGE Mona Lisa (which did not have a frame or square outline then) and we're trying to cooperate with you.	7
2.1.2.1.2.1	User 286	That isn't true. We weren't the ones responsible for wiping you guys out initially. It was a group of rogues and vandals.	18

Table 10: Excerpt 3: Mona Lisa Frame Suggestion

User 341 started the discussion thread by posting the frame suggestion, stating that they represent the Rainbow Road community: “hello from rainbowroad”. User 1131 (turn 2) requests for the frame to go around the leaf and pineapple, and states that the pineapple and leaf will stay where they are. User 286, a relatively active and central user in the Mona Lisa community (WAD = 18), acknowledges the reason for placing the leaf and pineapple just there, but asks if placing there is “inconsiderate”. User 1132 states that it is inconsiderate to put artwork over other people’s artworks “especially when they were there first” (2.1.1). User 286 replies again, saying that they (Trees community) could have placed the pineapple and leaf anywhere, and the problem is that the pineapple is “too intrusive”, and that a smaller overlap wouldn’t be a problem (2.1.1.1). User 1133 also answers user 1132, claiming that the pineapple was there first and that Mona Lisa “wiped them out” (2.1.1.2). In turn 2.1.2, user 1131 replies that they don’t think it’s inconsiderate to place the pineapple there, as it is their “right”. User 286 disagrees (turn 2.1.2.1), calling the Trees members “hard-headed”. User 1131 again explains that the pineapple will stay (2.1.2.1.1). In turn 2.1.2.1.2 user 1133 again claims that the Mona Lisa community “wiped out” the pineapple, and that they are trying to cooperate. Finally, in turn 2.1.2.1.2.1, user 286 states that “rogues and vandals” were responsible for the “wipe out”, not the Mona Lisa community.

6.2.4 Theme 4: Request

The fourth excerpt is from the Place Start community. They were relatively late to start their project to create a Windows 95 start menu and taskbar design at the bottom of the canvas. User 1674 (organiser) posts a picture of a possible taskbar design (figure 21b), trying to encourage the members of the community to work on integrating the name of the community (r/placestart) in the design instead of expanding further to the right. A user then requests whether it is possible to integrate a memorial for a late musician into the taskbar design. The original memorial (figure 21a, “RIP TOM”, to the right of the start menu) was overwritten when the Place Start community built their taskbar. (Spoiler alert: figure 21c shows us the results of the request.)

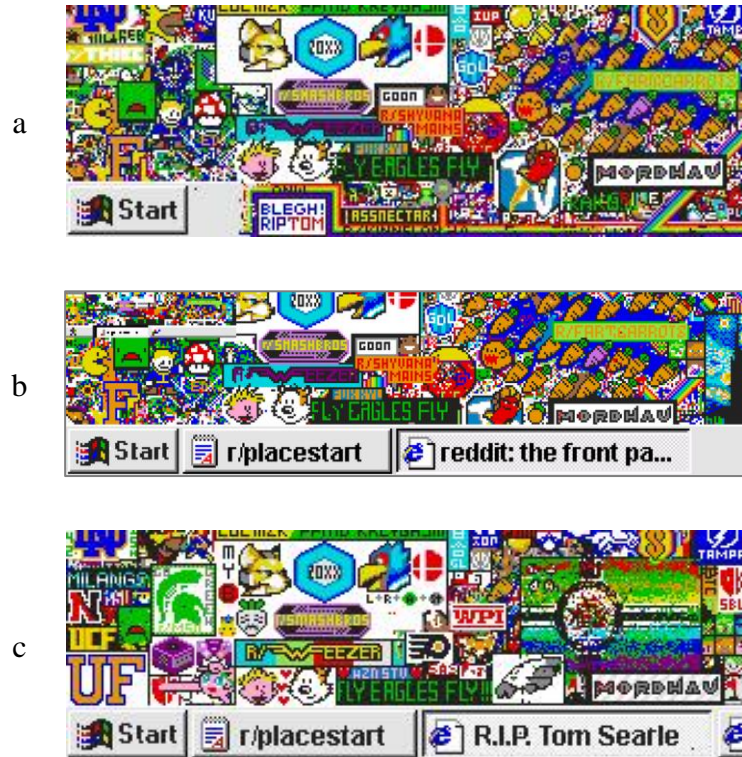


Figure 21: The Taskbar and memorial before integration (a), taskbar design suggestion (b), and after integrating memorial (c)

Turn	User	Content	WAD
1	User 1674	Ok, THIS ONE. We're doing r/placestart FIRST to get more manpower for the rest of the project.	105
2	User 1693	Is there a way to integrate the RIP Tom memorial in the taskbar ? It's just a small piece that means a lot to the people in r/metalcore	6
2.1	User 1687	It will likely be the second window at this point	13
2.2	User 1694	Who is Tom? Also, yes, we could totally integrate it, same way we're integrating the sub's name.	5
2.2.1	User 1693	Tom Searle was the guitarist and songwriter from the metalcore band Architects. He died in august after a 3 year battle with cancer. For me personally it was amazing to see how such a relatively unknown band has such a close fanbase that they managed to take a spot on the canvas. Same way that it is amazing how you guys are willing to integrate the memorial of a person you never even knew of in your design. It may be a small gesture, but I think his means a lot from Architects fans all over the world!	6
2.2.1.1	User 1694	Wait, is there a "RIP Tom" that's going to be eaten by the taskbar?	5

		I don't see one. Or are you guys wanting to create one down there?	
2.2.1.1.1	User 1693	No there was one, it has already been eaten by the taskbar. It was just next to the start icon.	6
2.2.1.1.1.1	User 1694	Oh Ok.	5

Table 11: Excerpt 4: Taskbar Design

The interaction starts with user 1674 posting a design suggestion for the taskbar. User 1693 asks, in turn 2, whether it's possible to integrate a memorial for late musician Tom Searle. In the highest scoring reply, turn 2.1, user 1687 says that the memorial is likely to be integrated. User 1694 replies as well (2.2) by asking who Tom is, while being positive to integrating the memorial like they have integrated the community's name. In turn 2.2.1, user 1693 explains who Tom is, and what the memorial and integration means to them. User 1694 asks if the memorial is going to be overwritten by the taskbar or if they haven't made it yet, because they can't see it anywhere on the canvas (2.2.1.1). User 1693 explains that the memorial has already been "eaten" (2.2.1.1.1), and user 1694 answers "ok" (2.2.1.1.1.1).

User 1674, who posted the suggestion, does not take part in the integration discussion.

7 General Discussion

In this chapter, I will review the results of this thesis in the light of the research question:

How was the social network around Place structured and how did the participants practice 21st century skills in mass collaboration on Place?

I will start by discussing the first part of the research question, which is about the structure of the social network, before moving on to the second part, which regards practising 21st century skills.

7.1 Social Network Structures

Although many people were involved in Place, few were actively involved in the interactions on Reddit. Most of the participants (71,1 %) made only a single comment, and 25 % of users produced 60 % of the comments, which explains the weighted average degree of 3 for all the communities. Participation inequality is an important issue, although the inequality may not be as severe as we see in other cases of mass collaboration, like Wikipedia (Nielsen, 2006).

In figure 10 we saw that most users were connected to the main network throughout the three days. Even the Black Void, a community that claimed to be unorganised and without plans to collaborate with anyone or within themselves, was well connected to the whole network and was in fact the most active and central community on the third day. Place provided an environment where those who actively tried to avoid collaboration ended in the very middle of it, while the Rainbow Road, one of the earliest communities to actively collaborate with others, became less active and collaborative over time.

I don't find any evidence that the people working together on Place are friends or know each other before starting to collaborate. Thin lines represent most of the ties between users, which mean the users were not frequently interacting with each other. In fact the weighted average degree of 3 and the unweighted average degree of 2,7 implies that most users did not interact frequently with each other. In excerpt 2, a user mentions that the members of the Rainbow Road community are just "random people" (turn 3). According to Granovetter (1973), weak ties are important for communities to be successful, as strong ties encourage conformity, whereas weak ties strengthen diversity and creativity. Weak ties connect smaller communities

and subgroups. Many of the communities were more densely connected within themselves (cohesive) than they were with the surrounding network (see, for instance, The Blue Corner in figure 10, day 1). According to Sawyer (2006), this is the ideal network structure for encouraging creativity. We argue the Place network was composed of such creative communities based on these structures.

7.1.1 User Types

Throughout the three days, the boxed, yellow nodes were the most central, as they were generally bigger and more centrally positioned. This means that the most important users wrote posts and were active in a single community. I call these users Organisers. Organising within each community seemed to be the most important activity, as most users on Reddit are active in a single community (Buntain & Golbeck, 2014), and this seems to be true in communities concerning Place as well. Whether a community was collaborating with others or not, it was important to inform other participants and provide design plans and suggestions for next steps, because most users were likely to only be concerned with the design(s) of their own community.

There is an increase in the size of the magenta nodes during the last day, and more of them are boxed, implying that users active in more than one community became more active and took more initiative. This can mean an increase in diplomat type users writing posts, but a user could be a member of more than one community (magenta node) without being a diplomat. User 341 wrote a post (excerpt 3) in the Mona Lisa Clan, opening with the phrase “hello from rainbowroad”, indicating that the user identifies as a member of the Rainbow Road community, not a member of the Mona Lisa Clan. The content of the post shows that the user has diplomatic intentions.

An increase of the need of diplomat users can be explained according to Tapscott and Williams (2008) who said that groups first have to work together internally before they can work with external partners. It could also be explained by the limited space on the Place canvas. Communities that wanted to continue working on the canvas were forced to collaborate with other communities, because there was simply no uncharted “territory” left to claim.

In figure 17, we can see that user 341 was first active in the Rainbow Road community, before becoming active in the Mona Lisa Clan. The user wrote the post reproduced in excerpt 1. The post is about design of the Rainbow Road community, indicating that the user is an organizer. This suggests that user types aren't necessarily mutually exclusive. User 341 could be characterized as an organizer that went on to become a diplomat, or an organizer that also worked as a diplomat. Using the available data, it is not possible to clarify this any further. Therefore, basing out analysis solely on SNA data, it would appear like user 341 first was an organizer in the Rainbow Road community, and then went on to become an organizer in the Mona Lisa Clan. However, we can dismiss this idea by analysing the content of the post they made in the Mona Lisa Clan (see excerpt 3). Furthermore, it is interesting to notice that it doesn't seem like user 341 "reported back" to the Rainbow Road community. Although not included in the dataset of this thesis, a post regarding collaboration to create the Mona Lisa frame was started in the Rainbow Road community by another user. This could strengthen the theory that user 341 acted like a diplomat, as he or she was not involved with the internal affairs of creating the frame.

The diplomacy of Place is not a simple question of "sending" a representative to another community to ask if they want to collaborate. Take the question of putting a frame on the Mona Lisa (excerpt 3), for instance. This thread was initially intended as the start of a collaborative effort between the Mona Lisa Clan and Rainbow Road communities, but much of the discussion was about how a third community (Trees) would be affected by the collaboration. The interactions between communities didn't necessarily concern only two communities, but several.

Buntain & Golbeck (2014) identified two different user roles among Reddit users, known as answer-person and discussion-person. When comparing these roles with the ego-networks in section 6.1.2, the ego-networks all seem to belong to the answer-person role. However, by including a larger and more complete dataset, it is likely to find participants of Place that belong to the discussion-person role.

I consider the user types I have identified to be preliminary, as the three types, the Single comment participant, Diplomat, and Organizer only account for a maximum of around 83 % of all the users in the selection. I'm not suggesting that there aren't other user types, and it would be interesting to look into what other methods or variables one can use to identify the

user types more accurately and completely, and in ways that allow for patterns matching with other online communities.

7.2 Practicing 21st Century Skills

Greenhow et al. (2009) mention that learning through social media sites is something that happens when students use them to talk about school, but as we shall see, learning through social media is about much more than talking about school.

Reading the excerpts, we saw that the participants took part in different types of conversations. In this section I will discuss how the participants practiced four categories of 21st century skills, (1) communication and collaboration, (2) creativity and innovation, (3) social and cross-cultural interaction and (4) initiative and self-direction. Although I am presenting the findings within these categories of skills, many of the activities of Place could fit into more than one category.

7.2.1 Communication and Collaboration

Communication and collaboration regards the nature of the communications and the collaboration that happened around Place. Many of the users who wrote comments did not discuss, but wrote short replies often supporting suggestions made by others. In excerpt 1, there are three supportive comments, and none of them received any replies. In general, it seems that supportive comments do not invite further interactions, but perhaps they provide a closure and are important for the execution of the suggestions on the canvas.

Instead of focusing on the supportive comments, we will look at the conversations that involved other types of comments. In excerpt 2, a user raises a concern about the participants being “random users”, and that it is a challenge to make sure people know about the plans the community is making. Because of the rules of Place, the communities realised it was important that as many participants as possible were aware of plans and followed them. This issue was partly solved by the creation of “signs”. Both the Rainbow Road, the Mona Lisa Clan and the Place Start community (and many others) incorporated web address signs into their designs. In excerpt 4, the influential user 1674 encourages the other members of the community to work on the sign: “We're doing r/placestart FIRST” (turn 1). The focus on signs could be explained by an acknowledgement of the importance of being accessible and open to

members within the community, and to other communities in order to succeed, and to avoid “stray helpers”: users that are helping the cause of the community by placing tiles without knowing of the community at all. Since the stray helpers didn’t participate in the discussion, we know little about them. This could be an interesting subject for further inquiry. Creating the signs was a design activity that could be said to have the purpose of supporting further design activities.

The design suggestions that are the basis for all the excerpts, are all based on visual externalisations. The participants that wrote the posts added visual representations of their ideas, instead of presenting them using written words alone. Fischer (2013) describes these externalisations as necessities in the collaborative process, although written words also could be defined as an externalisation. In excerpt 1, many participants wrote replies with design suggestions, but they did not make visual representations of the ideas. The one idea that became reality, the splitting of the rainbow, was represented visually (although this representation is not included here). Perhaps more users would have considered the other suggestions if they were represented using images, because the outcome of the design itself was a visual image.

7.2.2 Creativity and Innovation

While the whole idea of Place could be considered something creative in itself, I will present some findings that suggest that there were creative processes involved with the development of the designs on the canvas. In excerpt 1, the participants were discussing what to do with the Danish flag. In turn 2, user 348 identified a creative problem, hence completing the first stage of the creative process. In the following turns, other users came up with ideas on how to solve the problem. This is the fifth stage of the creative process, meaning that some of the stages are “missing” from the discussion. We don’t know whether the users gathered information or took time off for incubation, or went straight to combining the idea of weaving with the idea of splitting, an example of stage 6.

Somehow, they agreed to go through with this idea, someone with power made the decision, or perhaps no decision had to be made, as the members of the Rainbow Road community (and “outsiders”) could simply start placing tiles regardless of any agreement. If this was the case, the participants “voted” for the idea by placing tiles. As we know, the weaving was completed, and the community went through with splitting the rainbow around the Danish

flag (stage 8). The users built on each other's ideas, the weaving, and the splitting, based on input from people inside and outside the community, and created a solution to the problem regarding the “collision” between the rainbow pattern and the Danish flag (figure 22).



Figure 22: The rainbow pattern woven and split around the Danish flag

7.2.3 Social and Cross-cultural Interaction

What happened on Place might seem abstract and random at first, but there are some signs that it wasn't. Consider the Tom Searle memorial (excerpt 4), for instance. We don't really know why the members of the Place Start community were so positive towards the integration, but a reason could be that they understood that integrating the memorial would cost them very little but mean a lot to other people across the world. It didn't seem to matter that they didn't know who the memorial was for, as user 1694 didn't know who Tom Searle was but was positive to the integration regardless.

The Place Start community had already integrated their own name, hence they had experience integrating and saw that it could be done successfully. Perhaps they felt obligated to integrate the memorial because of the fact that it was indeed a memorial, a feeling that was made even stronger when they realised they had, in fact, already “eaten” the existing one. This suggests that the design choice to integrate the memorial was made based on social and cross-cultural interaction, and not for reasons like aesthetics. Perhaps the members of Place Start simply felt it was the right thing to do.

The Mona Lisa Clan/Trees incident (excerpt 3) was a little different, as the excerpt shows a different “tone of voice”, where the fronts seem to be harder and compromises more difficult to achieve. Firstly, the Mona Lisa Clan wanted to make an “accurate” representation of the Mona Lisa, meaning that integrations directly disrupted their work. Secondly, the Trees community might be considered controversial, meaning that some users might not want to collaborate with them. They also had a reason to place their artwork at the exact location they

had, which members of the Mona Lisa Clan did not unanimously approve of. Despite this, by the end of the experiment, the communities managed to reach a compromise. Looking at the evolution of the canvas, we can also see that the pineapple and leaf were in fact almost entirely overwritten or “wiped out”, before coming back in a smaller and less “intrusive” design. It is not clear how these events unfolded, or who was behind the removal of the Trees community’s artwork.

Some of the words the participants are using in excerpt 1 about weaving the rainbow can give us an idea about how Place is understood by its participants. They use words like “hit”, “go”, “bounce”, “consume”, “strike” and “destroy”. The use of gaming-like language can be explained by the users sharing a general interest in gaming, and that this language helps them communicate efficiently. But it can also be explained by the “nature” of Place itself. There seems to be a connection between the use of language and the creative outcomes of Place. The participants view the rainbow pattern as something that can move and behave in certain ways, and that they can control the pattern and make it do “bad” things. Even though Place arguably can’t be defined as a game, the users seem to understand it as such. It is, however, not clear what came first. It could be explained by the participants seeing how the designs on Place evolved and “moved” and started talked about it like something that was “alive” or game-like, or, perhaps the participants used the gaming jargon from the beginning, and that affected the way the designs evolved.

By viewing the animated version of the canvas, it is possible to see examples of how objects seemingly “attacked” each other or behaved in other significant ways. Some examples include how the video game character *Mega Man* (above van Gogh’s *Starry Night*) shoots a frog (notice the “blood”, see figure 23), or how the upside down skeleton character (to the right of Mona Lisa) suddenly has a cigarette he proceeds to smoke.



Figure 23: Video game character starting to “attack” frog (a), frog initiates “counter-attack” (b), frog is shot (c)

7.2.4 Initiative and Self-direction

The participants of Place were generally not assigned roles or tasks. I have not found any posts where, for instance, user 341 was assigned the role of being Rainbow Road's diplomat to Mona Lisa Clan, or where user 1674 was assigned the role of organising the Place Start community and creating and distributing design plans. This suggests high levels of self-direction. The structure of the social network also suggests initiative and self-direction, as there is no evident hierarchical structure.

The organisers gave the members of each community resources they could apply when placing tiles on the canvas. However, the members weren't assigned tiles. It was up to each participant to consider where to place tiles, and to decide if they wanted to follow the suggestions made by the community or not. The participants did not receive any rewards, hence participation was based on internal motivation (Csikszentmihalyi, 1996), perhaps with a hope of achieving some kind of "Internet street cred" (Boudreau & Lakhani, 2013). This means that participants have to identify goals on their own, implying self-direction.

8 Conclusions

Based on a sociocultural understanding of learning, focusing on the participation and collaborative knowledge creation metaphors and by applying netnography, social network analysis and interaction analysis, we have gained a broad perspective and insight into how the social network surrounding Place was structured and how some of the conversations regarding Place unfolded.

Most users were not actively involved in the discussions. There are signs that Place was structured around a changing, loosely connected social network, with some stable features, like the average degree (average number of times a user interacts with another user in the social network). The participants were connected with others within and across communities. I have identified three preliminary user types: 1) Single comment participant, 2) Organiser, and 3) Diplomat.

We have seen how some participants were practicing 21st century skills, in particular communication, collaboration, creativity, innovation, social and cross-cultural interaction, initiative and self-direction. The participants used visual artefacts to express and share their ideas, as well as written language in the asynchronous discussion boards.

Individually the participants could place pixels.

Together they created something more: an environment that provided valuable learning experiences.

8.1 Suggestions for Further Research

It is arguable whether something like Place will provide the same learning opportunities if we change the context. While working on this project, I came across a teacher who had created a Place-like paper canvas at their elementary school. The pupils were allowed to place sticky notes of different colours on the canvas at regular time intervals. Although the idea of a collaborative canvas like Place is a new concept for many of us, this teacher has already tried to use a similar approach in a formal educational setting. It would be interesting to see the outcomes of this teacher's use of a collaborative canvas, and if the participants practice the same, or different skills in this context.

I have only discussed the practice of some of the 21st century skills. This is not because other skills weren't practiced, but because of the scope of the thesis. I suggest further research continues to investigate how generic skills are practiced in contexts like Place.

Another insight I have made, is the need for a theoretical framework for understanding the different aspects of large scale collaborative creation of non-textual artefacts. Much work has been done on understanding collaborative creation of textual artefacts and knowledge. As it is disputable whether the participants are creating knowledge, and that the outcomes of Place are both textual and visual, existing frameworks don't seem to afford the best "fit" possible.

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Appendix 1: Place Rules

- Only accounts created before 31-03-2017 may place tiles
- Be Creative
- Be Civil
- Follow Reddit's content policy
- Don't Post Personal Information

Appendix 2: NSD Assessment



Anders Mørch
Postboks 1092 Blindern
0317 OSLO

Vår dato: 13.02.2018

Vår ref: 58187 / 3 / OOS

Deres dato:

Deres ref:

Vurdering fra NSD Personvernombudet for forskning § 31

Personvernombudet for forskning viser til meldeskjema mottatt 08.01.2018 for prosjektet:

58187

Massesamarbeid på internett om et ikke-tekstlig artefakt: Hvordan samarbeider mennesker om å skape innhold på "r/place"?

Behandlingsansvarlig

Universitetet i Oslo, ved institusjonens øverste leder

Daglig ansvarlig

Anders Mørch

Student

Kristina Torine Litherland

Vurdering

Etter gjennomgang av opplysningene i meldeskjemaet og øvrig dokumentasjon finner vi at prosjektet er meldepliktig og at personopplysningene som blir samlet inn i dette prosjektet er regulert av personopplysningsloven § 31. På den neste siden er vår vurdering av prosjektopplegget slik det er meldt til oss. Du kan nå gå i gang med å behandle personopplysninger.

Vilkår for vår anbefaling

Vår anbefaling forutsetter at du gjennomfører prosjektet i tråd med:

- opplysningene gitt i meldeskjemaet og øvrig dokumentasjon
- vår prosjektvurdering, se side 2
- eventuell korrespondanse med oss

Vi forutsetter at du ikke innhenter sensitive personopplysninger.

Meld fra hvis du gjør vesentlige endringer i prosjektet

Dersom prosjektet endrer seg, kan det være nødvendig å sende inn endringsmelding. På våre nettsider finner du svar på hvilke [endringer](#) du må melde, samt endringskjema.

Opplysninger om prosjektet blir lagt ut på våre nettsider og i Meldingsarkivet

Vi har lagt ut opplysninger om prosjektet på nettsidene våre. Alle våre institusjoner har også tilgang til egne prosjekter i [Meldingsarkivet](#).

Vi tar kontakt om status for behandling av personopplysninger ved prosjektslutt

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Ved prosjektslutt 31.12.2018 vil vi ta kontakt for å avklare status for behandlingen av personopplysninger.

Se våre nettsider eller ta kontakt dersom du har spørsmål. Vi ønsker lykke til med prosjektet!

Marianne Høgetveit Myhren

Øyvind Straume

Kontaktperson: Øyvind Straume tlf: 55 58 21 88 / Oyvind.Straume@nsd.no

Vedlegg: Prosjektvurdering

Kopi: Kristina Torine Litherland, kristitl@student.uv.uio.no



FRITAK FRA INFORMASJONSPLIKT

Prosjektleder har i utgangspunktet informasjonsplikt overfor den registrerte. Retten til informasjon om behandlingen av personopplysninger er en grunnleggende rettighet. Personvernombudet finner likevel at det er rimelig å gi fritak fra samtykke og informasjonsplikt i dette prosjektet. Opplysningene som registreres vurderes som relevante for å oppfylle prosjektets formål. Data er ikke sensitive, offentlig tilgjengelig, lagres i en kort periode og vil bli publisert i anonym form. Personvernombudet vurderer personvernulempen som liten. Etter personvernombudets vurdering kan personopplysningene behandles med hjemmel i personopplysningsloven § 8 d). Det er personvernombudets vurdering at prosjektleder kan unntas fra informasjonsplikten jf. personopplysningsloven § 20 b), da varsling anses som umulig eller uforholdsmessig vanskelig. Det er videre ombudets vurdering at samfunnsnyten i prosjektet overstiger personvernulempen til den enkelte.

INFORMASJONSSIKKERHET

Universitetet i Oslo er behandlingsansvarlig institusjon for prosjektet. Personvernombudet forutsetter at du behandler alle data i tråd med Universitetet i Oslo sine retningslinjer for datahåndtering og informasjonssikkerhet. Vi legger til grunn at bruk av mobil lagringsenhet er i samsvar med institusjonens retningslinjer.

PROSJEKTSLUTT

Prosjektslutt er oppgitt til 31.12.2018. Det fremgår av meldeskjemaet du vil anonymisere datamaterialet ved prosjektslutt. Personvernombudet gjør oppmerksom på at anonymisering innebærer å:

- slette identifiserbare opplysninger som brukernavn

For en utdypende beskrivelse av anonymisering av personopplysninger, se Datatilsynets veileder:

<https://www.datatilsynet.no/globalassets/global/regelverk-skjema/veiledere/anonymisering-veileder-041115.pdf>

Appendix 3: Information Letter

Request for participation in research project "Mass collaboration on r/place"

Background and Purpose

The purpose of the project is to understand the mass collaboration aspect of r/place. I am interested in studying how people collaborated to create images on r/place within and across subreddits. The project is a Master level project at the Department of Education, University of Oslo. It is not commissioned.

You are receiving this letter because you have in some way participated in the collaboration process of r/place by interacting in what I understand to be relevant subreddit discussions.

What does participation in the project imply?

Participating in the project does not require any active participation. The only data sources I will use are available subreddit posts and comments that you made during the duration of r/place in publicly open subreddits. If you participated in several subreddits these may be seen in relation. I will not be citing posts or comments I regard to be unrelated to r/place. I will not collect any other information about you on reddit.com or any other sites. By participating you agree that I may cite your posts and comments in the project.

What will happen to the information about you?

All personal data will be treated confidentially. Only myself and my supervisor will have access to the information about you. Usernames will be stored separately from the other data to ensure confidentiality. Data will be stored on a password protected computer and/or on the university network (also password protected). Data material will be completely anonymized when the project is completed.

Your personal data will not be recognizable in the publication.

The project is scheduled for completion by June 1st 2018.

Voluntary participation

It is voluntary to participate in the project, and you can at any time choose to withdraw your consent without stating any reason. If you decide to withdraw, all your personal data will be made anonymous.

If you don't want to participate or if you have any questions concerning the project, please contact Kristina Torine Litherland, email: kristitl@student.uv.uio.no or Anders Mørch, email: anders.morch@iped.uio.no.

The study has been notified to the Data Protection Official for Research, NSD - Norwegian Centre for Research Data.