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Helping as participation in an open online community: An exploratory study

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A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy in Education

University of Warwick

Centre for Education Studies

April 2016

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ACKNOWLEDGEMENT

To Esther, Naima, Asima, Shaidatul Akma, Mohammed, Eirini, YoonJeong Lee, Hazrati and to all who have helped me before - Thank you very much for your support and assistance, the countless discussions that had led to the development and the completion of this thesis. Thank you.

DECLARATION

The work in this thesis was developed and conducted by the author between December 2012 and April 2016. I declare that, apart from work whose authors are explicitly acknowledged, this thesis and the materials contained in this thesis represent original work undertaken solely by the author. I confirm that this thesis has not been submitted for a degree at any other university.

Parts of this study have been presented on several occasions, including:

1. Participation Within Open Online Community: The Case of PhotoPeople, In: *CES 2ⁿᵈ Annual Interdisciplinary Postgraduate Conference* (2014), University of Warwick, UK.
2. Altruistic?: Exploring Activities in an Open Online Community of Independent Game Developers, In: *CES 3ʳᵈ Annual Interdisciplinary Postgraduate Conference* (2015), University of Warwick, UK.
3. The Curious Case of Online Participation, In: *3 Minute Thesis Competition - Finalist* (2015), University of Warwick, UK.
4. Helping as participation in an open online community: An exploratory study, In: *Doctoral Consortium, Tenth International Conference on Networked Learning*, (2016), Lancaster University, UK.
5. Lurking as Learning: The Case of Participation in Online Communities, In: *Kaleidoscope Conference* (2016), Cambridge University, UK.

Papers in publication by the author:

1. Hanif, H., Hammond, M. (2016) Why and How Do Members Provide Help For Others Within Online Communities, In: *Tenth International Conference on Networked Learning Proceedings*, Lancaster University, UK.

ABSTRACT

The study explores the issues of participation, and to an extent, learning in an open online community of independent game developers, GameSalad.com. GameSalad is a firm-hosted online support forum for a desktop application of the same name. It is geared to provide members and users with a platform for sharing of information pertaining to their game development, and a place to seek and provide help. It is a large community with over 114,000 registered members (as of March 2015), with an average of 106,000 monthly active unique users, and a high degree of activity such as the posting of tutorials and tips, sharing game development progress, and announcing the launch of a new game. However, the majority of the interactions on the forum are concerned with seeking and providing help. This study focuses on issues around community, participation, and learning within online networks and is underpinned by a concern for participatory and social experiential perspectives on learning.

In order to explore participation, an exploratory mixed-method approach was used. This involved a three-phase data collection procedure. First, observation of interaction in the community was carried out (noting the pattern of threads opened, weekly leader boards, resources, and general practices) coupled with document analysis to identify threads that reflected high participation or were deemed beneficial by interviewees. Second, online survey of 35 items including five demographic items, twenty forced 2-point semantic differential scale items, and ten 5-point Likert scale items was carried out, to measure members' perceptions of the community and identity (n = 110 responses). Third, semi-structured sequential

interviews were carried out with 21 volunteer interviewees online, using the forum's own private messaging system over a period from August 2014 to March 2015.

Although originally conceived as an overarching study of online participation, the study became focused on the more active members of the community, and on the question as to why and how some members of online communities appear to take on helping roles. The findings from both survey and interviews showed a strong sense of community among active members, and that active members saw their identity in the online community as an extension of their off-line self.

Although open to all members, participants who volunteered to be interviewed tended to be among the more active members and many had adopted 'caretaker' or helper role in the community. The interviews showed that giving help was motivated by a mix of extrinsic and intrinsic elements, in particular, helpers were aware of the need to sustain the community and in many cases felt an obligation to offer help as a return or 'pay it forward' for the help they had received in the past. They were motivated by community mindedness, empathy, self-confidence and sense of identity. The giving of help depends on 'mood', this mood is generated not only when helpers feel they have the available time and relevant expertise in order to help, but also when those asking for help have asked in an appropriate manner and provided sufficient contextualisation.

In part, learning in the community is seen as a social exchange, and members put a value on the discussions they saw useful. However, this study reveals some of the

problems experienced by the company behind the community, tensions among some members of the community, as well as issues pertaining to shared knowledge and artefacts. This study improves our understanding of community of practice, the provision of help, the motivation for helping, as well as the dynamics of participation in an open online community. It gives insight into the sustainability of online community by showing the motivation, strategies for, and consequences of helping. It also gives insight into how informal learning is embedded in social interactions and perceived value. The study is not a unique case but it is one of an underreported area, a highly participative community. Methodologically, this study offers mixed method approach with a strong focus on qualitative data and analysis methods, with an innovative way of triangulating data.

"I'm sorry, but I don't want to be an emperor.

That's not my business.

I don't want to rule or conquer anyone.

I should like to **help** *everyone - if possible - Jew, Gentile - black man - white.*

We all want to help one another.

Human beings are like that.

…"

- Sir Charles Spencer "Charlie" Chaplin,

(Chaplin, 1940)

CHAPTER 1: INTRODUCTION

Overview

- The problem is explained.
- It describes the research interest, the goals, the research context, as well as the importance of the research work.

This chapter starts with a brief introduction to the history of the Internet, the role it has in our communication, the problem of participation found within it, particularly in online communities. It also describes the pivotal moment in the process of carrying out the study. Following this, there are sections on the source of interest, a brief discussion of the problem, the research questions, as well as a discussion of the importance of this study for the wider community. This chapter has been included to give readers an overview of the research, its problem, as well as providing an early understanding of the context under study. The final section of the chapter describes the thesis ahead.

Of being in touch.

Born out of the fear that the Axis powers would drop a bomb and wipe out telecommunication infrastructures during the World War 2, the ARPANET - a military funded project was conceived, to ensure that military and other important data will survive, in the event of a nuclear blast. This was achieved through a networked computer terminal, where most of the military strategic data would be stored, which had no single geographical point of reference and in the event of a war, would not easily become the target for an enemy attack. This distributed system would ensure that the data would survive even if one of the 'nodes' in the network was bombed, and this was the origin of today's Internet. The system connected computers between participating research laboratories under several universities to form the network. It was first introduced among scientists, and was later released to the world circa early 90's, and has since sparked a movement of information sharing that has revolutionised the way we acquire information.

The Internet, defined as an electronic network of computers and other electronic devices, allows person-to-computer, and person-to-person interaction and information retrieval (DiMaggio, Hargittai, Neuman, & Robinson, 2001) to be easier than ever before. Despite the growth of the Internet and reports of its contribution towards dispersion of knowledge, many believe it to be a 'double-edged sword'. While most enthusiasts believe that the low-cost, easily attainable information the Internet provides has brought benefits to people of a lower-income and a growing number of research in the social and psychological effects of the Internet (Kraut *et al.*, 1998; Bargh & McKenna, 2004), there are concerns that the Internet has widened the digital divide. The Internet has impacted communities and social capital, influenced politics and politicians, affected organisational practices, and

raised cultural issues (DiMaggio et al., 2001; Katz, Rice, & Aspden, 2001) which are unsettling.

Nevertheless, the Internet is of considerable value. The citizen of the world today is living in a rapidly developing of interconnected global world. Within this ever-expanding, intricate web of social life, the chance of network collision i.e. making new connections between one another, is greater than before. This is a direct effect of the Internet, or at least what we are making out of it. With the advancement in the way the Internet is built i.e. from a few simple HTML pages and hyperlinks, to more complex web applications built around technologies such as Javascipts and PHP, more and more opportunities present themselves. The underlying reason behind this phenomenon of the Internet is believed to be embedded in our natural instinct - to communicate, to interact, to socialise, as part of 'being in touch' (Rettie, 2003), and with the advent of the Internet, social behaviour had amplified into the virtual realm. Whether this amplification and transfer is a success remains a debate among scholars.

This exponential take up of new technologies has opened up new channels for people to communicate with each other (Rasanen, 2008). Part of these channels are the online communities, offering a 'congregational' venue for people of distributed place and time(zone). These often mimic the real world communities, but to what extent it is mimicked remains uncertain. Although many studies of online communities show benefits (for example B. Anderson, 2004; Cristóvão et al., 2009; Hemmasi & Csanda, 2009; Gammelgaard, 2010) for example greater involvement may: positively affect performance; enable collaborative learning; and facilitate

knowledge building and sharing. However, the other side of the coin reveals concerns such as loss of social capital and connection to the real world communities. Wellman, Boase and Chen believed that while the virtuality of the communities enhances and transforms its members, context, and content, the same condition can weaken communities (2002). Other researchers (for example Donnath, 1999) shared the same concern.

Perhaps, due to their optimism concerning the advantages of online communities, researchers have kept on trying to understand how online communities work, particularly in relation to the problematic nature of participation in this mediated environment. The unpredictability of human nature lends itself well to online participation and communication, but this makes it one of the trickiest areas to research. Furthermore, from the literature, scholars have found several elements that may contribute to participation, e.g. social presence, sense of community, and identity, but how these elements work together to support participation in open online community, has not been adequately addressed. This research aims to provide an extension of the current body of knowledge on participation, and to an extent, learning within online communities, by exploring the possible nature of participation within an online community of independent game developers, GameSalad.com.

Help: An unexpected, but welcomed change.
This study was set out to understand the highly participative nature of an open online community of independent game developers GameSalad. As the study developed, it became focussed on the more active members as most of the survey

participants as well as interviewees were among the highly participative members of the community. In particular, interviewees, who were the primary source of data for this study, were among those who contributed to the community, in terms of building shared artefacts, as well as taking a more responsible role in the community, helping other members with their game development problems. As there were only few research studies that have focussed on active participants and helping behaviour, this presented a unique opportunity for me to understand the role of the helpers in keeping the community alive, supporting participation and learning.

> **"If Statement Question. Is nesting possible in GameSalad?**
> *Guys, I'm new to Game Salad, but it definitely is easy to get the hang of and I am enjoying it so far... but I am having trouble understanding how limited or (unlimited) the "if" numeric functions are. Or if I'm making it more complicated than it has to be… Here's my problem …"*

Titles and queries like the above were a common sight in the forum. A quick browse through the forum revealed nearly all the threads concerned in some form or another, members asking assistance on problems. Typically, queries started with a description of a problem, followed by a lengthy discussion of either the solution, or clarification of the question/scope of problem, or both. At the outset, one of the most striking aspects of participation in this online community was that help was given freely. One of the reasons for membership and members participating in a community, was to seek help and advice. This is perhaps the case for communities that offer support for a particular practice, product, or service.

Thus, this research study explores the issues of community, participation, and learning, focussing on the more active members of an online community who took

on the helping role. It looks at their motivation to help, the ways they helped others, the effects of helping, as well as elements that hindered the giving of help. This shift of focus was reflected in the research questions, which were previously designed more generally.

RESEARCH INTEREST

The interest to actively explore participation and learning dimensions within mediated environments began when I was dabbling in the idea of community of practice for my postgraduate master research report in 2010. I had a chance to investigate barriers and catalysts to learning within an online community of practice, set up to support the development of an online teaching resources repository in Malaysia. The project, which is now abandoned and defunct (the website is not accessible anymore), consisted of several communities of practice groups to support the development of digital teaching and learning modules. My report was related to one of these groups - the Instructional Designers (ID) group. This group was set up to provide assistance and advice on the design and the general development of the digital modules, working with other groups such as Subject Matter Experts (SME), and Content Developers (CD). Assuming a participant-observer role, I was able to see the development of the ID group, from face-to-face meetings, through to online asynchronous 'meet-ups' on Google+ (https://plus.google.com/). What captured my attention the most, was the pattern of participation within this group during the course of the study and the lack of sustained debate. The fact that the group struggled to attain and retain participation from its members set the direction of my research interest into inquiry towards the enablers and inhibitors of participation in mediated environments.

In that study, I managed to outline seven factors that acted as barriers as well as catalysts to learning within an online community of practice, while using the Legitimate Peripheral Participation and the idea of participation as learning as the research lens to guide the analysis (see Lave & Wenger, 1991). The seven factors were comfort level; discourse; interest; content familiarity; technology; offline communication; and lurking. Although the identification of barriers and catalysts to learning within online communities is important, generalisation of the findings was limited.

Upon reviewing literature in this area, I could not help but to think about its fragmented nature, perhaps due to the different contexts for which the communities were built. Problems of participation re-occur across the literature (see McLure Wasko & Faraj, 2000; Ardichvili, Page, & Wentling, 2003; McLinden, McCall, Hinton, & Weston, 2006; Borzillo, 2007; Guldberg & Mackness, 2009) and this drew me to investigate further. It led me to explore the issue of participation more deeply - to understand how people participate, what motivated them to participate, what did they do, what did they gain from the activities, and if there was any, elements seen as limitations to participation.

RESEARCH PROBLEM

The aim of this thesis is related to the important but problematic issue of participation in online communities. We have seen the power that online communities can have and that they can be big in terms of membership size and high in participation rate. Sustained communities often exert an impact on their

members including emotional identification as well as pragmatic gains in various forms, such as provision of a solution to a problem, and outsourcing the creation of resources and shared knowledge from like-minded people. Active members of online communities such as the authors of Wikipedia, the programmers and coders of StackOverflow, the photographers on Flickr, the advocates of open source community at Github and Open Source Initiative may have benefited highly from their commitment to the community, but too little is known about this. Nowadays, we also begin to see a shift in the education sphere, with the take up of the Massive Open Online Course (MOOC). However, in order to sustain MOOCs, a sense of community is needed to complement the more formal learning, with a hope of sustaining users' interaction and participation. Sites such as Codecademy, Coursera, Udemy, make use of two-way communication between members for this purpose. The key issue we are still facing is the age-old problem - participation.

It is truly a chicken-and-egg situation. Communities will not come into being if there are no members participating, but membership will not grow if there are no interactions in the community to entice new members in. Scholars have, for more than half a decade, questioned participation in mediated environment - the psychology behind it, as well as its sociality. Short, Williams and Christie (1976), among the earliest scholars to seek an understanding of how we communicate in telecommunication media, introduced a concept they called 'social presence'. Mehrabian (1971) too have explored a similar concept earlier, under the idea of 'immediacy' in media. These concepts were taken up by other scholars, interested in further understanding the dynamics of human interactions in mediated environment, especially within the boundaries of online communities.

The Internet brought the aspirations of the 'real world' community into the virtual dimension. Nevertheless, the claim that technologies (and its products including online communities) jeopardises values and social capital of offline communities, by individualising social life (this in contrast to how people have been participating in communities years ago), has been associated with Robert Putnam's *Bowling Alone* (1995). However, Putnam has been criticised by scholars who saw the potential of technologies such as the Internet for connecting people. Through the work of earlier scholars such as Short et al. (1976) and Mehrabian (1971), as well as those who have taken up these ideas, such as Gunawardena (1997), Preece (2001), and Rovai (2002a), we have come to know more about how social presence plays a part in determining satisfaction, and how a sense of community influences participation. For example, Rovai brought in the issue of building a sense of community within an educational dimension, which widened our understanding of the elements that influence members in a community. Together, social presence and sense of community gave us a socio-psychological construct to understand participation, and although this gives us a promising start to understanding the problematic nature of participation in online communities, we have yet to arrive at a point where we can say that it is a definitive solution to the problem.

The methodological problem concerning participation is that it has mainly been studied through measuring actions that are external to the 'doers', through content analysis of conversations in a community, data mining, and statistical inferences from the community statistics. This is useful only insofar as to inform us of activity but not intention. We need to get to the people who participate, to get their side of the story, to understand their actions in the community. This will enable

understanding of actions beyond the numbers and words on the screen. It will provide an opportunity to understand how informal learning occurs in a context that does not have a distinct pedagogical structure.

This study aims to provide an account of a highly participative online community, to provide stories of how and why the high level of activities came to being, to understand the drivers of participation, the descriptions of participation, and the limitations of it, as well as exploring the benefits of participation, whether participation is seen as learning by the members within an open online community. It is hoped that an exploratory study into a highly active online community may provide us with important knowledge for those seeking to develop and sustain communities.

RESEARCH QUESTIONS

In line with the focus mentioned previously, this research attempts to address the overarching question: "*How does help keep community alive?*". Four sub-questions are then pursued hereafter:

1. *What kind of community have active members helped create?*

2. *What motivates and constrains participation?*

3. *What and how do members learn?*

4. *How and why do active members help?*

RESEARCH CONTEXT

The first attempt.

I am an autodidact. I learned many things, mainly through books and resources that are available online. One of the skills that I learned by myself was how to become a professional photographer. For this, my primary sources of inspiration and knowledge was from an open online community of photographers at PhotoMalaysia.com forum and from Flickr accounts of fellow photographers around the world. The experience that I had in the forum and among the community members were different to what I experienced in the ID community of practice back when I was exploring for my Masters research report. The PhotoMalaysia forum was alive, thriving with comments and new postings of images daily and others commenting on the images posted, giving advices and tips, as well as other general talks on photography techniques. The contrasts with the ID community in terms of participation was enormous and it inspired me to embark on this research study. This study was originally designed to explore the stories of participation in this community forum which I dubbed the 'PhotoPeople' community.

The community forum was a congregational place for photographers from all walks of life - professionals to 'newbies' to share ideas and their work, as well as a place where members could buy and sell photographic equipment - a well-equipped community. The main focus for the study was on a specific part of the forum, where members would display their own work, and this would be criticised by/commented on by others. It was in this community that I learned how to properly capture images using digital cameras myself, reading others' comments on

my work, reviewing others' work, replicating ideas in my own work, as well as finding my own 'style' of photography.

I was a member in that community for many years prior to seeing it as a subject for this study. The main reason why I did not pursue this focus on PhotoPeople community was the reason of reach. Not in terms of access to the community, which I had successfully negotiated with the forum administrators, but in terms of getting feedback from participants during the study. After testing the online survey questionnaire earlier with the GameSalad community, I carried out the same survey with the PhotoPeople community. However, after advertising discount vouchers they would be awarded if they opted in to the survey, my efforts went largely unnoticed. The advertisement was placed on strategic points throughout the forum, yet after a month, there were only 15 participants who has replied. This was a surprise for me since I had been an active member of this community for about 3 - 4 years ago. In search for the story behind this lack of response, I contacted some of the old-timers who I befriended during my active years in the community. According to some, participation in the forum declined, partly because of the internal conflicts between members, but the main reason was that the forum had become more focussed as a trading centre in the buying and selling of photographic equipment, rather than the sharing of information and advice in the showcase sections.

From this, I learned a valuable lesson: that online communities live and die in respect to members' participation. An online community can be active at one point, and can meet an early death, or a sudden change of focus in a short time. This made

me realise how powerful participation can be in a mediated environment. For this, I became much more interested to understand, what drives active members to participate in online communities.

Changing the context.

At the beginning of my PhD journey, I started to delve into mobile applications and games development to satisfy my hunger for a more technical knowledge. Due to gaps in programming know-how, I searched for software authoring application that enabled easy 'drag and drop' programming, and found GameSalad (www.gamesalad.com) to fulfil the requirement. The tool, built and maintained by a company by the same name, had an open online community behind them. My involvement in the community was minimal during the first few months. It later became more frequent as I sought help from other community members for problems that I encountered during my own app development. Little that I knew, my side-learning adventure would become the focus of this research. I went back to the GameSalad community and decided to focus on this community because of the richness of the data that I received from the initial (pilot) study, and that the high participative activities that were happening in this community which were comparable to what I had experienced in the PhotoPeople community 4 years earlier.

The community.

The GameSalad community was running on top of a forum/bulletin-board web application 'Vanilla Forums' (https://vanillaforums.org/). The community was open, in a sense that public could get access to most of the threads and sections on the forum, without the need to become a member. There was a small exclusive

section, dedicated for registered Pro-members. The 'Pro' label was a designation given to paid members, and did not necessarily reflect the individual's level of expertise. The only restriction in the general forum space was that users had to be registered in order to create a new discussion thread, or to leave a comment.

GameSalad software enables users to build bespoke mobile applications, specifically games, with the help of its visual drag and drop programming system. Users can import assets (graphics and sounds) into the software, drag them into the work area, and assign conditional behaviour to them such as, play a sound or move an item up or down 20 pixels. This is typical software of its kind and enables users to combine a mix of conditional statements and assets to create complex systems that users would recognise as games.
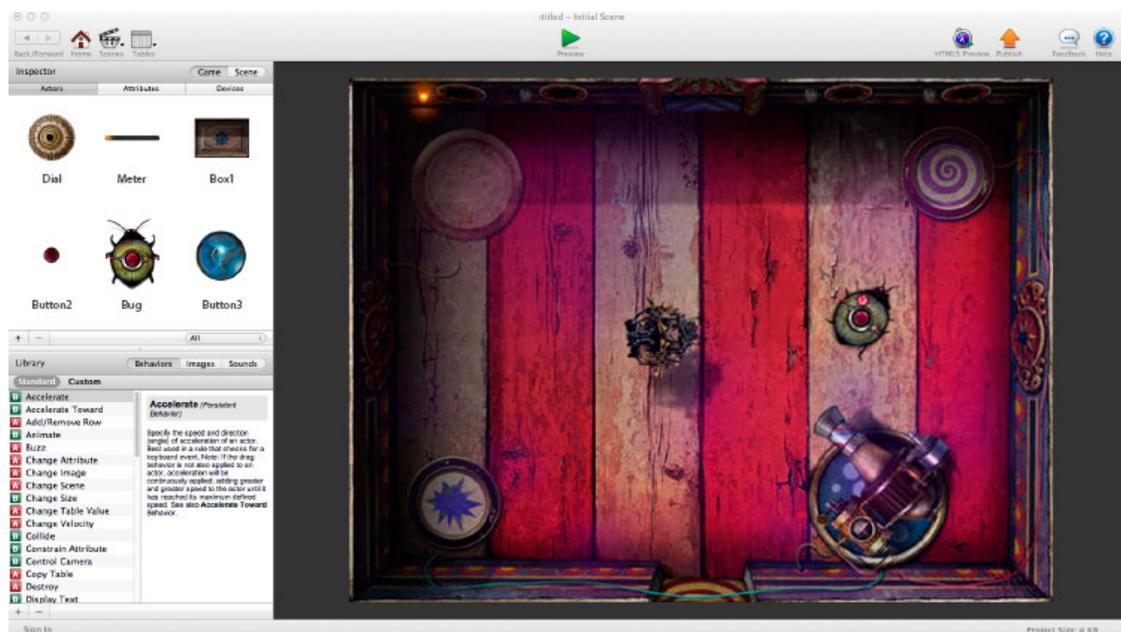
Figure 1: GameSalad interface (taken from www.gamesalad.com).

Figure 1 shows a typical interface when building a game on GameSalad. The top left window is where users would store graphical as well as sound assets. The bottom left window houses the behaviours users could apply on the assets. The area on the right is where the users would arrange the graphic assets by dragging and dropping, as well as assigning behaviours to it.

The GameSalad Inc. company, at the time of the study, offered free access to the software 'GameSalad' with some limited functionality, which users were able to access once they paid a reasonably modest membership fee. With the free version of the GameSalad software, users were limited to publish their games and applications to only Apple Appstore. Even with this limitation, the free version of the software was adequate for users to be able to create games and applications (they have changed their business model towards the end of the study period, requiring users to pay either monthly, or annual fee to be able to use the software). A particular notable feature in the GameSalad community was the high level of helping activities. This prosocial behaviour was seen as a second nature, an automatic response to the cries for help from other members, yet there was no documented account of what drove these behaviours.

SIGNIFICANCE OF THE STUDY

Understanding community, learning, participation, and the prosocial behaviour - help, in online sphere can be useful in providing explanation and support to online community building initiatives, such as those which serve the interest in online learning (such as Swan, 2002; Hrastinski, 2009), corporate and consumer reach, as well as a lens to further explore the issues concerning participation in online

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educational initiatives for example, Multiple Online Open Courses (MOOCs). By understanding the context of which help emerged, the conditions under which helping behaviour may more likely be displayed, the outcomes of help, as well as identifying elements that may seen as a hindrance to help, this thesis will have the potential to aid community managers (online and offline). This may in turn (and in time) help them build a community that has the capacity to be 'alive' overtime, with much of the interactions generated through active participation between the community members themselves.

SUMMARY AND CHAPTERS AHEAD

The problem then is that little is known about the prosocial behaviour of members in an open online community, and that methodologically, studies on participation often focus on the quantitative data, which only provide an incomplete account of participation. The goal of this thesis is to shed some light onto the helping phenomenon and how it affects participation in online community. Guided by the four sub-questions and one main research question, the following chapters will include the exploration of issues of participation, community, learning in the Literature Review (Chapter 2), the description of methodology and methods used for data gathering (Chapter 3), the presentation for the analysis and findings of the data (Chapter 4), the discussion of the findings in the light of the literature reviewed (Chapter 5), and the conclusions, recommendations, as well as the setting for future research directions (Chapter 6).

CHAPTER 2: LITERATURE REVIEW

OVERVIEW

- Discussion of three key areas – Community, Participation, and Learning.
- A discourse into the key areas, as well as a review of cases that are similar to the case under study.

This chapter provides a narrative literature review covering ideas that are closely related to the study, participation, community, learning, methodologies, and review of cases of online communities that are similar to the case under study. The review was carried out by accessing online databases as well as books, through a mixture of systematic search and snowballing methods. The review started with the use of a search engine Google Scholar, to identify papers indexed from journal sites. This was followed by a more refined searches with selected online publisher sites such as Elsevier and JSTOR using similar keywords. Papers were then collected and managed through the use of a reference manager software, Papers (http://www.papersapp.com/). Online searches were carried out using English keywords such as 'participation', 'community', 'online community', 'learning', 'online learning', 'sense of community', and 'social presence', to name a few. The field of participation, community, and learning is very broad, thus some discrimination was needed, based on the level of relevance to my context. Although the field is an international one, the majority of the studies are carried out in western countries such as in the United States and the United Kingdom.

The review offers a narrative. It takes the readers through a story about *community*, *participation*, *learning*, and a *review of cases*. For example, I explored the notion of participation, in order to understand the term as a basic construct. This led to an

exploration of literature specific to online participation. A similar structure of inquiry was used in developing an understanding of 'community', as well as 'learning'. To identify studies similar to GameSalad, I relied on my knowledge of communities that I had been a member of, or had seen previously. Some studies were set in context such as Wikipedia, Flickr, and StackOverFlow which offered cases that explained help, and these are referenced even though they do not cover game production.

The process of reviewing literature was challenging, since the field was very broad and a high degree of interpretation was needed. The review started at the beginning of the study and continuously evolved throughout its duration. Due to the new found focus on prosocial behaviour in online communities, the review was updated and some sections were added to reflect this focus. The chapter ends with identifying issues for the study.

COMMUNITY

The literature review began with an exploration of a key word for my research: 'community'. This section is divided into several sub-sections to include: a *history of the word*; a description of *community supported by computers*; and an exploration of *sense of community*.

COMMUNITY: THE HISTORY OF THE WORD

The word 'community' is deeply embedded in the history of mankind. It represents a collective state of being for us, and has followed the progression of humanity

from the early years of human history until today. In this section, I will outline several leaps of progress of humanity and mankind, and discuss how each time, these shifts mould the word and the concept of 'community'.

The origin of the word 'community' can be traced back to the Latin expression *'communis'* or *'commūnitās'*. The early conception of the word denotes, to a certain degree, a grounded and bounded system, as reflected in the Dictionary.com online as "a social group of any size whose members reside in a specific locality, share government, and often have a common cultural and historical heritage". 'Community' was found to exist among agrarian clusters and settlements of post-neanderthalensis in ancient times, as humankind shifted from hunter-gatherer colonies, to farming communities, able to domesticate animals and plants to ensure better living. Although the thought of hunter-gatherer and farming communities may appear as less-romantic than the notion of community that we understood today, there were certainly strings of similarities that reflected the societal structure of the early humans as a community or several communities, as Harari(2014, p. 103) succinctly elaborated -

> *"Members of a band knew each other very intimately, and were surrounded throughout their lives by friends and relatives. Loneliness and privacy were rare. Neighbouring bands probably competed for resources and even fought one another, but they also had friendly contacts. They exchanged members, hunted together, traded rare luxuries, cemented political alliances and celebrated religious festivals. Such cooperation was one of the important trademarks of Homo sapiens, and gave it a crucial edge over other human species. Sometimes relations with neighbouring bands were tight enough that together they constituted a single tribe, sharing a common language, common myths, and common norms and values."*

The idea of a community (and that of society) was seen as natural part of social life by early scholars of philosophy, for example Confucius, Plato, and Aristotle. Ibn

Khaldun, an Islamic scholar renowned for his contribution in sociology, economics, and history, provided a detailed and thorough analysis on the early Islamic communities in his book 'Muqaddimah', introducing a concept, similar to 'community' - *assabiyyah*. In the modern English-Arabic lexicon, 'assabiyyah' is understood as a "social solidarity with an emphasis on group consciousness, and unity" (Esposito, 2003). In his book, Ibn Khaldun provided a detailed description of '*group feeling*' - a reference to sense of community and identity, how it was developed within and between the Bedouin tribes, and how it moved from being exclusive to tribal-lineage, into a mixed community – 'confused', as how Ibn Khaldun put it.

The word community was used to identify the 'democratic sovereignty' in medieval times, and had since been, on a number of occasions, associated with rebellions and assembly revolts. In ancient Spain, its most renowned use was the 'Revolt of the Comuneros' or the "War of the Communities of Castile" (de Ugarte, 2014). Later, Etienne Cabet took up 'community' as the foundation of his egalitarian movement the in late 16th century France. Later still, following the Industrial Revolution in Western Europe, sociologists and social psychologists started to question the dynamics of human communication and relationships. Writers such as Ferdinand Tönnies, Emile Durkheim, and Max Weber all asked: "what was the significance of a shared life in highly differentiated society?".

These early scholars provided a foundation of the concept 'community', but over time communities faced a new challenge that of 'massive social dislocations'(Stearns, 2012) caused by industrialisation and capitalisation, and this had an impact on the

way 'community' was viewed. With industrialisation, came urban crowding, stratified social classes, and social mobility. Tönnies offered a lens through which we could see this historical change, in his idea of '*Gemeinschaft und Gesselschaft*'. 'Gemeinschaft' is often associated with 'community', and 'Gesselschaft' with 'society'. Tonnies argued that we were generally social beings, and that human relationships were created by will: natural will and rational will, with which we formed our view of others. According to him, community was a real organic social bond, while society is mechanical construction of the mind (2001). In this, Tonnies offered an interesting take to the concept of community - "*Wherever human beings are bound together in an organic fashion by their inclination and common consent, Community of one kind or another exists*"(page 28). Community is said to have three elements to it, related to one another as a progression - community by *blood*, community of *place*, and community of *spirit*, with each element illustrates the expansion of unity.

Tonnies work is well cited but not always accepted. Max Weber, known for his *three-component theory of stratification* class system, responded to Tonnies's ideas from the perspective of 'power' and 'social order' within communities. In this, he implied that 'community' and 'society' were different - the former was more traditional, and affective (Ritzi-Messner & Veldhoen, 2010), the latter entailed complex interactions between power and social status.

COMMUNITY SUPPORTED BY COMPUTERS

The latest 'shift' in the concept of community happened with a military event that changed the course of human history - the World War 2 (WW2). The technology then was primitive if compared to today, but the basis for computing existed. Post

war, a significant development was the establishment of a military intelligence agency called Advanced Research Projects Agency (ARPA) in the U.S.A. determined to find a way to connect multiple computers to make it easier for academics and scholars to share digital works across geographically distributed computers - the Internet in its infancy.

The idea and initiative of building ARPAnet was spearheaded by Licklider, an engineer and a physiological psychologist and the head of Information Processing Techniques Office (IPTO). His multi-disciplinary background provided a "perspective uncommon among engineers" (M. Hauben & Hauben, 1998). His vision to create a network of computers was heavily influenced by his view of 'community' and the creation of sense of community among computer users. He believed that:

> *… now the move is on to interconnect the separate communities and thereby transform them into, let us call it, a supercommunity. The hope is that interconnection will make available to all the members of all the communities the programs and data resources of the entire supercommunity. (Licklider & Taylor, 1990, p. 32)*

The Internet was built with 'community' at its heart. Licklider's idea of creating a 'supercommunity' resonates until the present day. This is the latest 'reincarnation' of the concept 'community', moving from a concept that was associated with locality, to now being a commonplace concept in conversations, about both offline and online worlds. However, for some, the term became fragmented (Cohen, 1989). Despite this, Yar (2004) believes that the word and its concept continue to capture interest among academics and scholars, particularly because 1) the concept is closely linked to social sciences, and 2) while the death of older forms of community is eminent, technology changes will give birth to a new form of community.

ONLINE COMMUNITY

We are often presented with a dichotomy of community, i.e. the offline and the online community. We use the latter for all sorts of reasons: a person may become a member of a virtual community to learn new knowledge related to his own practice in the real world; another person may join a virtual community of photographers to share his knowledge on the topic of interest. Howard Rheingold – a critic, a teacher and a writer of the book, The Virtual Community, to whom the term 'virtual community' is credited - defined virtual communities as "social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (Rheingold, 1995). In his book, he narrated his experience of being a member of a virtual community, The WELL (Whole Earth 'Lectronic Link), believed to be among the earliest virtual communities, set up in 1985.

The emergence of online community has grabbed the attention of social science researchers and scholars from many fields, opening the door to multidisciplinary inquiry, making community a focal point for debate among scholars. These debates have led researchers to report on the inner workings of virtual communities, e.g. what drives participation and what impedes it, how does online identity form, what creates satisfaction in the process of knowledge construction and so on. As with the case of 'community', online community is open in its interpretation, thus leaving us with a broad range of definitions and typologies.

TYPES OF ONLINE COMMUNITY

Although there have been many instances across the literature outlining types of online communities, for the reason of space, I will examine three recent papers that

have proposed a version of online/virtual community typologies: Stanoevska-Slabeva and Schmid (2001), Henri and Pudelko (2003), and Porter (2004) (see Table 1). As introduced earlier, the GameSalad community can be seen as an example of a hybrid of Organisation-Sponsored, Discussion-focussed Community, and a Community of Interest.

Table 1: Comparison between three online community typologies.

Author (Year)	Online (Virtual) Community Typology
Stanoevska-Slabeva and Schmid (2001)	**Discussion Communities**: Direct discussion communities, Topic-oriented communities, Communities of practice, Indirect discussion communities. **Task- and Goal-oriented Communities**: Transaction communities, Design communities, Online learning communities. **Virtual Worlds.** **Hybrid Communities.**
Henri and Pudelko (2003)	**Community of Interest.** **Goal-oriented Community of Interest.** **Learners' Community.** **Community of Practice.**
Porter (2004)	**Member-Initiated**:, Social, Professional. **Organisation-Sponsored**: Commercial, Non-profit, Government

Some scholars took on a more romantic view of the term community, to represent a group of users, regardless of their communality. This over-attachment of the word is understandable - we often link ourselves to being part of a community in real life, be it in our neighbourhood, schools or hobbies, and that carries forward in our view of the virtual world as well. Scholars tended to present the idea of a workable communal life in studies of online communities. In a way, this over-romanticised view of community often resulted on the overly positive tone in the literature. In an attempt to address this predicament, Gee suggested a new term with a different perspective. Gee outlined eleven features that defined what he termed 'affinity

space': 1) shared common interest, 2) a shared common space, 3) a generative space, 4) progression of space depending on users' contribution, 5) sharing of intensive and extensive knowledge, 6) encouragement of individual and distributed knowledge, 7) encouragement of the use of dispersed knowledge, 8) encouragement of tacit knowledge, 9) multiple paths of participation, 10) multiple paths of status attainment, and 11) porous leadership (paraphrased and generalised from Gee, 2012). The term 'affinity space' came out from his study of online game worlds and of how learning was connected and embedded in these worlds. This new distinction of online space, rather than online community, opens up the discussions that were previously held back by the notion of 'community', particularly on the issue of participation. Although useful, Gee's affinity space was not found to be a good fit as a lens to understand the activities in the GameSalad community. This is because affinity space appeared from Gee's disquiet with the idea of membership and sense of belongingness in fluid networks (Gee, 2012). However, in the GameSalad community, membership and sense of belongingness were evidenced throughout and to an extent, defined the community and its members.

SENSE OF COMMUNITY

Studies of group cohesiveness and community psychology emerged in particular in post war western research literature. For example, Sarason's book 'The Psychological Sense of Community: Prospects for a Community Psychology' (1974) was particularly influential. Sarason described sense of community as the overarching contribution made by community psychology. Community psychology as a field had appeared over-focussed on unusual cases, but Doolittle et al. (1978) stressed the importance of understanding a stable and typical urban

neighbourhoods, and identified six factors that explained sense of community: 1) supportive climate, 2) family life cycle, 3) safety, 4) informal interaction, 5) neighbourly integration, and 6) localism. Doolittle et al's work was well received and in the middle of the 1980s, a systematic call for the formation of a proper definition and theory of sense of community was made. McMillan, Chavis and other colleagues at the George Peabody College of Vanderbilt University, refined instruments for measuring sense of community. Chavis, Hogge and McMillan (1986), and Chavis and Wandersman (1990) saw sense of community as consisting of four elements: 1) membership, 2) influence, 3) integration and fulfilment of needs, and 4) share emotional connection. In particular, Chavis and Wandersman (1990) found a connection between sense of community and satisfaction, and with a heightened state of participation, although the connection to the latter was inconclusive. Apart from examining sense of community at its most raw form - in local communities and neighbourhoods (for example Nasar & Julian, 1995; Prezza & Costantini, 1998; Manzo, 2006), sense of community began to be accepted as a concept in organisations and corporations. Work was extended to workplace settings (see Pretty & McCarthy, 1991; Hughey & Speer, 1999), the findings from which seemed to be consistent with research on neighbourhoods.

Educational researchers were fast to adapt sense of community into educational settings particularly in online classes and courses. This move perhaps was motivated by the difficulties instructors and educators were facing (and are still facing) with participation rates in online courses, among both campus students, as well as distant learners. A particular danger in using sense of community is failing to differentiate between students' individual needs and students' sense of togetherness. Wiesenfeld

(1996) cautioned scholars against looking at community as a homogenous entity and against ignoring differences between learner. We have to present research on communities as "dynamic, historically determined, and complex" (p. 345).

Rovai (2002a) argues that a sense of community can be built in virtual classrooms. In this regard, he outlined four dimensions of classroom community: spirit, trust, interaction, and commonality of expectation and goals i.e. learning. He then further described seven factors that were positively correlated to the sense of community i.e. transactional distance, social presence, social equality, small group activities, group facilitation, teaching and learning stage, and community size. Interestingly, he pointed out the role of grades and credits on encouraging participation, explaining that in order to encourage learners to participate in online discussions on regular basis, they should come to an understanding that "course participation is not only a course requirement, but is also a graded component of the course" (p. 4). Although this view might be unpopular, it asserts the need to acknowledge the instrumental nature of at least some of the motivation for student participation, though in practice, assessment was often found to be neglected by researchers.

Another important contribution by Rovai was the creation of an instrument to measure classroom community, the Classroom Community Scale (2002b). Here he found a significant relationship between classroom community and perceived cognitive learning. Particularly with distant learners, the study found that online learners who had a stronger sense of community felt less isolated and had a greater satisfaction with their academic progress, and this arguably resulted in lower dropout rates. This seems to be the missing piece of the puzzle educators were

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trying to solve on the mystery of participation in online learning. However, other researchers struggled with the application of the concept of community in mediated environments, and often found mixed results. This signalled that there was more to the relationship than Rovai had reported. Blanchard (2004) reports on a study of a weblog (also known as blog) as a community, and found there was no consensus among users of the blog around a shared sense of community. Similarly, Liu et al (2006) explained that although they had found a link between participation and sense of community, students were less convinced of the idea of sense of community. In the same vein, Drouin (2008) reported a mixture of preferences among students' perception of sense of community in an online course, noting that the majority did not see a sense of community as necessary. These and other studies posit a question as to whether learners see what we (educational researchers, educators, instructors) see as valuable for learning and this may also has implications for how help might be valued by learners, in relation to the GameSalad community.

Studies of online sense of community, show variations in depth and development (Blanchard, 2004). McInnerney and Roberts (2004) outlined three protocols that allowed sense of community to be 'built into the fabric of online courses', so that productive social interaction can occur. Shea (2006) and Shea et al (2006) found that teaching presence may have an influence on students' sense of learning community. This and another similar study by Ouzts (2006) tells us that in some aspect, the presence teachers and educators have in an online learning environment is very important in maintaining a sense of community.

Research into sense of community continued but by the year 2000 onwards, the focal point of research had shifted. Scholars have begun to understand that there are other elements at play. Ice et al (2007) experimented with the use of audio feedback to improve students' satisfaction and found that the use of voice feedback improved the instructor's social presence by appearing to be more 'caring'. A further study by Shen et al (2008), using social network analysis highlighted the importance of the instructor's role in forming and promoting social experience among students.

Apart from research into educational settings, a sense of community has been investigated in other contexts, such as virtual professional community (for example Yin, 2010), within community of older people (for example Sum, Mathews, Pourghasem, & Hughes, 2009), and communities of people living with physical disabilities (for example Obst & Stafurik, 2010). Yin (2010) discussed the factors that influenced sense of community among members of a virtual professional community. In this quantitative inquiry, motivations for membership, relationship to offline activity, community management, and technological factors were significantly correlated to sense of community. In a number of research studies, satisfaction and motivation levels in virtual communities has been the subject of interest (see de Valck, Langerak, Verhoef, & Verlegh, 2007; Kim, Baker, & Song, 2007; Wighting, Liu, & Rovai, 2008). For example, Kim et al. (2007) found that when a member of a virtual community had a strong identification and relatively strong desire for social presence and social comparison, this facilitated satisfaction with an online programme. Similarly, de Valck et al. (2007) measured satisfaction through visit frequency, and found a clear connection between the two. Wighting et

al (2008) in a study comparing between traditional group of students with online group, found that the latter had a stronger intrinsic motivation. Having said that, the study was questionable, in that the source from which the students' motivation came from was unclear.

PARTICIPATION

It is clear that critical to any community is the participation of its members. Members often relied on their presence and benefited from the community through their participation. This section covers the *concept of participation*; its *barriers and motivations*; the *act of lurking*; the *help and prosocial behaviour*, and *social presence*.

THE CONCEPT

Participation is one of the basic unit of interactions for human beings. Similar to other key concepts, participation has been defined in many ways, influenced by context in which it is discussed. For example, from the perspective of education, participation is largely being discussed as a form of inclusion (Gibson & Haynes, 2009). In the book 'Participation in human inquiry', Reason (1994) explored the meaning of participation as foundational to human existence, touching on participation as 'consciousness' noting the discourses among early scholars of humanities. The definition of participation as outlined by Merriam-Webster online is - to be either 'the act of participating', or 'the state of being related to a larger whole'. Based on this definition, participation can be further extended to cover action(s) of taking or being part of something (or lack thereof), suggesting participation to be both about action and connection (Wenger, 1998).

In the offline world, participation is naturally considered as both physical as well as active involvement - attending a monthly faculty meeting in a meeting room is considered as attending (in a physical sense), but if the person stayed quiet throughout the meeting, he would not be considered as fully participating in the meeting. This malleable notion of participation and presence has been the trigger to a lot of inquiries, investigating forms and functions. These inquiries have transformed further as we move into the era of the Internet, where connections and interconnectivity are central.

Participation has been studied across a number of online contexts including (but not limited to) education, politics and economics, arts, technology, and applied psychology. Studies of participation in the area of online education have covered several aspects, including content delivery, discussions, and assessment, and research on students and educators (see Wise, Perera, Hsiao, Speer, & Marbouti, 2012; Park, 2015; Zheng & Warschauer, 2015). Politics and economics studies in recent years have reflected a shift towards e-participation, e-government and citizenry, as well as brands-related inquiries, and the roles technologies have in mediating and/or segmenting audiences through political involvement or audience as customers' participation (see Wojcieszak, 2009; Vicente & Novo, 2014). There have been many studies of online participation among gaming and gaming communities, as well as other types of online communities of interests e.g. Flickr, Threadless, and Wikipedia, investigating issues found within those communities that overlapped with the field of technology and psychology (see Teng & Chen, 2014; C. Shen & Chen, 2015). In addition, there are studies that have been carried out on the subject of participation itself, suggesting ways to amplify it (for example Ploderer,

Smith, Pearce, & Borland, 2014), and studies aimed to investigate how gender influenced participation in online space (for example Vasilescu & Filkov, 2013).

The studies above provide us with frameworks, typologies, and theories to explain and support participation in online environment. Examples here would be:

- Knowlton's (2005) taxonomy of learning for asynchronous discussion. This outlined five levels of participation, showing a progression from passive, developmental, generative, dialogical, and metacognitive participation. The underlying idea is that participation may progress through different levels of cognitive engagement as one achieves full participation;

- Salmon's (2004) five-stage model of teaching and learning online sets out stages of participation, ranging from access and motivation, online socialisation, information exchange, knowledge construction, and development. The key theme here is the idea that full participation can be managed and is sequential;

- Preece and Schneiderman's (2009) Reader-to-Leader (R2L) framework describes the possible movement of some peripheral readers towards a more central role in the community, following (but the order may not be restricted to such arrangement) the roles of reader, contributor, collaborator, and leader. Interestingly, this framework offers a more fluid conception of participation towards a central role, in which connections are less sequential;

- Lave and Wenger's (1991) description of situated learning in their social anthropological work on apprenticeship that gave birth to the idea of 'communities of practice' and the definition of learning as participation in the 'legitimate peripheral participation' framework has been a constant

source of reference to online participation even though the concept emerged from a physical context (Gray, 2004; Molphy, Pocknee, & Young, 2007).

Taken together, the literature has tended to provide prescriptions rather than descriptions (Knowlton, 2005) and sequential processes. The result is that the literature can appear overly enthusiastic, overly optimistic about participation and mechanistic about its development.

BARRIERS AND MOTIVATIONS TO PARTICIPATION

Scholars have attempted to explore and come up with an outline of barriers and motivators for participation. Here, seven examples are discussed.

Baran and Cagiltay (2010) found motivators and barriers in the development of online communities of practice for teachers' professional development, through a systematic qualitative inquiry. The study had two research phases: 1) mandatory participation term, and 2) a voluntary participation term. In the course of gathering and analysing data, they identified three broad constructs that may act as motivators: interpersonal; personal; and environmental, and they provided detailed descriptions of items that corresponded to each. For the interpersonal motivating factor, they identified identity; spirit of camaraderie; sense of trust; and general altruism to have an impact in promoting participation. For the personal motivating factor, they found autonomy and readiness in learning; confidence and knowledge; sociability; interest; and altruism to be the basis for participation. From the environmental

factor, the quality of tools; and the advantages of online environments were said to contribute to the enhanced participation. Baran et al. also offered a description of barriers to participation according to the same three constructs. In terms of interpersonal barriers, they found that perceived judgments of others, and mismatched ideology among members to be barriers for the group to fully function. In terms of personal factors, members' reluctance and hesitation in exposing their differences or displaying their knowledge to the group; their reluctance to contribute; and lack of time and priority were all further barriers. At the environmental level, access to technology was identified to be an issue; the nature of the asynchronous communication was inhibiting; as well as the design of the course.

Guldberg and Mackness (2009) examined the factors that enabled or hindered participation in an online community of practice through a mixed method approach. The online community of practice was a workshop that was designed "to align with Wenger's perspective in communities of practice" (p. 528). The data were gathered through log-on and postings archives, questionnaires and semi-structured interviews. The findings revealed five dimensions that either enabled or constrained participation, i.e. emotion; technology; connectivity; understanding norms; and learning tensions.

The participants were seen to have a high state of anxiety at the beginning of the study, but as they understood the expected behaviour during the course, the emotional level dropped. Participants were also affected by the use of technologies for example access issues, the complexity of online environment, and navigation. In addition, the feeling of connectedness – the feeling of belonging to a community

was also identified as an issue. Understanding of the community's cultural norms was found to be elemental in enabling or constraining participation. Moreover, the participants faced different levels of learning tensions throughout the study period, for example, tension between theory and practice, and between novice and experienced participants.

A different scenario was highlighted by McLinden et al (2006) in which they investigated participation in an online problem-based learning community. The online community consisted of one cohort of students studying on a programme for teachers of children with visual impairment. The findings outlined several potential barriers to learning and participation including student expectations; availability versus accessibility of technology; experience of ICT; time management; non-participation; and technical issues.

Wasko and Faraj (2000) in their work on three Usenet newsgroups, delineated a number of motivators and barriers to participation after analysing posts in the newsgroups. As for elements that drove motivation, tangible and intangible returns, and community interest were clearly illustrated. Tangible returns included access to useful information and expertise; answers to specific questions; and personal gain. Intangible returns included intrinsic satisfaction and self-actualisation; and led to enhanced learning and self-efficacy. A strong desire to have access to a community of practice was the most valued feature of the online community. In addition, the researchers pointed out that the participants took the initiative to be involved in the community "due to moral obligation resulting in pro-social and altruistic behaviours"

(p. 168). Another motivation that drove participation was the interest in maintaining the community of profession as a whole.

Wasko and Faraj also found six key barriers to participation: discomfort with level of expertise; timeliness; dealing with big egos; attacks on people's ideas; size of the community; and time. In another setting, Murugaiah and Thang (2010) investigated an English as a Second Language (ESL) instructor's attempt to foster interactive and reflective learning between distant learners in one of the public universities in Malaysia. They too found a number of catalysts as well as barriers to participation in a virtual learning environment. A congenial and relaxing atmosphere; learning from peers; and peer interactions were identified as catalysts for participation, whereas acceptance and adaptation to new technology; time factor; and fear of facing an unknown audience in the virtual learning environment were identified as barriers.

Deng and Yuen (2007) discussed the online communities' success and failure from a different perspective, i.e. from the construction of an online community as an extension to an offline community for undergraduate pre-service teachers in the University of Hong Kong. They found that users' perception of the platform used was a central factor in participation. Using weblog as the platform in question, the researchers stated that it was best served as personal reflective medium, rather than a collective community tool, based on the preferences and perceived affordances by the students. They also concluded that the use of several communication technologies in instruction should be taken seriously into consideration to match the activities and tasks outlined, as synergy between the tools would not come naturally.

Hammond, in a study of three cases of participation in online educational courses using online forums as medium of interaction (1999) found five constraints: time; access to technology; learners' attitude and expectations; pedagogy; and the nature of the medium (p. 356-357). Time was an inhibiting factor when there were external elements that prevented the participants from managing course tasks. However, time could become manageable once students had made participating a habit. It is not the case here or elsewhere that those with most time and most active will participate, and vice versa. Technologies often demand certain set of skills and technical support; access; and software/application familiarity were found to be underlying reasons for non or less participation. Pedagogical design of the courses was also found to be inhibiting. Overall, online interaction seemed to be both empowering and intimidating.

Table 2 presents a grid of barriers and catalysts to participation previously discussed. Although papers addressed similar ideas, each paper brought out different issues, perhaps because each took place in a different setting. Despite this, it is useful to summarise findings in terms of overarching personal, interpersonal, and environmental issues. This shows that participation not only exists as a disposition but also contextual. For example, some people may well be active participants in online communities, but may find certain environmental elements to be inhibitive. Whereas some people may be reluctant to participate, but because the environment is encouraging, they participate. Contexts are also constructed through activities with others in that participation requires feedback and support. In this table, barriers seemed to outnumber motivators (17 motivators against 26 barriers). This is a corrective to the over romantic accounts of online participation. The key

Table 2: Barriers and motivators grid from literature review.

Themes	Motivators/ Barriers	Elements	Baran & Calgitay (2010)	Guldberg & Mackness (2009)	McLinden et al (2006)	Wasko & Faraj (2000)	Murugaiah & Thang (2010)	Deng & Yuen (2007)	Hammond (1999)
Interpersonal	Motivators	togetherness	✓			✓	✓		
Interpersonal	Motivators	trust	✓						
Interpersonal	Motivators	altruism	✓			✓			
Interpersonal	Motivators	culture & norms		✓		✓	✓		
Interpersonal	Barriers	judgements & ideology	✓						
Interpersonal	Barriers	connectedness		✓					
Interpersonal	Barriers	culture & norms		✓					
Environmental	Motivators	technology	✓		✓				
Environmental	Barriers	technology	✓	✓	✓			✓	✓
Environmental	Barriers	asynchronous communication	✓						
Environmental	Barriers	community size				✓			
Environmental	Barriers	pedagogy							✓
Personal	Motivators	autonomy & personal gains	✓			✓			
Personal	Motivators	confidence & sociability	✓						
Personal	Motivators	interest & expectation	✓		✓				
Personal	Motivators	emotion		✓					
Personal	Barriers	apprehension	✓		✓		✓		
Personal	Barriers	time	✓		✓	✓	✓		✓
Personal	Barriers	priority & expectation	✓						✓
Personal	Barriers	attitude & emotion		✓		✓			✓
Personal	Barriers	expertise				✓			

constraints seem to include technology (access, complexity, availability, acceptance, purpose, and skillset issues) and time (lack of time, and time management issues).

LURKING

Non-participation in online communities has often been described as 'lurking'. Much of what has been said about lurking has had negative connotations and assumed that it created no community-benefit, only participation keeps community alive. Kollock and Smith (1996) believed lurkers were 'free-riders', benefiting from the efforts of others. This 'covert' participation does not leave visual traces other than a mark on the 'unique visitors' site statistics. These traces are of doubtful value, or simply paint the imbalanced between 'visits' and activity. A problem remains however that researchers are making assumptions about intentions based on the logistics of the behaviour, and research in this area is still under-developed (Preece, Nonnecke, & Andrews, 2004).

Earlier studies around the act of lurking are often prejudiced but this is not surprising as we do know that visible presence is needed for a community to function. Lurking is under-researched but not un-researched. In a case study of three different online forums, Hammond presented three types of learners, one of which he termed 'quiet learner' with a description akin to that of a lurker as those "who found time to take part by reading messages but not to contribute" (1999, p. 358). Lurking has also been described as a 'parasocial' behaviour in online marketing and consumerism studies (Ballantine & Martin, 2005). It has been viewed as part of the problematic nature of online communities since the non-participation is

disruptive to the growth of the community. Nevertheless, recent studies have shown that lurking is complex and often context-dependent.

The call for a more careful observation of lurking was spearheaded by scholars, at beginning of year 2000 (see Nonnecke & Preece, 2000; 2001; 2003; Nonnecke, Preece, & Andrews, 2004a; 2004b; Nonnecke, Andrews, & Preece, 2006). This literature sees lurking as devalued and underestimated, when in fact lurkers make up the majority of the total users of a site. Nonnecke outlined four reasons for people to lurk: anonymity, privacy and safety; time and work-related constrains; message volume and quality; and shyness over public posting (2001). In the similar vein, Takahashi (2003) argued that lurkers might be beneficial to the community they were in, and this idea was supported by Cranefield et al (2011) when they found that lurkers (or 'follow-feeders') were often connected to multiple circles of communities in different space, both online and offline. They believed that lurkers may have acted as a 'proactive knowledge broker' between online and offline communities, and may raise the profile of a community in face-to-face environment. Nevertheless, these studies have acknowledged the difficulties in understanding lurkers, and how their findings translates to other contexts.

However, studies such as Nonnecke and Preece's (2000), Takahashi's (2003) and Rafaeli et al's (2004) were driven by the idea that lurkers and posters were not the same person, and that there was a line that separate this two type of members. In practice, stating a dichotomy of lurkers/non-lurkers is problematic, since the act can be carried out even by members who might have been categorised under active participants in a community. It is problematic to assume that active members will

keep the same level of activity throughout the duration of his/her membership, and assigning traits to lurkers and non-lurkers further complicates the problem. For example Nonnecke et al's (2004b) identified lurkers as introverted, and posters as extroverted.

Later studies seem to be more open in the interpretation of lurkers and the act of lurking, accepting that lurking is a universal act in some contexts. Muller et al (2010) found that lurking could be applied to all types of members, be it active of less active. In fact, they found that active participants were the most active in lurking in online community too. Similarly, Chen and Chang (2011) acknowledged different levels of lurking in online community, and that lurking was not one type of user, but an act.

Further studies found learning while lurking, to be possible. In a study of closed online courses, Ebner (2005) found that there was no coherent relationship between active participation and learning results, and that the invisibility of some of the students did not indicate that their benefits of learning were compromised. Chen and Chang (2011) also found similar results and reiterated that lurking could mean learning. They found that lurking could be a reflexive, social, and co-constructive activity, for which they termed the idea 'intentional lurking'. While these studies presented a promising start to the idea of learning while lurking, literature to support this idea is still under-developed. This is not to deny the frustration often experienced by administrators and community managers in particular, when the number of new members' sign-ups is not reflected on activities found in the community, or if the participation in the community stagnates. There were studies

that focussed on addressing these concerns, looking into encouraging members to move beyond lurking to participating. Yet Yeow et al (2006) concluded that lurking is a complex and highly contextual behaviour. There is a need to understand lurking more deeply, before giving out prescriptive strategies.

HELP AND PROSOCIAL BEHAVIOUR

We now turn to a topic which becomes a central concern of the study. Helpfulness appears to sustain community. It regulates spirit and trust. Research on helping behaviour in online communities has been scarce, and the closest body of research to this issue are studies on altruism and reciprocity. Altruism has been discussed in multiple areas, prominently in evolutionary biology, experimental economics, children's psychology, as well as studies on group behaviours. The idea of altruism and altruistic behaviour explores and explains the logic (a rather problematic logic) of natural selection in evolutionary biology. Here, the idea of natural selection is seen as central to the survival of a species, with a focus on fitness and competition. The idea of altruism taps into a different side of this 'equation' as it entails sacrificing for the betterment of others. Why would we do this?

The willingness to help others lies at the heart of any group or community. It is through helping each other that members of communities feel a sense of spirit and trust (Rovai & Jordan, 2004) and produce the space for knowledge creation (Nonaka, Toyama, & Konno, 2000) and, arguably, create new knowledge (Palloff & Pratt, 2010). But how and why do members put themselves out to help others?

A reasonable starting point is to consider whether helping others is a natural process, in other words do we have a general disposition to cooperate? Aristotle (2000) thought that we were social beings and that reciprocal help and support were core to community life. This was philosophical speculation but the urge to cooperate has been well described in social anthropology (D. Johnson & Bering, 2006) and evolutionary theory too. It is striking also that reciprocal exchange is a feature not just of earlier societies in which relationships might be immediately experienced but of highly differentiated societies in which we encounter a great many people who we may not meet again. Indeed, while Dunbar (2007) amongst others has seen a natural limit on group size, or at least the numbers of people one may count on for help, we seem able to extend help to many people on the periphery of our lives, including our online lives. We help when there is little to be gained and many, such as Fehr and Gächter (2002) and Krush et al (2015) see this as a paradox. Social experiments such as the prisoner's dilemma (for example Axelrod & Hamilton, 1981) can throw light on this 'paradox' but they are inconclusive about the logic by which we cooperate and in any case, decisions in real life are never made under the artificial conditions of game theory. Helping, both the disposition to help and the context in which help is given, is not a straightforward phenomenon.

There has been much general discussion of the role and promotion of cooperation between members of online communities. A balanced conclusion is that it is not unusual to help - the literature can provide examples in which mutual support is a norm, for example reviewers on Tripadvisor (H. A. Lee, Law, & Murphy, 2011) and authors of Wikipedia (Kittur, Suh, Pendleton, & Chi, 2007), but it can also throw up many examples of 'orphaned' networks and even anti-social behaviour including

bullying and harassment. The disposition to help online can be considered at different levels. At a macro level we might turn to broader discussion of national and regional cultures to which people belong with Yuan (2013) in particular arguing for this much broader socially constructed perspective on online activity. At a micro level, in contrast, attention needs to be paid to the prevailing cultures of particular online communities with, for example, Rovai & Jordan (2004) arguing that spirit and trust needs to be generated for community life and Leyton et al (2014) highlighting the importance of an ethic of respect for others. Various models have been put forward which suggest ways in which cooperative participation can be supported and developed (for example Preece & Shneiderman, 2009; Salmon, 2013) which carry an implication that patterns of online behaviour are not fixed but rather malleable and capable of direction.

In trying to understand helpfulness we need to take account that individuals take on differentiated roles in a community; some seem willing to take on 'leadership' roles while others prefer to only read messages in forums (Takahashi *et al.*, 2003) or only occasionally contribute. Again these roles are not fixed and Kittur et al. (2007) found a shift in workload away from an elite towards the common users in Wikipedia. The online environment is one in which members often interact online with people they may not have met face to face, within both public and private settings and may deal with a level of anonymity. This may represent a compelling environment for some, but for others it is inhibiting - there is a mix of extrinsic and intrinsic issues which affect members' perceptions of that environment (for example Paulini, Maher, & Murty, 2014). A recurring issue is that of 'chicken and egg'. Members of new communities may be willing to provide help, given a good level of

pre-existing social presence, sense of community, and a worthwhile pool of community knowledge, but without their participation, there is little in the way of presence or pooled knowledge in the first place.

Within the literature on online participation, there is surprisingly little research on the specific issues of helping others online: why people do it; how they do it and with what consequences for themselves. Hammond (1999) found 'communicative learners' within early online forums, people who showed greater involvement and took on the role of supporting a group. Communicative learners were likely to have self-confidence; ability to put words on a page (these were text based forums); were not risk averse; and had a personal sense of responsibility to the group. Wasko & Faraj (2000) explored a variety of motivations to participate online with a possible interpretation that the motivation to help emerges from a general satisfaction in sharing experiences/knowledge with others and a belief that one can learn by explaining even if the explanations concern the problems of beginners. However, altruism and 'pro-social' behaviours are important as well as an expectation of reciprocity; furthermore, a small minority may see providing help as an opportunity to promote their own resources, surreptitiously or otherwise. In a similar vein, Butler et al (2007) suggested that volunteering may bring both individual benefits (for example an opportunity to experience social interaction and improve self-esteem) as well as express a commitment to contribute to a group or cause (principlism). In general, people need to perceive a personal, though not necessarily a material, benefit, if they are to continue to volunteer. A similar conclusion was drawn in looking at online groups in Chuang et al (2015). Here willingness to help was heavily influenced by 'identity based attachment' and 'cognitive absorption'; in other words, volunteers needed to identify with the communities and be cognitively interested in the challenges put to them.

Trivers (1971) presented a model to quantify reciprocal altruism in three different cases, one of which examined the case of assisting people from drowning. To this he argued that every action has its 'cost' and 'benefit' ratio so that an act of help assumed a later benefit. This 'cost/benefit' concept, along with the idea of the 'cheater', someone who does not reciprocate help, were used continuously by scholars to explore altruism and reciprocity. For example Williams (2007) used the concept of cost and benefit in relation to helping kin and non-kin group to explore the behaviour between undergraduate students and their siblings, cousins, and friends. Paciello et al (2013) used the same concepts to explore helping behaviour and moral disengagement in a survey among Italian high school students. Apart from the use of 'altruism' and 'reciprocity', scholars have used 'prosocial behaviour' to explain helping behaviour.

There are limits on the explanatory potential of 'cost' and 'benefit', and other studies found that altruism and reciprocity are linked to the empathic and social nature of human beings. For example, studies that attempted to characterise people who provided help often found that, altruism, empathy and social responsibility featured highly, for example among blood donors (Steele et al., 2008); helping behaviour in cyberspace (C.-C. Wang & Wang, 2008); and team helping (Liang, Shih, & Chiang, 2015). Recent studies have also highlighted that identity and perceived position in community may contribute to the helping behaviour. Ma and Chan (2014) found that 'perceived online attachment motivation' (a clumsy concept to capture one's perception of social interaction and the sense of communion with others online) had significant effect on online knowledge sharing behaviour. DeSteno (2015), in a conceptual paper, suggested that sense of similarity influences

and enhances the probability of reciprocal behaviour. Pai and Tsai found that sharing behaviour depended on members' self efficacy and perception of community, adding that "members gravitate towards online communities that help them experience well-being by providing opportunities for them to fulfil their autonomy needs" (2015, p. 10). Finally, Chung et al (2015) in a study on social networking sites as communities found that members with identity-based attachment (an attachment to the concept of the group as a whole) showed a much stronger impact on information sharing, than members with bond-based attachment (an attachment to individual members as well as to the concept of group as a whole). All the above research studies provided a lens through which we can understand prosocial behaviour, based on ideas of empathy, kinship, identity, self efficacy, and perception.

Context as well as individual dispositions are important in understanding altruism too. Lee and Lee (2010) found that the perception of job autonomy increased members' willingness to help others. This would be further increased if the helpers were altruistic. Paciello et al. (2013) found that situations of personal distress may enhance moral disengagement i.e. viewing immoral behaviour in a more favourable way, and this may lead to self-centred behaviour. Leeuwen and Tauber (2011) found that helping might be a tool to manage impression - by helping other people from outside the group, the in-group members may exert power and demonstrate knowledgeability.

Altruism is complex and many studies show participants to fall into different camps. In an experimental study of volunteer firefighters in Vermont, U.S.A., some of them

responded to paid calls, while others distanced themselves from replying to such calls, citing that their reluctance was based on the image as a volunteer and to not accept payment for the act (Carpenter & Myers, 2010). This shows that monetary reward may be valued by those with instrumental motivation but will not have an effect on those who see themselves as altruistic. In an experimental study of social cooperation between 88 undergraduates carried out by Safin et al (2015), it was found that even in the absence of reciprocity, altruists continued to cooperate. This illustrates that even though help may be one way (with no return of favour), altruism can still exist.

A number of studies have highlighted the sexual preferences in helping behaviour in the online sphere. For example Raihani and Smith (2015) found that men were willing to donate more when the fundraiser was a female rather than a male representative. Women, on the other hand, did not display similar results with male representative. Similarly, Wang and Wang (2008) found that male gamers were keener to establish relationships and seek emotional support with females gamers.

Methodologically, studies on altruism and reciprocity have often used gaming methods. Two of the most prominently used are the 'Dictator Game', and the 'Prisoner's Dilemma Game'. The former, rooted in experimental economics, often played by two players with one assuming the Dictator role while the other becomes the Recipient. The game has many versions, but in its basic form, it starts with the Dictator's decision on splitting an endowment between himself and the Recipient. The Recipient has a passive role and does not contribute to the outcome of the game. Though deemed controversial and problematic in respect to the 'game'

mechanics, as well as the viability of conclusions derived from the evidence

(Bardsley, 2007), this game offers insight into the self-interested economic

behaviour of individuals. Altruism lies in the decision of the Dictator to either

include the Recipient in the division of the endowment, or to simply ignore

him/her. Typical response would be to split the endowment between the Dictator

and the Recipient, but variations on the percentage of the split depended on the

Dictator. As for Prisoner's Dilemma Game, this has the idea of presenting the

players (A and B) a problem (locked down in prison, hence the name of the game

'Prisoner') with several possible solutions which offer A and B multiple ways to deal

with rewards and punishments. If A and B both betray each other, both will receive

medium punishment. If A betrays and B remains silent, A will receive reward (set

free) and B will receive maximum punishment, and vice versa. If A and B both

remain silent, both will receive minimum punishment. Thus players need to

cooperate in order to attain a lesser punishment, but betraying others brings greater

reward. A typical response would be to cooperate, but this may change depending

on the reward. Many studies of psychological altruism have been experimental,

utilising game mechanics to explore human behaviour. In contrast, Batson's studies

(Toi & Batson, 1982; D. C. Batson et al., 1988; D. C. Batson & Moran, 1999) were

set in real life contexts, albeit in the restricted world of American college students.

This suggested that Batson's studies were more focussed on a small population of

western students. In discussing this, Stich (2016) called for more representative ones.

With all these, we can begin to see the complexity of altruism, and as aptly put by

DeSteno (2015), people's moral values are different, not only between themselves,

but also within themselves. He believed that we have the capacity to be both

altruistic, and selfish, and this may depend on context. It is quite possible to imagine that altruism and selfishness sits at both ends of a spectrum, and in reflection of the findings stated above, our position on the spectrum will be affected by many factors.

Clearly, context is important in describing help and context is both created by members, and presented as external to members of community. This bridges us to the key idea of social presence as a defining state of presence external to members of a community.

SOCIAL PRESENCE

Studies of social presence have their root in social psychology, mainly telecommunication research, but the idea originally came from a source that had no apparent link to telecommunications at all - dispute settlement among industrial factory workers (Douglas, 1957). This was later picked up by Morley and Stephenson (1969)to examine the media effects in negotiation, using face-to-face and telephone conversations in a controlled environment. They concluded that negotiations could be conducted in a constrained condition via a telephone as much as face-to-face. Short et al. argued that there was more to the experiment in which Marley et al. failed to mention, particularly around the key roles of visual cues in communication, and provided a conceptualisation of the term 'social presence' that still has resonance. Short et al. specifically described social presence as "… quality of the medium" of communication itself. In short, they argued that different communication mediums created different levels of social presence, that users were aware of these differences, and tended to choose a medium that was suitable for the purpose of communication and types of interaction (Short *et al.*, 1976).

A more widely accepted definition of social presence, derived from Short et al. (1976) is the "degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (p.65). This arguably simple definition has since grown into a more complex in later research. In its basic form, social presence is identified by its mediated-ness, as social presence can exist both in mediated, and non-mediated environment (Biocca, Harms, & Burgoon, 2003). Many authors have offered their own definitions. To name a few, Gunawardena and Zittle's simple definition stated that social presence is "the degree to which a person is perceived as a 'real person' in mediated communication" (1997); Tu and McIsaac described social presence as "a measure of feeling of community that a learner experiences in an online environment" (2002); and Geen (1991) described a concept similar to social presence - 'mere-presence' in his paper about social motivation.

Social presence as a theory can be found applied or investigated in many different areas including, but not limited to: communication, consumerism, satisfaction and loyalty, as well as education. Earlier research in education did not start off with social presence theory, but rather a concept called 'immediacy'. The concept has been frequently attributed to Albert Mehrabian, a social psychologist. In his book Silent Messages (1971), Mehrabian talked about the tendency for people to act based on perception of distance from others. In many research studies, teacher immediacy has been seen as a factor in students' satisfaction, often linked to students' perceived learning (Christophel, 1990; see Hackman & Walker, 1990; Walker & Hackman, 1992; Frymier, 1994). Although it is useful to know which elements appear to drive participation, and consequently learning, it is less useful to assume that learning is a transfer of information and making that transfer a measure

of learning, as in Walker and Hackman's (1992) study. Nevertheless, Mehrabian's concept may be seen as supplementary/supportive to Short et al.'s theory (Gunawardena & Zittle, 1997).

The theory of social presence achieves its height with the introduction of computer-mediated communication (CMC) in education. Starting in the late 1990s to the 2000s, research on distance or face-to-face, offline or online learning put social presence at the centre of the query. This focus was probably a result from the huge uptake in distance education that happened after the Internet has been 'domesticated', and access to the Internet in households became common. Tu (2000) noted that social presence played a key role in the concept of social learning, and that all research should consider: social context, online communication, and interactivity.

Tu's social presence dimensions were taken up and further refined by a number of scholars. After a comprehensive evaluation of a wide variety of papers, Biocca et al (2003) identified three main components that were built on social presence i.e., co-presence, psychological involvement, and behavioural engagement. Co-presence is related to sensory awareness of the other person, which is projected through self-presentation via signatures, avatars, and personal profiles. Co-presence includes sensory awareness, and mutual awareness, i.e., "the awareness of the existence of the other is accompanied by the other's reaction to the self" (K. Shen, Khalifa, & Yu, 2006). Psychological involvement moves from mutual awareness, to "a sense of access to intelligence", "salience of the interpersonal relationship", "intimacy and immediacy", as well as "mutual understanding" (Biocca *et al.*, 2003). Behavioural

engagement covers visible cues only to be found in a high-bandwidth media, more likely in immersive virtual environments and computer games.

LEARNING

We have discussed so far the idea of community and its progression over time, the concept of participation including its barriers and motivators, the act of lurking, and the idea of help and prosocial behaviour as a form of participation and presence in online environment. Previous discussion has introduced the idea of learning as participation, and considered the relationship more general between the two. This section takes a broader view of learning, and explore the connection between participation and learning more deeply. In particular, this section covers the idea of *formal, non-formal, and informal learning*, learning within *community of practice*, and *legitimate peripheral participation*.

FORMAL, NONFORMAL, AND INFORMAL LEARNING

Malcolm Knowles is credited with the idea of 'Andragogy' - the study of adult learning (1976). Knowles argued that there was a need to differentiate between instruction, based on the study of children learning and adult learning. This idea gave birth to a dichotomy that is still being used today - formal, and informal learning. Formality of learning has since been the centre of a continuous debate, though initially the debate was around the locality of learning (settings) - whether in the classroom, or outside schools, but moved to include the diffusion of locality. Informal learning may also happen in formal settings, often alongside formal

learning, and this has led to a new term - 'incidental learning', a subset of informal learning.

In the early 1980s, another related term emerged - 'nonformal learning', to go alongside formal and informal learning (see Table 3). Nonformal learning covered any organised, systematic, educational activities carried outside the formal system.

Table 3: Types of learning. Adapted from LaBelle (1982) as found in Coombs et al. (1974).

Informal Learning	The lifelong process of acquiring and accumulating knowledge, skills, attitudes, and insights from experiences and exposure, taking place outside of the curricula of formal education.
Nonformal Learning	Any organised, systematic, educational activities carried outside the formal system
Formal Learning	Institutionalised, chronologically graded, and hierarchically structured educational system

Particularly noteworthy is the discussion of informal science learning i.e. learning that happens in museums and field-trips (see Hofstein & Rosenfeld, 1996; D. Anderson, Lucas, & Ginns, 2003), and the discussion of informal learning in workplace (see Boud & Middleton, 2003). These studies appeared to be connected with the social constructivist learning paradigm, in which the experience of learning found to be situated, social, and contextual. In line with this, and other debates on the positional value of learning informally (for example D. Anderson et al., 2003), Jarvis and Griffin provided a rather useful argument on whether learning and experience can result in education, saying

> *'Learning and experience are not synonymous, neither are learning and education, but there is a considerable overlap between them'. (2003, p. 180)*

This suggests that there is no formula that guarantees learning, whether or not it is formally organised. Students may or may not learn while in the classroom, and others may or may not learn when they are on-the-job (Watkins & Marsick, 1992). The key 'ingredient' for learning *from* experience, and not just *having* the experience, as noted by Watkins (1992) is 'action and reflection'. This idea was taken up by Schugurensky (2000) in a form of 'intentionality' and 'consciousness', and developed further to a categorisation of informal learning i.e. 'self-directed', 'incidental', and 'socialisation'. These three categories of informal learning are seen to be placed along the same spectrum, but vary in the degree of intentionality and consciousness. Self-directed refers to a high intention and consciousness of the learning experience, while socialisation offers much lower learning intention and conscious learning. However, incidental learning is placed somewhere in between, as the experience may or may not perceived as a learning endeavour, depending on the individual.

The focus of later research into informal learning was found to be more holistic, involving not just adults, but also youths, and working children or 'street children' (Overwien, 2000). However, findings tend to complement the earlier work which was primarily focussed on adult education. For example Knowles (1976) proposed four features for adult learner: 1) moving from dependent to self-directed learning, 2) using accumulated experiences as resources for learning, 3) acceptance of learning as connected to social role, and 4) moving from subject-focused, postponed application, to performance-focused, immediate application of knowledge, and these remained relevant across contexts.

Knowles, in his account of investigating how adults learn argued that adults had a requirement for learning, different from any pedagogical models based on dependency and social need. Successful cases of implementation of what Knowles identified as 'andragogy' were also to be found in colleges, secondary schools, and even elementary level (Knowles, 1976, p. 43), suggesting that 'andragogy' was not a separate, age-centric method of learning, but rather an alternative to the 'production lines' mind-set of learning.

By the late 1990s, the direction of the research into informal learning had taken a new focus i.e. individual capacity in learning. More research was focused on motivational (see Paris, 1997), and psychological aspects of informal learning, particularly a discourse around the idea of 'self-regulatory' (see Boekaerts & Minnaert, 1999; Dabbagh & Kitsantas, 2012). While exploring the idea of self-regulation in informal learning, Boekaerts & Minnaert (1999) proposed ten attributes that described how informal learning could be carried out. Although they seem rather romantic in their description, Boekaerts et al.'s attributes proposed traits that fostered the idea that informal learning is constructivist almost humanist. Marsick's (2001) suggestion that informal learning is connected to other concepts as well e.g. social modelling, experiential learning, tacit knowing, situated cognition, and communities of practice, to name a few, strengthens this idea.

The 2000s saw more uptake of the term informal learning. For example commonality (and by extension, formality) of learning music, according to Folkestad (2006) was relative to learners' perspective. Learners, who had been accustomed to music outside of school, most probably via movies, videos, and the

Internet at an early age, saw these experiences a 'common' way of learning, while seeing formal learning of music in school was an 'uncommon way'. This tells us that formality, and to an extent, the value of learning rests on the learners' perspective and awareness. In respect of learning, one particular aspect that has caught educational researchers' attention is the use of Social Networking Sites (SNSs) in teaching and learning. A plausible reason for this is the high rate of use of SNSs among students.

There have been a number of studies of Facebook and Twitter use among students. For example, Madge (2009) found that university students used Facebook in their learning, though not as intended or expected. The students might, for example, set Facebook groups for assignments. Most of the students acknowledged the value of Facebook for social activity and as an alternative channel for support. Ebner (2010) too in investigating the use of Twitter to aid communication outside classroom, found that students, either on location, or remotely, used the service not only as presented by course leaders, but also in discussion among themselves, which were tagged as 'private messages'. Taking 'communication' as central, Ebner concluded that the private messages were in fact artefacts of informal learning. A further study carried out by Cain (2011) again showed the value of Facebook as an informal learning in a university course, arguing that "the informality of the learning environment appeared to be one of the primary elements of its success" (p. 7).

The studies above reported a fairly successful encounter with the use of SNSs, seen here as informal learning, alongside formal instruction. However, all of the studies also reported, in one way or another, difficulties in either locating and/or initiating

informal learning within educational contexts. Madge (2009) reported that majority of the students opposed the idea of using Facebook for instruction. Similarly, Ebner (2010) acknowledged the difficulty in defining what constituted informal learning within 'private messages' and made an assumption that conversations that did not fall into or correspond to the assignments, were examples of informal learning. This over-generalised categorisation is problematic.

Cain's (2011) claim that Facebook can be used as 'informal learning environment' overshadowed a small yet important detail which may have been the key to its success. Student participation was incentivised by the possibility of earning 'extra credit' (though deemed 'minimal' by the researchers). It could well be that this strategy (telling the students that one of the questions in the final examination will be based on posts from the Facebook activities) persuaded the students to participate. This was underplayed in the paper, but reflected in the results of a questionnaire to students, in which a high percentage of agreement was shown that the primary reason to participate was to attain extra credit. This reflects other studies.

A possible interpretation of the 'fluidity' of the term 'informal learning' as informal activities that may be undertaken with formal learning objectives depending on the perspective of the individual student was found in a more recent work by Wenger et al (2011), suggesting that learning is situated within the involvement of communities and networks in social activities such as "sharing information, tips and documents, learning from each other's experience, helping each other with challenges" (Wenger et al., 2011). In addition, from few studies above, the value of learning, was based on

interpretation by the students themselves e.g. the value of Facebook posts in learning in Madge (2009), and the value of messages within discussions labelled 'private messages' by Ebner (2010). Perhaps, this idea of 'value' may also be applied to any kind of learning, providing an extension to what Jarvis et al. (2003) noted previously - that education or experience does not guarantee learning. It is the learners themselves who have the control over their own learning experience, ascribing meaningful learning to activities that they perceive as valuable. Yet, we do not seem to have enough evidence to support this, particularly in the field of informal learning. Perhaps, this can be summed up by saying that informal learning in online communities may be viewed as:

- Purposeful,

- Highly dependent on perceived value,

- Having a degree of self-directedness, and

- Situating knowledge within social artefacts.

Scholars have, for a long time, approached learning from an 'outsider' perspective - looking at the phenomenon of learning, be it formal or informal, outside of the minds of learners. This is understandable but as Cox (2012, p. 13) pointed out in which reviewing past studies of informal learning, we need to have more detailed analysis of the phenomenon, to provide greater explanation into the many important factors and influences.

From the literature, it is clear that the distinction between informal and formal learning has moved, from being seen as separated, differentiated by location, intention, and consciousness, to being at the ends of spectra within the same

continuum. Authors have stressed that both informal and formal learning are able to, and do, exist together within the same context. The advent of the Internet and other ICT technologies adopted into education has led some to treat learning in classroom as formal, and activities in Facebook as informal, reintroducing the formal/informal learning dichotomy. This fails to recognise that new technology has blurred the boundary of what we could categorise as formal and informal.

LEARNING WITHIN COMMUNITY OF PRACTICE

There is a considerable overlap between participation and learning. Can participation be considered as learning? Lave and Wenger proposed this via the concept of 'community of practice' (CoP) (1991). The widespread take up of the concept can be found in various fields such as organisational and workplace learning (for example Brown & Duguid, 1991; Hildreth, Kimble, & Wright, 2000), classroom and online learning (for example Thomas, 2005; Gannon-Leary & Fontainha, 2007), professional development (for example Tseng & Kuo, 2014), and support communities (for example Thomas, Fried, Johnson, & Stilwell, 2010; Tseng & Kuo, 2014) to name a few. A search on Google Scholar yielded over three million papers related to CoP, showing how pervasive the concept has become. As an example, Figure 2 below shows the frequency of web searches on Google for the term 'communities of practice' and 'learning', displaying a similar pattern of interest from the year 2010 to early 2016. To explore more deeply into this connection and why CoP has been used widely, the following section will explore - *legitimate peripheral participation.*
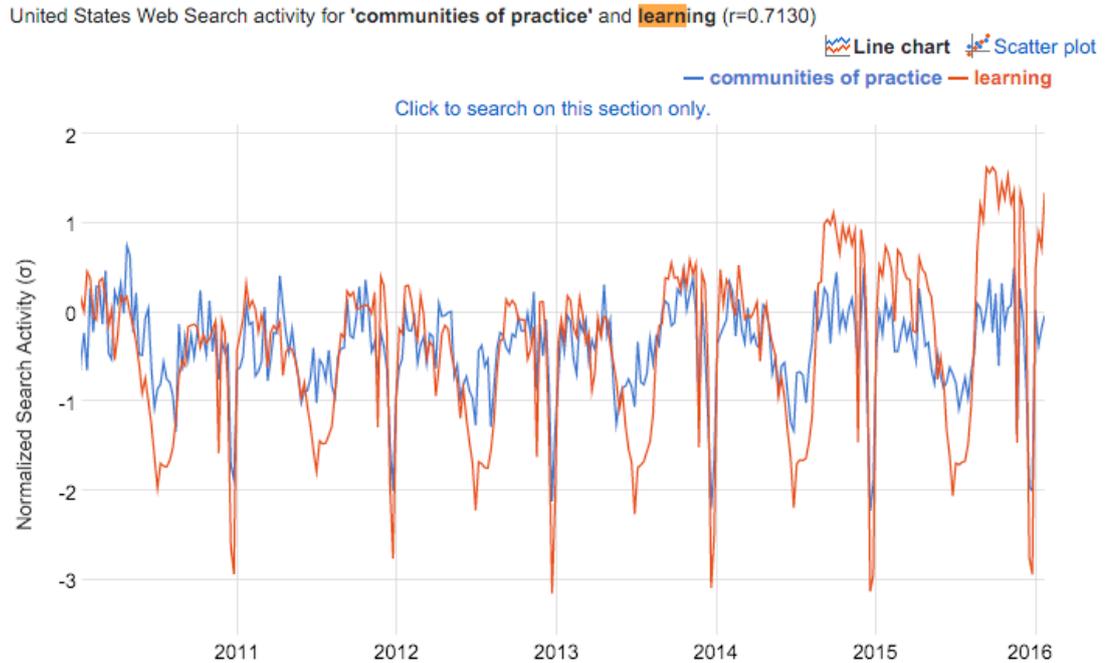
Figure 2: Comparison on frequency of searches between 'communities of practice' and 'learning' in the U.S. between 2010 to 2016 (Source: Google Trends)

LEGITIMATE PERIPHERAL PARTICIPATION

Jean Lave, alongside Etienne Wenger were trying to save the concept of apprenticeship from becoming meaningless, due to the broad definition it elicited from the theory of situated learning. It was during the review of several apprenticeship cases that the two became familiar with a concept that later became 'legitimate peripheral participation'.

To understand the term 'legitimate peripheral participation', it is best to break it down and review the components of the term one at a time. 'Legitimate' refers to the legitimacy of participation, a "defining characteristic of ways of belonging" (Lave & Wenger, 1991). 'Peripheral' illustrates the 'location' of the knowledge possessed by members in the social world of the CoP, and not a reference to a

physical peripherality (Kimble & Hildreth, 2004). 'Legitimate peripherality' can empower full participation when one moves towards the central position (of knowledge) in a community of practice. This cyclic reproduction of members in a CoP is both "crucial and subtle" (Lave & Wenger, 1991).

The most salient idea in legitimate peripheral participation is the way participation is perceived as a form of learning i.e. "… learning is an integral part of generative social practice in the lived-in world… Legitimate peripheral participation is proposed as a descriptor of engagement in social practice that entails learning as an integral constituent" (Lave & Wenger, 1991). Legitimate peripheral participation in a CoP involves participation from newcomers, in learning the domain of the practice, negotiating meaning and shared artefacts within the community. Participation is perceived "as a way of learning – of both absorbing and being absorbed in – the culture of practice" (Lave & Wenger, 1991). Learning evolves from participation and is essentially situated in a CoP.

In recent years, a growing number of researchers have explored legitimate peripheral participation. Lawless (2008) for example, use legitimate peripheral participation as an analytical tool to understand learning but found social tensions between students in terms of 'organisation' and 'individual' repertoire. O'Donnell and Tobbell (2007) explored the experience of adult students in higher education revealed that although students perceived themselves as peripheral participants, there were other factors such as institutional regulations and procedures that sometimes impeded legitimacy. These findings are in accord with that of Lave and Wenger's 'sequestration' (1991) in that they identified the issue of access to the

collective knowledge embodied by the CoP, including information, resources, artifacts and opportunities, as one of the key factors that can limit the dissemination of knowledge and affect the growth of an individual.

Morrell (2003) identified four key participation structures that facilitated legitimate peripheral participation during a critical research seminar, i.e. public teaching episodes (viewed as unique mode of participation for teacher's professional development); co-planning and debriefing sessions (reflection on teaching session, critically interrogated by others); multiple extended observations of professional practice (entailed multiple meetings to discuss on research practice); and the teacher research seminar (inquiry-based discussions and writing seminar). This suggests that learning during the seminar enabled participants to experience learning and problem solving in a 'safe' space, at the peripheral of practice, with the help and access to veterans. In my paper submitted to the Networked Learning Conference (Hanif & Hammond, 2016), legitimate peripheral participation was evident in the description of how newcomers negotiated knowledge of the practice of game-making through the help given by old-timers.

PARTICIPATION AS LEARNING

Wenger's perspective into human learning is that all of us are social beings, and the fundamental element in our interaction is our participation in communities and cultural practices that provides the very materials (knowledge) out of which we construct who we are, giving meaning to what we do and understand what we know (Lave & Wenger, 1991). This perspective suggests members of a community are informally bound by what they do together (Wenger, 1998) and this provides the

base for Wenger's widely cited definition: "Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly". There is arguably much evidence pointing out that communities of practice can promote knowledge construction and support personal and professional development of an individual (for example Molphy *et al.*, 2007; Hemmasi & Csanda, 2009; Gammelgaard, 2010; Tseng & Kuo, 2014). In so doing, a community of practice produces shared knowledge within a domain (Gannon-Leary & Fontainha, 2007). For example, Baytiyeh and Pfaffman (2010) in exploring Wikipedia, argued that members of volunteer communities could have opportunities for personal growth and to create knowledge of value for others. Johnson (2001) also touched on dimension of 'equality' in a virtual community. He drew on Palloff and Pratt's (1999) to argue that the lack of physical presence (e.g., voice stature, visible reactions, visible approval or disapproval, etc.) could produce a conducive environment for interaction and more democratic exchange. Wepner & Mobley agreed and add the term 'great equalizer' in describing asynchronous communication (1998; as cited in C. M. Johnson, 2001). In relation to these and other studies of unstructured open online community, meaning-making (i.e. the interaction between participation and reification) forms part of the learning process, be if informal or formal (Piave, 2009). This provides a conceptual link between participation and learning.

In a recent review of literature by Hrastinski (2008b), participation was analysed at several levels and not just as a binary state (participating/non-participating). The levels included: 1) participation as accessing e-learning environment, 2) participation as writing, 3) participation as quality writing, 4) participation as writing and reading,

5) participation as actual and perceived writing, and 6) participation as taking part and joining in a dialogue. This is helpful as it gives a better understanding of how rich online participation can be, and how different types of participation carry forward different degree of concentration, commitment, and purpose. In a related paper, Hrastinski (2009) argued that online learning and online participation were inseparable and jointly constituting. Thus he proposed a new theory - online learning as online participation, and stated that "if we want to enhance online learning, we need to enhance online learner participation" (p. 81).

There are however several factors that may contribute to the difficult nature of studying online learning and participation. Outlined here are three factors that have caught my attention. These are: *lack of contextual details*; *overly-romanticised notion of 'community'*; and *difficult nature of assessing participation*.

- *Lack of contextual details* - There is an ever evolving debate about the use of technologies among educators, but these provide divided opinions. Some believe that technological integration can lead to better student engagement and learning outcomes (for example Hiltz & Wellman, 1997; Harasim, 2012), while others believe that technology will not make a significant difference (for example Russell, 1999). Both claims are well grounded with research studies. Nevertheless, we still face the difficulty of integrating technology into teaching and learning. Perhaps there is no one answer, and conclusions, rather than being general, should be seen as 'contextual' – the different facets that made the studies either successful or otherwise. We can begin to understand some contextual circumstances, for example assessment

and participation, yet this understanding is limited and made more difficult as research studies are not transparent enough about contextual details.

- *Overly-romanticised notion of 'community' and community of practice* - As discussed earlier, 'community' connotes a feeling of togetherness, particularly when we live in a fragmented, distributed world. Community is often used in the expectation of togetherness online, even when such togetherness is problematic. Santos and Hammond (2007) provided a delineation between learning community, or 'community-minded' group of learners, arguing that academic courses are better suited to be labelled as the latter, in regards of its limited nature on both time as well as course requirements. This puts the usage and consideration of using the term 'community' into the limelight, implying that it should not be taken for granted. Similarly, the widespread adoption of CoP draws on feeling of democratic participation, empowerment, and socially embedded learning. But there is much less readiness to explore the undemocratic practice on groups such as race hate and religious hate groups which may equally be deemed as CoP.

In this respect, there have been useful attempts to refine CoP, to explore the idea in more meaningful way. An example is Fuller and Unwin (see Fuller & Unwin, 2003; Unwin, Felstead, & Fuller, 2007) who use ideas of 'restrictive' and 'expansive' participation when studying a case of Modern Apprenticeship in the U.K.. 'Expansive' apprenticeship may create stronger and richer learning environment. This is useful in that it provides an

extension to the original notion of CoP, bringing in a more descriptive of the activities of the community.

- *Difficult nature of assessing participation* - Epistemologically, there are two distinct ways of viewing learning in the world i.e. objectivist, and constructivist (Harasim, 2012). The former places an emphasis on behavioural and cognitive processes, viewing transaction of knowledge to be about moving knowledge from 'the fuller vessel to the less full' (Bruffee, 1999). The latter views learning on a more socially embedded, situated within the interactions among individuals. In the context of online learning, assessing participants' performance has often been objective i.e. data about completing tasks, assignments, and online quizzes, and it has been much less common to examine online learning through the constructivist lens. Surprisingly, given researchers interest in the construction of knowledge, much of the literature has been quantitative in nature. Results have been in a form of numbers and statistical calculation, derived from content analysis and data mining. Even though studies have provided a useful analysis and synthesis on aspects of participation, there is a need to go beyond the statistical significance, to understand the stories of individuals who are behind the numbers and messages.

To examine the methods used in the literature in more detail, 49 journal articles were identified using several journal repositories such as JSTOR, ERIC, Google Scholars, and Elsevier. These articles were chosen with the word 'participation' in its title. From the 49 journal articles, 37 of them were

identified as research papers and these papers are included in the analysis. Analysis of the methods used shows that only a quarter of these papers used qualitative research methods such as semi-structured interviews, case study, participatory observation, and netnography. The remaining papers were found to utilise survey and questionnaire, secondary data from research database, and experimental study to inform the research. This tells us that only a minority describe the phenomenon of participation from the participant' perspective. Statistical analysis of the phenomenon often describe causality. There is a need to follow the phenomenon over a certain period of time, or to inquire retrospectively into their history, to understand participation as truly a human interaction.

My findings are in accordance with Hrastinski (2008b) who conducted a comprehensive analysis on research papers investigating participation and found similar statistics. Out of the 36 papers reviewed, 20 of them adopted mixed method, 13 quantitative, and the remaining 3 were qualitative. Hrastinski also highlighted that out of 36 papers reviewed, more than three quarters of them relied heavily on quantity of messages as the unit of analysis, and only half of them looked into the quality of the messages. Although it is useful to know the number of messages posted in relation to participation, what is more useful is to know the quality of the messages, and this is particularly important when exploring participation as learning. Many studies found that it is difficult to get research participants to have a deep, meaningful discussions in relation to tasks and assignments during the course (see Sing & Khine, 2006; Chávez, Montaño, & Barrera, 2016) or broader discussions about learning. Students are often focussed on

instrumental goal (or surface learning), or in the case of Chavez et al. (2016), it was an online training course with participation only evolving around tasks and contents, and at a lower level of complexity. Conrad (2002) criticised an 'unromantic relationship' between online learning and students in her study of adult learners' experience of online undergraduate programme. Participants were pragmatic in viewing online learning as a 'contract' - a task was set, it needed to be done, let's get it done.

REVIEW OF CASES

The section reviews some of the studies carried on online communities, both open and closed ones with a resonance to my context. Examples of open and closed online communities will be discussed within this section, as well as a description on the usual topics explored by scholars in each type of community.

CLOSED AND OPEN ONLINE COMMUNITIES

The labels 'open' and 'closed' is used here in respect to the access to the community. Anybody can get access to an open online community, whereas closed online communities are restrictive, often exclusive to the purpose and members of the community. This has been described with negative connotations as 'isolated' (Sznajd-Weron & Sznajd, 2000) and 'incumbent' (Aitamurto, 2013). Closed online community keeps participation, activities, knowledge, and contributions within the boundary of the community. An example of such community might be online CoP that are built by companies to support interactions among and between employees

and management, as well as online accredited courses and classes built by instructors and educators to support learning among students.

The subject of this research is an online community of independent game developers. This community is 'open', both in terms of access to the activities in the community, as well as its membership. There is no prerequisite to joining the community. The community was built around the year 2009 by a company that centred around a game-making application that enabled users to build mobile games and application, and has since evolved into a hyperactive online community. To date, the community has approximately over 110,000 registered members, and some 106,000 are active monthly users on average. Before we begin to explore the community to see how users manage to sustain it, it may be useful to review studies that have been conducted on communities that are similar, in terms of its hyperactivity, as well as its open-ness. Below is a review of studies carried out on online communities such as *Online Gaming and Gamers*, *Github*, *Open Source*, and *Wikipedia Contributors* communities, which are known to be open, and the amount of members in each community is massive.

CASE A: ONLINE GAMING AND GAMERS COMMUNITY

There have been many studies of online gaming culture, particularly of the Massive Multiplayer Online Role Playing Games, due to a high level of interest in gaming among adolescents and adults alike. Often studies in this area examine the activities carried out by players (H. Cole & Griffiths, 2007). Albrechtslund (2010) however, has an interest in social and psychological aspect of the phenomenon among the

players themselves and finds that by analysing communications between players, we can understand how they form online identities and communities.

One particular study that resembled a similar setting as in my study, was carried out by Holstroem (2001). She investigated an online community which was built up by a game company Daydream Software. The idea for this community was to set up an environment that enabled players of the 'Clusterball' game to feedback about their experiences of the game and this, in turn, stimulated development including game updates and patches by the company itself. The study was one of participant observer as she was a member of the community. She relied on several data sources to inform the study including document review and observational data, database files, and explored the research notes from events and meetings in which she participated. She also emailed employees and customers and had a company email account set up for that purpose. The focus of her study was to look at the benefits of this new model of product development and found that this collaboration between developer and game player benefited the company in several ways. The collaboration redefined the structure of the product development process, and redefined the customers' role in the development process.

Holstroem's research shed light on its new model of product development as well as providing a description of community activities and the conflicts between the company and members. However, information on the dynamics of the community was not included and there were no details explaining how the customers sustained the community, why they stayed in the community even after the initial testing

period, supported the company with suggestions to market the game, and helped in creating several fan sites linked to the game.

CASE B: GITHUB - A COLLABORATIVE CODING COMMUNITY

Github is an online repository for document revision control and source code management for software application and website development, which is often referred to as 'git'. Coders and programmers use the service to back up code development in the cloud, via synchronisation between their computer and the could server. Another intriguing aspect of Github that made it a well-known service among programmers, is the ability to share the code users develop, and socially code with others. It is the social aspect of coding, for an activity that was previously deemed to be an individual task, that lured over 11 million users worldwide. Other users could make a 'pull' (a request to access a repository) , and 'push' (sending back the edited, contributed codes) on repositories. Users could 'commit' a change in his/her code, a way of marking the changes made and syncing (push) them to the server.

Research around this community has centred around the social dynamics of interaction in the community. For example Dabbish et al (2012) examined the openness of Github and found that users were making inferences based on their observations of others, and used their inferences as a leverage in many areas, notably for learning how to code by, for example, looking at how others code. A further study by Vasilescu et al (2013) compared the dimension of participation between two sites i.e. Github, and StackOverflow (a Question and Answer website for programmers). In particular, they compared 'commits' at Github against answers

provided at StackOverflow. Summing up, they argued that highly productive 'githubbers' were also observed to take on the role of a teacher in StackOverflow. Another study of Github (Thung, Bissyandé, & Lo, 2013) explored network among members and found that social coding indeed improved collaboration.

CASE C: OPEN SOURCE COMMUNITY

Open source communities have long been hailed as the shining example of modern software development, contrasting with the traditional form of development, where programming and codes are held behind closed doors of large companies. Topics of research into open source have varied from the motivation to participate (Hars & Ou, 2001), maintenance of status quo (Stewart, 2005), knowledge sharing (Lee Endres, Endres, Chowdhury, & Alam, 2007), to case studies of well-known open source initiatives such as Mozilla and Apache (Mockus, Fielding, & Herbsleb, 2002) to name a few.

Open source is often thought to be shared by many people - a collective effort, but Khrisnamurthy (2007) argues that this is not necessarily the case. Upon reviewing 100 mature open source projects, he found that majority of development was largely carried out by individuals or a small groups of developers, and not as commonly thought by a collective community effort. While it is important to understand where the contribution in open source initiative sits on a macro level, it is also important to understand the triggers that drive the involvement of participants in the 'community'. Further studies such as Hars and Ou (2001) have provided a narrative (though limited) of this drive and outlined factors such as intrinsic motivation, passion for the practice, and linked identity as the internal motivators, and factors

such as self-marketing, and building human capital as external motivators. However, this research has yet to receive full attention from scholars.

CASE D: WIKIPEDIA CONTRIBUTORS COMMUNITY

Wikipedia is an online encyclopaedia known for its collection of articles spanning numerous topics, with these the result of collaborative contributions from individuals. Its vision is similar to that of Open Source initiative. Since its creation, wikipedia has collected, or rather, people have contributed over 5 million articles, and that is in the English version of Wikipedia alone. Wikipedia has been published in many different languages. A point to note that foreign language Wikipedia sites are not merely translations from English site, but they have their own first language communities behind each, making Wikipedia a huge multilingual encyclopaedia community.

Since its conception in 2001, studies of Wikipedia have focused on two parts of the website - either on the system side of it, or on the actors on the system i.e. the editors. In many instances, studies have focussed on the governance of information on Wikipedia - with investigations into rules, policies, and guidelines as well as the quality of contents. Studies by McGuiness et al (2006) and Dalip et al (2009) explored the quality of contents and provided an automated computational algorithm for the system to compute the quality of the articles, relying on several relational data found on the site. Viegas et al (2007), and Butler et al (2008) dealt with the issue of governance in Wikipedia, investigating the many rules, regulations, and guidelines that have been at the centre of practice among Wikipedians. While Viegas et al. noted that the templating practice is viewed as beneficial in maintaining

order and consistency, Kittur et al (2007), and Suh et al (2009) highlighted the conflicts that occurred among editors in Wikipedia, and the plateaued growth it has experienced in recent years.

Further studies such as Anthony et al (2005), and Panciera et al (2009) have focused more on the actors within the network, investigating the interplay among the contributors, as well as between contributors and the system. Particularly, Anthony et al. noted the complexity of the gift-giving economy model of Wikipedia, and found that the highest quality contributions were from infrequent anonymous people - the 'Good Samaritan'. In contrast, Panciera et al. followed the power editors in Wikipedia, those who frequently contribute to the Wikipedia, and found that this role evolved from initial energetic contribution, to a plateaued but relatively high quality contribution throughout a 'career' life.

SPECIAL CASES: CASES OF HIGHLY PARTICIPATIVE USERS

Within this sub section, studies that have focused on understanding the highly participative users within online community will be examined.

SPECIAL CASE 1: THE CASE OF ONLINE TRAVEL COMMUNITY

Wang and Fesenmaier conducted several studies on online travel community, to investigate the motivation behind contribution to the community by users and members (Y. Wang & Fesenmaier, 2003; 2004). They argued that the 'gift-economy' concept in online community (a concept that underpins exchanges between members on information, assistance or public goods, and it discounts the cost of

production), as proposed by Rheingold had limited value when it comes to understanding the dynamics of offering and sharing of information. They believed that the traditional notion of gift-giving involves mutually obligated transactions between people, and this was fundamentally different from the sharing of information, which is often given freely, to recipients that may or may not return the favour. Within this, they explained that motivation for participation in online communities lay in the 'self-concept theory', which consisted of a set of theories namely 'social-identity theory', 'self-presentation theory', and 'self-efficacy theory'. Several factors that might provide an explanation for the motivation behind members' participation were discussed. They included self-efficacy as the most profound factor. Members were found to be motivated when there was a possibility of future reciprocity, and when actions and contributions contributed to their sense of identity in the community. The authors added that members were also motivated by the bounded-ness of the community and were more likely to participate when the community boundary was well defined and defended. Moreover, ease of communication also played a part in determining members' contribution.

SPECIAL CASE 2: THE CASE OF A USENET GROUP

Arguello et al (2006) investigated the dynamic interaction in eight Usenet newsgroups including two from health support group, three from politics, and three from sports. In particular, they examined the probability that a posts would get a reply, and the probability of posters returning to the community. Findings showed that getting a reply depended on several conditions: 1) who posted the post (newcomers were less likely to get a reply); 2) the form of the question (posts containing explicit questions were more likely to get a reply); 3) the complexity of

the language used in the post; and 4) the tone of the request (when first person pronouns were used, and when words were included that signaled mental processes as well as emotions, the probability of the post getting a reply was higher). As for the probability of returning to the community, users were found to be more likely to return to the community if their post gets a reply from other members. The authors also stated that only nearly 30% of the newcomers in the community posted again in the community, making the majority of the interaction among the old-timers.

SPECIAL CASE 3: THE CASE OF PHOTO-SHARING COMMUNITY

Nov et al (2010) studied online photo-sharing community, Flickr. They found that members' length of tenure influenced the likelihood of continued participation, but there were more to this. For example, the longer the tenure, members were less likely to post more photos. The authors argued that this was probably because the members were learning on the site by looking at others photos, and in turn this made them less likely to upload a huge batch of their own photos. They were thought to only upload photos that represented their professional skill or level in photography and went for quality over quantity. The authors also found that members built social networks within the community over time, and that users who were interested in gaining reputation relied on these networks.

SUMMARY

This chapter has looked at the concept and the progression of community, participation, and learning. It has argued that help itself has been under researched but may be a key concept that could potentially provide the 'glue' that holds

participation in a community together, leading to the creation and maintenance of sense of community and social presence. It has also argued that learning while participating (possibly while lurking too) is the key process of how knowledge is conceptualised and transferred between members in online communities. To summarise, the table below highlights the value of this review of literature for my study:

Table 4: Implications of literature review for my study.

	What we learned from the literature?	Implications for my research
Community	'Community' – conveys different meaning. The idea of an online 'communal' area is context dependent, and begs engagement from members, on which product of participation involves (to a degree) psychological traits (e.g. identity, sense of community, social presence).	I need to be careful in describing the community on which this study is based upon – whether it can be categorised as a community, or something else, based on its traits.
	'Community' shifts – from offline to online, and vice versa. People jump in and out of communities both between online communities, and between online and offline communities.	There is an opportunity to understand the relationship between offline and online participation.
	Online communities offer special opportunities and constraints.	I need to understand the opportunities and constraints GameSalad online community offered to its members.
	Online communities can be described in different ways.	GameSalad community may best be described as a hybrid of Organisation-Sponsored, Discussion-focussed Community, and a Community of Interest.
	There is a psychological dimension in community, and that there are attempts to measure it.	I will attempt to consider both sense of community and social presence in GameSalad.
Participation	There are various barriers and motivators of participation in online communities.	Questions are needed to understand these barriers and motivations in GameSalad community.
	Lurking is a universal activity.	Survey, observations, and interview data will shed light onto members' activity, to see whether they lurk or not.
	Lurking is one of the ways of informal learning in online communities.	Survey, observations, and interview data will be used to see how GameSalad members manage learning.
	Help depends on contexts.	There is an opportunity to understand help more from GameSalad community.
	Participation helps regulate social presence.	I need to understand how social presence work in the context of GameSalad and its members.

Learning	Participation as informal learning can be found in communities.	I need to explore the idea of participation as learning in the GameSalad community to understand how it emerge.
	CoP is the key to how communities and knowledge transfer have been investigated, both offline and online, though it is also a disputed concept.	I will not identify GameSalad as CoP, but rather a combination of several types of communities as mentioned earlier. I will investigate the idea of legitimate peripheral participation in GameSalad.
	Learning is determined by the perceived value by students/members.	There is a need to investigate members' perception on shared artefacts in the community in terms of its value, and how they placed the value.
	Previous studies lack descriptions of contexts.	I need to provide detailed description of the context.
	There is a need to provide first-hand accounts from the doers, rather than relying on statistical and content analysis.	This will be achieved through a combination of methods, but will be predominantly drawn from the interviews.

CHAPTER 3: METHODOLOGY AND METHODS

Overview
- Explains the methodology and methods used.
- It provides a narrative into the process of data collection and analysis.

This chapter describes the methodology and methods used in this study. It describes the approach adopted, discusses the research design, and the case itself. This chapter is organised into several sections namely: *philosophical worldview*, *research design*, *selection of the case*, *description of the case*, *research population and samples*, *sample selection procedure*, *sample profile*, *role of the researcher*, *data collection procedure*, and *data analysis procedure*.

PHILOSOPHICAL WORLDVIEW

Research can be seen as a systematic process into investigating something by which we know more as a result of the process (Merriam, 2009). This systematic inquiry may be approached in a number of ways, i.e. quantitative, qualitative, or a mixture of both - often labelled as mixed methods. Assuming that the 'truth' is 'out there', observable and measurable, 'positivist' approaches rely heavily on statistical analysis of significance and other types of mathematical calculations. In contrast, interpretive approaches (often associated with naturalistic inquiry), attempt to understand the multiple meanings of an experience, and explore the different meaning people impose on their experiences (Merriam, 2009). By exploring meaning, the researcher then tries to construct a world view based on interpretations "shaped by the researcher's experience in collecting and analysing the data" (Creswell, 2012).

Although useful, sometimes the interpretivist/positivist divide is overstressed. Perhaps interpretivist and positivist can be seen as points on a continuum where positivist and interpretivist sit at opposite ends. Research studies, in some form or another, reside between these two ends. In keeping with this perspective, this study used both quantitative and qualitative methods in its attempt to answers the research questions. Although the study is categorised under mixed methods, the large portion of this study was informed by qualitative strategies e.g observations, and interviews. However, this study does not reject quantitative descriptions, as data on frequency of message posted, survey responses, among other data are analysed in quantitative ways.

RESEARCH DESIGN

The study then, utilised a mixture of methods in an exploratory approach, with a 3-phase data collection procedure. Mixed methods has been widely used in social, behavioural and health sciences studies for more than a quarter of a century (Creswell, 2014a). It has been described as either a method, a methodology, or both, by various authors, utilising aspects of qualitative and quantitative inquiry not only in data gathering and analysis but also in the setting up of one's philosophical worldview (Clark & Ivankova, 2016). Mixed methods studies are often set up in such a way that they utilise the strengths from different methods, in search for answers to the research questions (Creswell, 2014a; Clark & Ivankova, 2016). The mixed method approach has thus been largely accepted as offering a combination of strengths from both type of methods (Creswell, 2014a), as well as complementary strengths (Jick, 1979), in order to address the weaknesses found in single method design. Mixed methods has its root in psychological testing (Campbell & Fiske,

1959) and is said to offer a neutralisation of biases between qualitative and quantitative methods through triangulation of multiple data sources (Creswell, 2009).

Nevertheless, adopting mixed methods of inquiry does not simply translate into a combination of quantitative data collection procedures and qualitative ones. According to several authors, mixed methods has several distinct designs to it. Creswell (2014a) has categorised this under two designs i.e. Basic, and Advanced mixed method designs. Plano-Clark and Ivankova (2016) on the other hand presented a typology of mixed method research designs, building on various authors. These include Interactive Independent Dimension Design Cluster (Greene, 2007), Five Families of Mixed Methods Designs (Teddlie & Tashakkori, 2009), Mixed Method Design Typology (Morse & Niehaus, 2009), Prototypes of Mixed Methods Designs (Creswell & Plano Clark, 2011), and Sequential Priorities Model of Mixed Methods Designs (Morgan, 2014). These typologies serve as a useful reference to the many types of mixed methods research designs outlined by experienced scholars, and illustrate the fluidity of the concept. Because this method comprises of combinations of methods, the possibilities are potentially numerous.

What I found particularly helpful, is Plano-Clark and Ivankova's simplified explanation of the basic types of mixed methods research designs, which looks quite similar to Creswell's Basic designs mentioned earlier. They have divided the types of designs into three categories (Clark & Ivankova, 2016, p. 118):

- Concurrent Quantitative and Qualitative design,

- Sequential Quantitative to Qualitative design, and

- Sequential Qualitative to Quantitative design.

In relation to this, this research study can be loosely categorised under the basic sequential quantitative to qualitative mixed method research design.
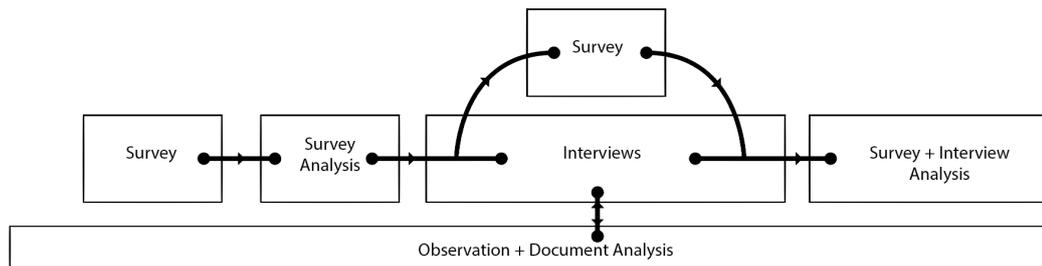
Figure 3: Procedural diagram of my research activities

The procedural diagram of research activities, as shown in Figure 3 above depicts the progression of the methods used in this study. Although there is a clear progression from quantitative data collection (online survey), towards the qualitative online interview, this study added another qualitative dimension via the continuous observation and document analysis process that happened throughout the data collection phase. This implied a certain element of virtual ethnography as I employed the role of participant-observation during my involvement in the community as a researcher. Virtual ethnography or netnography (Kozinets, 2012) borrows the constructs of ethnographic research into the digital world. But instead of looking at the face-to-face interaction, virtual ethnography works with texts, its interpretation, and assumes that everything that happened in the Internet has a social dimension to it. As Hine (2000) argued, "what we call a text could be thought

of as a temporally shifted and packaged form of interaction" (p. 50). However, this study did not follow the rigour of an ethnographic research, but adopted its method i.e. participant observant, into the data collection procedure.

SELECTION OF THE CASE

As briefly described in the background of the research chapter, this study focusses on an open online community of independent game developers, known as GameSalad.com. The main reason for the selection of this particular online community, and not other online community was that of convenience, I had access to the community through my membership, understood the functions of the community, the different parts/sections it offered, became familiar with a number of members who were regulars in the forum, joined several online 'meet-ups' with the developer team, as well as successfully publishing two mobile applications to both Android and Apple app stores. All of this involved a lot of trial and error as well as digging through the forum and asking the community for solutions. In short, I had the opportunity to understand and experience the community and its members, and the culture of helping that was evident throughout the community before studying it.

The process of negotiating access into the community for the purpose of this study started with a conversation with the company's representative, to negotiate permission to do the pilot study. The initial contact was made via an email sent to the company's Chief Operating Officer (COO), 'dgackey'. However, after several positive email exchanges with the COO, he failed to respond to any further email

conversation. Looking for an alternative to reach the community, I left a private message via the community private messaging system to the COO, as well as the official forum moderator 'ForumNinja', to which both of them replied. Through the private messaging system, which was initiated in May 2014, 'ForumNinja' took up the role of a mediator between the company and I. The negotiation included disclosing my identity as a doctoral student from University of Warwick as well as a member of the community, the purpose of the research, the methods that were going to be used, as well as the potential sharing of findings of this study with the company. Upon confirmation of the permission to carry out the research, which was granted in June 2014, the pilot study began with administering the online survey, which was prepared via the SurveyGizmo online survey system (www.surveygizmo.com). After the failed attempt at the photo community, a second round of the same survey was initiated in January 2015 to collect more responses.

This study took place entirely online. This means that the data collection was carried out independent of time and location, since the community and its members could be reached via a computer or mobile devices, and an Internet connection, anytime, anywhere. This enabled a continuous observation, as well as retrospective analysis of the history of the community through the use of the Internet archival system - The Wayback Machine (archive.org/web). This enabled observation of participation and interactions of members and identification of issues arose at specific point in time in the past.

DESCRIPTION OF THE CASE

Similar to most of online communities nowadays, Gamesalad was built on top of a forum/bulletin board web system, under the subdomain forums.gamesalad.com, with features such as threaded discussion sections, private messaging system, point-based reward mechanism, and members profile page, to mention a few. The community was built around the same time as the company released the mobile app authoring software of the same name, circa 2009. It started with a small group of users, trying out the alpha and beta version of the software. During the course of the study, the software remained in beta stage but came out as a stable version shortly after the study finished with data analysis, ending the 7-year-long beta software development. In terms of forum administration, the community had several moderators, many of whom were active participants in the community and were either volunteered or promoted to hold the position. There was only one moderator officially appointed by the GameSalad Inc. The rest were volunteers.

THE PLATFORM

To understand members' behaviour in the community, we need to understand the platform they used to interact with each other. Some platforms may afford certain kinds of interactions, and in GameSalad community, apart from running on a bulletin-board web application, there was also an element of gamification at play, targeted to encourage participation from members. This system utilised a reputation-based system whereby members could be awarded reputation points or badges for completing tasks e.g. uploading a custom profile picture would trigger a badge called 'Photogenic' and he/she would be awarded 10 points for that, or for when they received a vote on certain 'reactions' (see Figure 4).
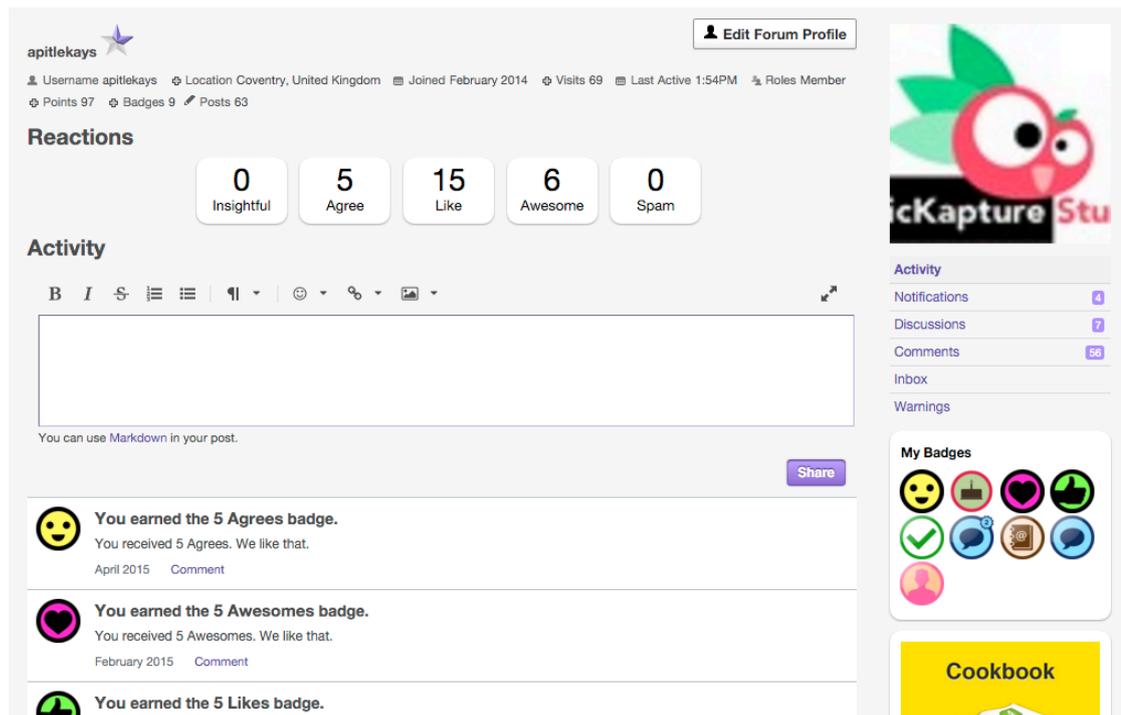
Figure 4: A screen capture of my profile page on forum.gamesalad.com

When a user opened a new thread or post a comment, several items of information from his/her profile page will be displayed alongside his/her nickname. This included the status of membership in the community (e.g. member, moderator, sous chef, pro status), the 'Pro' badge if he/she was a paid customer, number of posts to date, location (if declared in his/her profile page), and the date of the thread/comment published. There was also a voting features for each post or comment published, linked to the 'Reactions' and reputation system at the bottom of each comment. Others could vote a comment as 'insightful', 'agree', 'like', and 'awesome'. The 'quote' function enabled users to copy and reference a particular post in their reply, and the 'flag' function would be used by members to notify moderators of a potential abuse or harassment in the community. When a comment was 'flagged' more than five times, the comment would be automatically withdrawn from the public, and queued at the backend of the forum, waiting for moderators to

review it as to whether the flagged comments were indeed abusive. Figure 5 is a

sample screenshot of a post.

A Newcomer In Town.

apitlekays MEMBER   Posts: 63 Coventry, United Kingdom

in Introductions   April 2014

Hi awesome GS community.

I am a newcomer here. Played with GameSalad for a few weeks, got myself the sweet 'Pro' title, and haven't look back since. 🙂 Published 2 apps now after just only 2 months using GameSalad. Not boasting here, but this is a testament of how awesome GameSalad is! 😃

I am also a doctoral researcher, currently attached to the University of Warwick, UK. I am looking for an opportunity to do a research in GameSalad community. As an advocate of open online communities of practice, I believe in peer to peer, informal learning and I can see this happening in this awesome community. Can somebody please point me to the right person to talk to? I've sent an email to GameSalad's PR and Education personnel, but haven't received any feedback. Maybe they are really busy prepping for GS the next stable release, which I am really excited to hear 😉

Hoping to get to know the community even more. Cheers.

Dat GameSalad Research Guy 😆

⚑ Flag ❝ Quote · ◉ Insightful ☺ Agree 👍 Like ♥ Awesome

Figure 5: Sample screen capture of a post in GameSalad community.

Activities in the community were centred around issues including the use of the

software, notifications of previous and currently released version of the software,

news from the software development team, face-to-face and online meet-ups

announcements, announcements of new games and applications made by users, and

the more general topics of publishing and marketing games. But the largest issue

that took up the majority of the opened threads concerned with users asking for

help when facing with problems while working with the GameSalad software. This

section, aptly named 'GameSalad 101', received new threads daily, but due to how

forum/bulletin-board web application works, these threads were pushed

downwards and could be lost in sub-pages. This introduced a problem to members

and users, which will be elaborated in the coming chapters. The forum also had private messaging system, for member-to-member, and company-to-member (and vice versa) communication.

Online activities can be seen in the 'Activity' page (forums.gamesalad.com/activity), where a list of recent topics were displayed, including the welcoming of new members, notification of badges awarded to certain people who fulfilled the requirements, members' status updates, and comments members left on other members' profile page. On the sidebar, there were two lists: the 'This Week's Leaders', and the 'All Time Leader', which showed the rankings of members in terms of points awarded to them, weekly, and cumulatively.

Apart from the Activity page, GameSalad.com also had several areas on the website that were pertinent to the community e.g. bug tracker - where members could submit a report to the company on any problem pertaining to the software; arcade - where members could publish their games for others to try; marketplace - where members can buy additional assets like graphics and music; and cookbook - where most of the documentation on how to use the software was located.

THE SOFTWARE.

GameSalad software has been under active development since it was first introduced into the market. As mentioned before, the software has been in 'beta' version for a long time. 'Beta' - a pre-release version of a software that is still undergoing active development, generally held bugs, and usually given out to a large

number of users to try. Feedback generated by these users were often used to improve the software. However, GameSalad in its beta stage was generally quite robust, despite several issues that affect the performance of the software. Users were able to submit reports of bugs to the development team, as well as suggesting features to be added in the future iteration of the software.

GameSalad software supported both Macintosh and Windows operating system, but the former was far superior in terms of features and functionalities, as compared to the latter. The difference between the two operating systems was raised as an issue on numerous occasion by the members, but the company has made it clear that they had plans to build a version of the software that utilised the same code-base, ensuring similar functionalities and features across operating systems in the future.

THE USERS: THEIR PARTICIPATION AND MEMBERSHIP

When a user registered as a member in the community, he/she would have his/her own profile page. In this profile page (refer to Figure 4), members would be able to upload a custom profile picture, and to update their status. Also, on this page, additional information about the user would be displayed, for example their location (if specified), date he/she joined the forum, number of visits, date and time of last active in the forum, points given by the forum system, list of badges acquired, as well as the number of posts he/she have in the forum. There is also a list of 'reactions' - numbers of votes casted by other members in the community, on his/her posts or comments in the forum. The forum generally consisted mostly of newcomers, who came in search of help and guidance for building mobile games and applications. Apart from this group, there were members who provided

feedback and help to other members. These helpers can be found in almost any open threads that asked some assistance on specific problem, and frequently topped the lists in the 'This Week's Leaders', and the 'All Time Leaders'.

In respect to membership in this community, using Lave & Wenger's (1991) lens of legitimate peripheral participation, the progression of 'newcomer' to 'old-timer' by which the "progressive involvement in the community by virtue of his or her increasing mastery of the practices of the community and of his or her membership" (Gherardi, Nicolini, & Odella, 1998, p. 279), this online community experienced what every community undergo over time - the turnaround of members from newcomers to old-timers. Although this process was not required and might not be experienced by every member in this community, for those who did 'stick around' and were involved in activities and conversations, the idea of being someone who had been in the community for quite some time was nothing new. The process of 'newcomer' becoming an 'old-timer' places members as arks of shared knowledge and gained skills through legitimation of the game-making practice - from periphery towards a more central role in the community, and this normally follows a fluid form of knowledge transfer. Members usually engaged in discussions on how to solve specific problems pertaining to the development of their mobile games and/or applications. During these discussions, the more knowledgeable members would contribute to the discussion, coaching the person asking in solving his/her problem. Often, the discussion went back and forth until both achieved a consensus, and felt that the problem had been solved. But this was not always the case. Knowledge transfer required participation and time for the mastery of a skill or a set of skills (of using the GameSalad software).

By its open nature, both in membership and access to shared knowledge, some users (regardless whether they were registered members or not) were able to gain knowledge of GameSalad outside the confinement of the community membership. This enabled a different kind of 'old-timer'; one that might be relatively new to the community but who held valuable knowledge and the mastery of coding practice. A member could be an 'old-timer' without ever previously participating in the online community. As one of the interviewees recalled:

> *"In all that time, about a year, I never even looked at the forum… After we published our app, I started visiting the forums and it was funny as people wondered 'where I came from' as I already knew so much about GS and had an app published." – C (1)*

This amendment of the original concept of 'old-timer' opens up a new dimension/discussion on how we see knowledge, learning, and mastery in online communities, and how it affects identity, which will be discussed later.

THE CONTEXT

At the start of the study, the forum had 104,648 registered members. Average monthly visitors amounted to 103,994 as reported by the administrator of the site on March 2014, but this figure took in registered and unregistered visitors. Out of these, 110 members opted to participate in the online survey (66 were collected during the first round, and the remaining 44 were collected during the second round). Through the opt-in option stated at the end of the online survey, 62 respondents expressed their interest to continue their participation in the study, and agreed to be contacted further for an interview session. However, out of 62, only 21 respondents replied and remained in contact throughout the interview process.

Stories from these 21 interviewees were collected and used as the main threads to understand the activities in the online community.

SELECTION PROCEDURES

Sampling for this study was based on access and convenience. Merriam (2009) outlines convenience sampling to be a type of selection procedure that heavily focussed on availability of time, place, as well as participants. With the study utilising online platform, time and place were found to be not an issue, since the population existed throughout the duration of the study. Selection of the case, which has been explained ealier, was also conveniently chosen based on my own membership in the community.

I began the research by creating an online survey, which was posted in the GameSalad online community as a new post, under the title "Invitation to be part of something awesome". The post contained an introduction to the researcher, where I introduced myself as a doctoral researcher from the University of Warwick, United Kingdom, provided a description about the survey and its purpose, as well as a statement of ethical issues such as anonymity and processes of data handling. A complete transcript of the post is attached in the Appendix G1 and G2. The link to the survey was shortened using Google URL Shortener (https://goo.gl/), and with this, it is possible to track how many clicks the link received, whether the clicks came from the targeted source, and view general statistics on numbers of clicks per day. The main purpose of using the Google URL Shortener service was to add another layer of authentication to the online survey, as it enables tracking of the

source of traffic, eliminating the possibility of traffic coming from sources outside of the community.

The invitation was made as a 'sticky' post - a post which has been given a 'sticky' state will always stay among the top threads opened in the forum, and will stay there irrespective of new posts, hence the name 'sticky'. In GameSalad community, sticky threads usually consisted of important announcements from the company, forum guidelines, and any other important threads that were deemed important for the community. The making of the sticky post had been agreed with the forum moderator, to ensure that the invitation received the maximum exposure in the community. The post was held open for a month before the survey was closed on June 2014, successfully collecting 66 complete submissions.

The same survey was administered to the community for the second round in January 2015, to gather more responses. Another sticky post was created with a similar heading "Invitation to be part of something awesome -Part 2" (http://forums.gamesalad.com/discussion/comment/518228), but additional details were included, alerting members that it was targeted to those who have not yet participated in the first round of the survey. This round of online survey managed to round up the total complete submissions of online survey to 110, and the session ended on 31st of January 2015. The link, in total, received 178 total clicks, 160 of which came from the forum, and the remaining 18 came from unidentified source. From these, 110 users completed the survey, and 59 incomplete entries. The majority of the clicks came from the European countries, United States of America, Canada, and Brazil.

The invitation to be interviewed was placed at the end of the online survey, by using an open ended form with a 'Username' and 'Email' fields appended. 62 survey respondents expressed an interest. I sent these members a message through the forum private messaging system, introducing myself again and reminding them that they had opted-in for a further discussion, as well as stating their rights to opt out anytime during the conversation. From the 62 who expressed their interest, 21 replied the message and expressed their willingness to continue the discussion. I then sent an electronic informed consent, created using SurveyGizmo, to all of the 21 interviewees to read and digitally signed them. Contents of the informed consent can be viewed in Appendix H. Thus to recap, there were 110 respondents in the online survey, 62 expressed an interest in joining the interview session. 21 took up the interview using the built-in private messaging system. Of course, the interviewees and the survey respondents were a small percentage of the community, at least in numerical terms, when compared to over 100,000 visitors. Of course we can not be sure how many of these 100,000 were members and active online. Nonetheless, looking at the average number of daily posts, we can have a sense of this being a large community.

An in-depth analysis of survey responses can be found in Chapter 4 but briefly, this shows that respondents were mainly male from English-speaking countries, probably age between 18 – 40. The survey also revealed another dimension of demographic of members in the community - that there were members who were still in schools, probably aged below 17, and that membership reach spanned over different continents of the world. The survey respondents were unlikely to be representative of the total registered members, and this might limit the

generalisability of the survey findings. From the data collected (specifically on the frequency of logins, and duration of membership), coupled with the duration of which the survey was made available for access, I concluded that the majority of the members who participated in the survey were among the more active and longstanding members in the community.

Table 5: Breakdown of online interview participants by membership duration.

Membership duration (months)	Number of participants
60 ≤ Membership ≤ 80	4
40 ≤ Membership < 60	4
20 ≤ Membership < 40	8
0 ≤ Membership < 20	5

An analysis over the online interviewees revealed that nearly half were from the United States of America (47%), with more than a quarter from United Kingdom (28%). The rest were from Australia, Netherlands, and Saudi Arabia. In terms of highest qualification attained among them, more than half of them had at least first degree qualification (57%), and that the majority of them logged into the community forum everyday (67%). Table 5 breaks down the interviewees according to duration of their membership. This illustrates that while there was a concentration of interviewees who had been in the community between two to three years, there was also a reasonable spread.

Table 6 shows details of online participation by the interviewees. Column 1 shows the list of interviewees. Column 2 shows the number of comments and posts for each interviewees. Column 3 shows the duration of membership. Column 4 shows

the points acquired via interactions in the community. Column 5, 6, 7 and 8 each shows the number of 'Reactions' votes received.

The table shows that there is not necessarily a correlation between duration of membership and the amount of posts and comments made. For example, **R** and **K** were members in the community for more than 3 years, but had fewer number of posts as compared to others of the same membership duration. In terms of receiving 'Reactions' in the community, all of the interviewees had received votes, except for **Q**, who had not received any 'Insightful' votes. These reactions votes, as mentioned earlier, were casted off by other members in the community and perhaps to some degree, reflected the usefulness and perceived as valuable on the comments made.

Table 6: Profile of interviewees online activity.

Interviewees	Comments and posts	Membership (month)	Points	Reactions received			
				Insightful	Agree	Like	Awesome
A	18128	42	4873	391	818	915	757
B	16230	67	2232	67	371	328	220
C	14090	48	5633	402	1800	1100	812
D	7820	67	2665	148	470	637	373
E	7645	60	1615	29	116	248	352
F	4414	74	3436	164	1200	513	547
G	3833	25	1313	81	122	311	208
H	3171	28	1006	24	266	177	93
I	3120	19	1357	83	227	289	196
J	1926	20	505	20	67	92	145
K	1601	52	179	5	33	16	8
L	1081	26	413	10	119	109	18
M	928	28	475	20	73	116	100
N	739	36	453	16	91	115	68
O	724	15	111	4	5	13	16
P	399	13	806	11	24	171	193

Interviewees	Comments and posts	Membership (month)	Points	Reactions received			
				Insightful	Agree	Like	Awesome
Q	371	27	158	0	48	14	14
R	221	58	279	6	26	28	32
S	218	34	118	1	13	26	15
T	178	18	59	1	4	7	2
U	95	11	80	1	6	10	6

RESEARCHER'S ROLE

One of the endearing characteristics of a qualitative research, is how much the researcher is immersed, embedded in the subject of his/her research, as how Creswell put it - "involved in a sustained and intensive experience with participants" (2014b, p. 187), and although this research is positioned along the lines of a mixed methods research, the majority of the work was carried out using qualitative methods. This posed an opportunity for me to position myself among the members of the online community, but it also spelled certain concerns over biases and ethical issues.

As mentioned previously, I had been a member in the community for more than a year before using it as a focus in this study. My role in the community had been an ordinary member, who happened to have found a tool for building mobile games and application, without writing code, and discovered that the tool had an active online community to support users. What I found immediately very interesting was the amount of information that existed within the community threads and discussions, that were related to the problems and concerns that I had while building a mobile app. Through using the site's search function, I could easily find solutions to problems that I bumped into, but to be fair, the application that I was

trying to build was not sophisticated or complex. It was an app for learning Arabic letters, shown either chronologically or otherwise, and users could navigate through the letters, click on a letter and a voice (in this case, my own voice was used) would pronounce the letter to the user. It was a simple point-and-click system, which took about a month to build, from drawing the concepts, building the graphic assets, recording voice, through to the building of the app itself. Working with the software GameSalad involved tinkering with the software's drag and drop coding system, which at certain point became problematic. Problems that I encountered were either with the placing of behaviour blocks in an appropriate (logical) sequence, or with certain behaviour blocks needed to be fine-tuned, for example to have a button animated in a certain way when a user clicks on it. This could be achieved through the use of mathematical algorithm which had to be specified in the corresponding behaviour blocks. While I do know simple mathematical equation, the algebraic algorithm that was needed was more advanced. For this, I turned to the online community.

Even though membership in the online community was not compulsory in order to learn from the threads and discussions, I nonetheless signed up as a member. The perks of signing up was mainly the ability to leave comments, follow the development of certain discussions, as well as casting 'reactions' votes on comments and threads that I found useful and informative. But the main reason I signed up was so that I would be able to seek help - to leave a comment on a particular thread/ discussion, asking further clarification to what was already been discussed, as well as sending private messages to members to elicit their opinion and assistance in problems that I encountered. I logged into the community forum at least once a

day, checking the updates on the GameSalad software, joined general discussions, and at one point, started to giving advice to other members, working mainly with what I had experienced while building my own mobile app.

These experiences pushed me to the point where I was able to understand the inner workings of the online community, including knowing who were the regular members in the community, the moderators, and the ones who frequently helped others; the general relationship between the community and the company; the buggy-ness state of the GameSalad software, and the company's and the software's future trajectory; and the features and functionalities of the platform used for the community including its private messaging system, its point-based reward system, and the threaded discussion that pushed older threads onto subsequent pages. I came face to face with the problems in the community, including the problematic access to information and knowledge embedded deep in the forum, perhaps the excessive interest in money-making features within the GameSalad software that made users wanted to build apps for monetary reward, and the problems faced by helpers and moderators from members who became too-reliant of help from them.

I brought to this study, the knowledge of what I experienced and observed in the past year. Readers may argue that there is a probability that what I had experienced may not be considered as the experiences in the online community and there might be other types of experiences that I might have missed. This is rightly pointed out, and this might present a bias in viewing my starting point for the community. For this reason, when I started studying the community, I opted to be more of an observer, rather than participating in the community as I had done previously. Being

an observer meant that I had the opportunity to look more systematically, and I was able to analyse and take note of many different events and activities as I did not withdraw completely from any interaction with others. Apart from the engagement during the interview sessions which was carried out individually using the private messaging system, my interaction and conversation with the members of the community was more focussed on the study. For example, in the thread where I announced the opening of the online survey for this study, I replied to any members who posted questions and thanked those who had stated that they had completed the survey. However, outside of the context on which I presented myself as the researcher in this community, I steered away from online banter, for the purpose of leaving minimal footprint in my research. I tried to avoid artificial engagement in the community, in the hope that the events were not triggered by my presence online - reducing the possibility of the 'observer effect'.

By focusing on observation and exploration in the community, I was in a position to better understand the forum and the community, building on the previous knowledge of the matter. Heightened access to the moderators and other active members also helped paint a clearer picture of what happened in the community. I also had a rough mental picture of four or five of the interviewees before interviewing them, based on a brief interaction within discussion threads, though it was less likely that any of the interviewees would have formed a strong sense of my participation as I was not a standout member of the community. As Boellstorff et al (2012) emphasises, becoming closer to the subject of the research "provides an intimate view of their substance and meaning" (p. 65).

There are four types of observation roles mentioned in the literature, running across both end of participating and observing spectrum. These are 'complete participant', 'participant as observer', 'observer as participant', as well as 'complete observer' (Merriam, 2009; Creswell, 2012). The difference between these types of roles are on the level of engagement with the subject/place. 'Complete participant' has been described as the researcher being fully immersed in the subject of his/her research, participating in the activities and by doing so, establish greater rapport with the subjects. 'Participant as observer' also stresses participating, though with greater attention to recording observations. Nevertheless, Creswell believed such observation might distract the researcher (2012, p. 167). 'Observer as participant', or nonparticipant observer, relies on observation, while participating takes secondary role. The researcher assumes a 'peripheral membership' role in the community, as opposed to the active membership in the 'participant as observer' (Merriam, 2009, p. 124). The 'complete observer' suggests 'invisible presence' while collecting data, or that his/her role is not made known to the subject under study, or even covert e.g. in a room with a two-way mirror, or in public places such as on sidewalks.

In this effect, I assumed the role of non-participant observer during the length of the study. It may be helpful to point out a recent interpretation of the role that coincide with my take on it. When a researcher assumes the role of a participant observer, he or she embeds his or her "researching self in a field site as a consequential social actor" (Boellstorff et al., 2012, p. 65), though the degree of consequentiality is a variable in this study. Although there are many criticisms towards the objectivity of this data-gathering technique, other researchers provide a different perspective. Instead of rebutting the argument that interpretation that

comes from a participant observer is subjective and therefore unreliable, interpretivists agree to its subjectivity but embrace the richness of the data it offers. In order to prove that this technique is worthy of scientific analysis, they compared the reliability of trained observer, and that of untrained observer (Patton, 2002; Merriam, 2009), stating that trained observer "pay(s) special attention to a few things to which others ordinarily give only passing attention" (Wolcott, 1992, p. 22-23).

Creswell (2014b) provided an interesting take into investigating social structures close to the researcher when he called it 'backyard' research (p. 188). In this, he stressed the importance of addressing the power-imbalance, as well as information accuracy. As regards to power imbalance, I entered the community as a member and carried that identity into the research. I believed that majority of the interviewees saw me as like them - a fellow game developer. With this, I believed that the issue of imbalance of power was much reduced, except that I had greater access to the company and the moderators as this was needed for carrying out the study. As regards to information accuracy, this improved via triangulating interview data with observations of the community. For example, one of the interviewees mentioned a problem he faced while helping other members. He encountered a member who could not understand the logic behind a particular solution, and was constantly asking for help. He suggested that the member appeared to be 'lazy' in his/her attempt to understand the solution provided to him/her. The problem was confirmed when looking at the lengthy discussion he had with the said member, though it was of course the interviewee's own choice to use the term 'lazy'.

DATA COLLECTION PROCEDURE

Merriam (2009) touches the idea of data collection as 'noticing the data' as opposed to the data being 'out-there'. 'Noticing' depends on several factors, including researcher's theoretical orientation, research questions, research purposes, as well as the scope of participants on which the study focussed (p. 86). Kozinets (2012) shares a similar stance, adding that gathering data in online sphere, particularly of culture or community, means that researchers need to be interacting with the people behind the glass (monitor), and not just websites, servers, or keyboards. In my study, data were collected using *online survey*, *observation field notes and document analysis*, and *interviews*. As mentioned before, the community in question had shifted, from an online photographers community, to an online independent game developer community (GameSalad), and this affected the initial data collection timeline. Data collection took place from May 2014 - March 2015. Table 7shows the timeline for data collection.

ONLINE SURVEY

The purpose of the survey, titled "Online Community Experience Survey", was to get an overview of the community, in particular, how members perceived the community, themselves, and others in the community, as well as mapping the demographic profile of members in the community. To achieve this, the online survey adapted items from two more established questionnaires: Gunawardena and Zittle's Social Presence Scale; and Chavis, Lee and Acosta's Sense of Community Index-2. Both questionnaires have been reported to be a reliable instrument to measure perceived presence, as well as sense of community (see Gunawardena & Zittle, 1997; Chavis, Lee, & Acosta, 2008).

The questionnaires were adapted to fit the GameSalad community. Adaptations included changing the labels used, to be more appropriate for the GameSalad community, as well as the design of the questionnaire itself. For example, item 13 in the Social Presence Scale "I felt that my point of view was acknowledged by other participants in GlobalEd" (Gunawardena & Zittle, 1997, p. 15), was changed into a forced 2-point semantic differential scale item - "Comments I have made are acknowledged by others" or "I do not feel that my comments are acknowledged by others". Apart from the questions derived from the two questionnaires, there were also several items that were designed to capture members' participation in the community. For example, one of the items in the semantic differential scale "I like to find answers to problems from the community" or "I like to solve the problems by myself" was designed to understand the position participants took when interacting in the community.

The online survey was divided into two sections i.e. demographic information, and the online community experience sections. The latter contained two different formats of questionnaire items, including 2-point semantic differential scale items (20 items), and 5-point Likert scale items (10 items). The 2-point semantic differential scale items were designed to give participants a binary option to each question, so that they could choose an answer that was the closest to their belief/perspective/thoughts. The benefit of doing this is that every answer is forced and measurable, as opposed to items that allow respondents to 'stand in middle ground'. Of course, forced choice can create an artificial situation and push respondents into a more polarised choice.

Table 7: Timeline for data collection.

Tasks	Duration (month)	Completed	2014								2015		
			May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Online Survey	2	✓	▓								▓		
Forum Data	-	✓	▓										
Observation	11	✓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
Interview A	4	✓				A1			A2	A2			A3
Interview B	2	✓					B1						B2
Interview C	3	✓						C1		C2			
Interview D	4	✓							D1			D2	D2
Interview E	4	✓				E1	E1	E2		E3			E4
Interview F	4	✓					F1	F1	F1				F2
Interview G	2	✓					G1						G2
Interview H	2	✓						H1					H2
Interview I	5	✓						I1	I1	I1			I2
Interview J	2	✓				J1		J2					J3
Interview K	1	-				K1							
Interview L	3	✓							L1	L1			L2
Interview M	3	✓							M1	M1			M2
Interview N	3	✓						N1	N1				N2
Interview O	3	✓							O1	O1			O2
Interview P	2	✓				P1	P1						
Interview Q	2	✓							Q1				Q2
Interview R	2	✓							R1	R1			R2
Interview S	2	✓							S1	S1			
Interview T	1	✓						T1					T2
Interview U	3	✓							U1	U1			U2

But in terms of evaluating respondents' attitude, the benefits outweighed this concern as it threw differences within the sample into a clearer light. In contrast, the 5-point Likert scale items gave flexibility to respondents, as opposed to the earlier 2-point scale, in that it gave a scale of agreement - from 'Agree strongly' to 'Disagree strongly'. The five demographic items in the survey included gender, highest academic qualification, employment status, duration of membership in GameSalad community, and the frequency of logging in to the community. At the end of the survey, there was a section where respondents could opt-in for the interview sessions by disclosing their email address as well as their GameSalad username.

The online survey was built using an online questionnaire service SurveyGizmo. Before putting it online, I tested the survey with some colleagues. The survey was first carried out in May 2014 and had garnered 66 responses from the GameSalad community. Nothing was changed in the repeated survey since the items seemed to be well accepted by the respondents. The first survey responses were intended to be a pilot but I felt able to include it in the main study as the items remained unchanged, the survey had received positive feedback from first round survey respondents, and that the responses was ample. The second round of the survey was administered in January 2015, collecting some 44 more responses. During the survey administration, the thread which contained details of the study and a link to the online survey received a considerable amount of views (over 1800 views for the first/pilot round, and 981 views for the second round), as well as comments left by participants who had answered the survey. To encourage more participation, I provided regular updates on how many submissions there were, as pictured in Figure 6 below, in the thread.
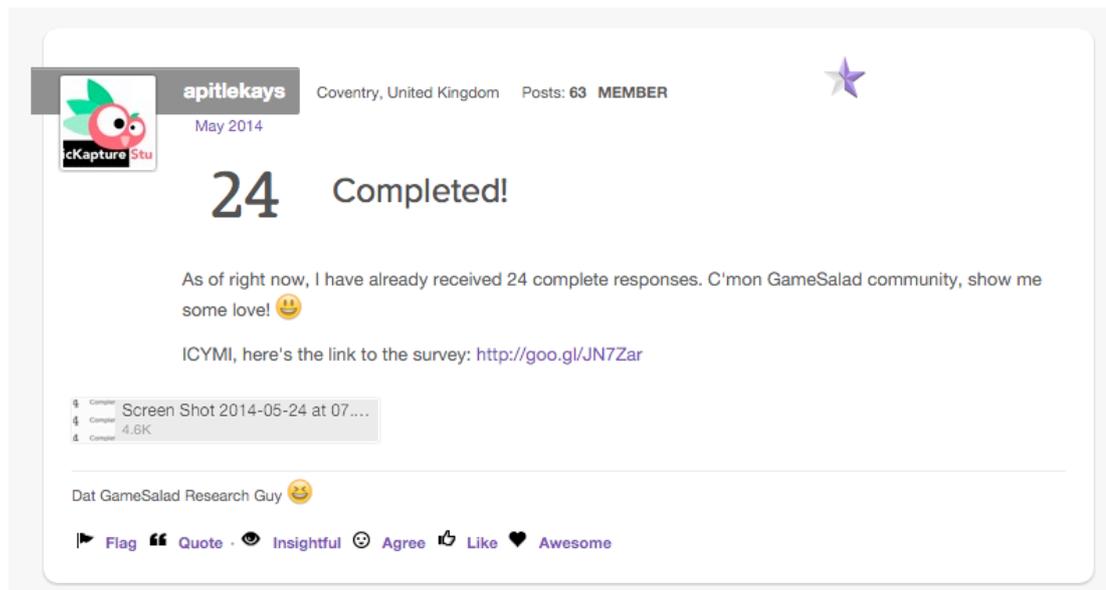
Figure 6: Example of post to encourage survey participation.

OBSERVATION FIELD NOTES AND DOCUMENT ANALYSIS

Netnography, like ethnography, involves documenting the researcher's experiences while conducting the study (Kozinets, 2012) and resulting in the writing up or transcriptions of the experience by the ethnographer at the end of the day/study, the idea of transcribing experience, and a 'field site' in a netnographic research is far from its original notion (Kozinets, 2012, p. 113). While real world ethnographic work deals with people face-to-face, netnographic research largely deals with text and textual context. While ethnographers study meanings of acts and utterances, netnographers study people's interactions via electronic means (Kozinets, 2012), but both strive to understand shared practices, its meaning, as well as the social contexts (Boellstorff et al., 2012).

For observation, activities that happened in the GameSalad community were recorded in a weekly observation field notes. These notes kept accounts of the

events and incidences that happened. In particular, the field notes recorded four

aspects of interaction found in the community, namely 1) the weekly top

contributors, 2) the number of open questions, 3) the general threads opened in the

forum, and 4) the nature of responses (tone, tendency, informative, etc.). This

information was used in triangulating the interviews, as well as the survey responses

and the forum data.

'Document analysis', has been used as a method to gather data about the subject in

question, providing relational data that is not built for the purpose and of the

research questions. This study took a specific categorisation of what was considered

a 'document'. Rather than relying on the textual artefacts - of discussions and

conversations happened in the community as the document, I focussed on the

forum data including:

- the number of registered members,

- number of monthly active unique users,

- number of threads opened monthly and weekly,

- number of posts posted daily,

- number of monthly page views, as well as

- number of comments on monthly basis.

As can be seen in Table 7 and elaborated in the following chapter, the forum data

were acquired twice within the length of the study with the assistance from the

community's moderator: the first was at the end of the online survey data gathering

(May 2014), this was data from March 2013 to March 2014. After the interview

sessions finished, another set of forum data were acquired (from March 2014 to

March 2015). This second data set was used to compare the growth of the community over the 2-year span, in the hope of addressing a methodological concern about previous studies which relied on data at a single point in time. By combining and comparing the two data sets, I could see the progression of the community. From these data too, I could identify the spikes in the number of monthly participation, and using the Internet Archive: Wayback Machine (archive.org), I could visit the forum at an earlier point in time, to inspect the causes of these spikes, retrospectively.

INTERVIEWS

"Interview is necessary when we cannot observe behaviour, feelings, or how people interpret the world around them" (Merriam, 2009, p. 88). To this end, interview was chosen for the main method of data collection because of my focus on the meaning of the activities for members. There have been many studies on online communities implementing document and discourse analyses, but fewer which seek to deeply engage with perspectives and stories (see page 67). Interviewing was the most suitable method to collect primary data from the people who left the textual artefacts. Of course, access to the interviewees was a key challenge and I needed to carry out 'remote interview'. These are often viewed as a poor substitute for face-to-face interview (Braun & Clarke, 2013). Nevertheless, with the advancement of technologies, remote interviews have been possible and seen as offering opportunities and advantages in some cases. For this study, I opted to conduct online/remote text-based interview format because of several reasons:

- *Convenience.* The online community is hosted on the Internet and members were distributed throughout the world, making it virtually impossible to conduct a physical face-to-face interview with all of the 21 interview participants.

- *Reflexivity.* Relying on text-based interview using the built-in private messaging system, the conversations were often asynchronous. This gave me a space to internalise responses and plan the next move - whether to probe deeper into an issue, or move on to other questions. From my experience of face-to-face interview while working on my masters degree report, I felt that I was not so proficient at face-to-face interview. I often got through the questions in a mechanical fashion, and as a result, as I was transcribing the interviews, I had a lot of "I should have asked more" moments.

- *Fluency.* English is my second language, and I do not consider myself a fluent speaker of the language. In fact, I also found face-to-face social interaction intimidating most of the time. I believe that I can express myself better using text rather than speaking, and although I have tried improving my speaking and social skills, this was not something that I would risk for my doctoral study.

- *Access.* GameSalad visitors could be assumed to be accustomed to using technology, since the nature of the practice (game-making), required it. They were frequent users of the computer and were likely to be online whether accessing GameSalad or not. This habit of technology use may explain the high number of visitors to the website.

Table 8: Table of interview sessions, showing session dates and total number of words.

Interviewee	Total sessions	Session	Session dates		Total words
			Start date	End date	
A	3	1	1st Aug 2014	28th Aug 2014	7161
		2	25th Oct 2014	20th Dec 2014	
		3	15th Feb 2015	20th Mar 2015	
B	2	1	2nd Sept 2014	5th Oct 2014	2807
		2	1st Mar 2015	26th Mar 2015	
C	2	1	1st Sept 2014	8th Nov 2014	5784
		2	4th Dec 2014	23rd Dec 2014	
D	2	1	18 Sep 2014	20 Nov 2014	2307
		2	12 Feb 2015	17 Mar 2015	
E	4	1	5th Aug 2014	5th Oct 2014	4835
		2	25th Oct 2014	2nd Nov 2014	
		3	20th Dec 2014	30th Dec 2014	
		4	17th Feb 2015	14th Mar 2015	
F	2	1	2nd Aug 2014	17th Nov 2014	5746
		2	3rd Mar 2015	15th Mar 2015	
G	2	1	20th Aug 2014	28th Sep 2014	3077
		2	1st Mar 2015	28th Mar 2015	
H	2	1	16th Sep 2014	27th Oct 2014	2157
		2	25th Feb 2015	18th Mar 2015	
I	2	1	1st Sep 2014	29th Dec 2014	9335
		2	16th Feb 2015	15th Mar 2015	
J	3	1	25th Aug 2014	7th Sep 2014	2118
		2	17th Oct 2014	5th Nov 2014	
		3	20th Feb 2015	15th Mar 2015	
K	1	1	21st Aug 2014	18th Sep 2014	1773
L	2	1	2nd Nov 2014	28th Dec 2014	5706
		2	17th Feb 2015	20th Mar 2015	
M	2	1	7th Oct 2014	4th Dec 2014	2926
		2	8th Mar 2015	29th Mar 2015	
N	2	1	25th Sep 2014	6th Nov 2014	3140
		2	19th Feb 2015	20th Mar 2015	
O	2	1	1st Nov 2014	27th Dec 2014	2096
		2	10th Mar 2015	20th Mar 2015	
P	1	1	5th Aug 2014	27th Sep 2014	4760
Q	2	1	25th Oct 2014	28th Nov 2014	1971
		2	24th Feb 2015	20th Mar 2015	
R	2	1	27th Nov 2014	17th Dec 2014	3252

		2	1st Mar 2015	28th Mar 2015	
S	1	1	2nd Nov 2014	28th Dec 2014	1291
T	2	1	25th Sep 2014	27th Oct 2014	1662
		2	2nd Mar 2015	20th Mar 2015	
U	2	1	5th Nov 2014	28th Dec 2014	2923
		2	3rd Mar 2015	28 Mar 2015	

Interviews were carried out with 21 of the survey respondents, who opted to be included in the session in their survey responses. These were semi-structured sequential remote interviews. The sessions were planned to be sequential because I would only interview 5 interviewees at any point of time during the study. If an interviewee finished his/her interview earlier than the other 4, I would initiate a new interview session with another interviewee, to keep the quota to 5. This gave me a control over the flow of the interview sessions as well as ensuring that there would be no interviewees accidentally left in the middle of their interview.

The idea of sequential interview for this research relied heavily on the subjectivity and the direction of the interview questions. I often started the interview session with broad open-ended questions such as "can you tell, how long have you been a member of GS, and what started it all?". These kinds of question lead to all sorts of revelations, from their background information, to raising conflicts that interviewees had, to what made them choose GameSalad over other tools in the market. From their responses, I built up a bank of further questions. The interview schedule was thus iterative. For example, I found myself going back to the earlier interviewees, to ask questions that were generated during the later interview iterations. In order to compensate this, before ending each interview session, I asked for interviewees' permission to contact them in the future, if there were any other questions that surfaced. Most honoured this query.

Because the interviews were carried out online using a private messaging system, transcribing was not necessary. At the end of every interview, interviewees were asked to review the discussions and state if there were any statements that they want to change or retract, before finalising the interview. None of the participants stated that they wanted to retract or change their opinion.

There was a 5-week-long pause in the interview sessions, between January to February 2015, due to an unforeseen personal problem. Before pausing the interviews among the interviewees, I managed to leave an apology note, and a request to resume the conversation after the problem had been solved. Thus, I failed to maintain the 'momentum' (Braun & Clarke, 2013, p. 102) for the interview. Nevertheless, after the incident, I picked up the conversation, starting with some light questions that were not directly relevant to the last discussion I had with them, to gain back the momentum and rapport. Once the interviewees started to respond on a consistent basis, I continued the discussion where we left off. This was not without its effects. Two of the interviewees became non-responsive right after this incident.

The questions that were asked in the interview were based on the research questions. Among the issues that were raised during the interviews were the provision of help, their motivation to participate, limitation for participation, outcomes of participation, and problems faced in the community, and their view of learning. Most interestingly, the majority of the interviewees mentioned the deep rooted culture of helping in the community, and the assistance they gave to others

as a mean of 'paying it forward' to the community, which will be discussed in greater detail in the next chapter.

The interviews were conducted in an informal, highly unstructured way, and I felt that I had projected myself to the interview participants as friendly and as a fellow game developer (Patton, 2002) and as neither powerful, nor powerless. By doing so, I think I managed to establish rapport with the interviewees, and it seemed that they were able to establish trust, disclosing problems that they had with the community as well as the company. For example, one of the interviewees stated his objection as to how the GameSalad company had failed to provide a 'proper' communication channel with the community regarding a buggy version of the GameSalad software which had been released to the users, but was later retracted the software without proper notice to its users. He even gave the permission to quote him verbatim and disclosing his name in the report. This signalled that the interviewee had certain amount of trust, to be able to disclose a provocative statement to me. I noticed that interviewees appeared to be relaxed and were more willing to open up the discussions with me, when once in a while, I deviated from the questions, and just catch up with what they did or what they have achieved - becoming genuinely interested (I am very interested in game development myself) in what they did, or had produced. Giving them the space to answer whenever they could/would, was a double-edged sword. It created less tension between the interviewees and I, enabling a relaxed, friendly atmosphere. But on the other hand, it dragged the length of the interview sessions to several months. This had been expected at the beginning of the interview process. The longest interview lasted about 5 months.

DATA ANALYSIS PROCEDURE

Data analysis refers to the process of "breaking down the topic or object into its component parts and understanding how those parts fit together" (Hammond & Wellington, 2013, p. 9). The idea of analysing the data involves a progression of refining, categorising, and exploring the meaning the data impose to the contexts and vice versa. Though, in qualitative research , analysis often carried out side by side with data collection (Merriam, 2009, p. 169), as per described in the analysis of the observations as well as the interviews later in this section. Nevertheless, the process of analysing the data did not stop after the data collection finished, rather it continued with a more intense rigorous work on the data, especially on the interview data.

This section contains descriptions of analysis carried out with each of the data set: *online survey*, *observation field notes and document analysis*, as well as *interviews*. This section also featured the backstories behind my attempt at working on a mixed method analysis of the data, and how data interlinked. The backstories were saved in a digital diary via an application called 'Day One' which was available on Mac and iOS devices (http://dayoneapp.com/), akin to the 'Researcher's Diary', but this was only carried out during the data analysis stage in the study. The diary held accounts of thoughts processes that I went through while analysing the data, documenting the problematic as well as motivating encounters. Excerpts from this diary will be used in this section to illustrate the idea and the thought process I had, during specific period in data analysis.

Table 9: Data analysis timetable

Month	Activity
May 2014 – Mar 2015	• Simultaneous forum observation and analysis of field notes, to use alongside interviews.
Feb 2015 – Mar 2015	• Statistical analysis on online survey.
April 2015 – July 2015	• Open coding interview transcripts. • First cycle of data reduction. • Second cycle of data reduction.
August 2015	• Establish the main structure of the data on theme, subthemes, categories and constructs.

ONLINE SURVEY

The 35-item online survey was administered twice. There were 110 responses in total, and the aggregated data was presented in a form of descriptive tables. There were three types of data to categorise: multiple choice, forced choice, and Likert scale. Rather than represent them one by one, the data were grouped together into themes of (excluding the demographic items) sense of community, social presence, and participation.

OBSERVATION FIELD NOTES AND DOCUMENT ANALYSIS

As mentioned previously, observation field notes were used during the interview sessions as well as while conducting document analysis, to note the trends and general behaviours of members in the community. These notes were used to inform the interview, raising questions such as "Can you show me a link or two to any GS forum post/ threads that you think is/ are the most memorable/ significant/ interesting post/ threads you've encountered/been a part of?", and "How do you distinguish between the newcomers, and the old-timers in the forum?". Interviewees often responded to these questions with links to discussion threads in the forum, to illustrate their point. For example, in response to the first question, **F** provided an

elaborate answer, containing several links to discussions in the community forum which he found to be memorable or significant –

> *"Excluding posts I made, such as my taking my toys one or my free stuff thread, I think these ones stand out:*
>
> *http://forums.gamesalad.com/discussion/63093/community-tutorials-by-braydon-sfx/p1*
>
> *I've not really participated in it, but I think it's an unrivalled resource and benefit to the community.*
>
> *The spare code thread by [username] is always fascinating:*
>
> *http://forums.gamesalad.com/discussion/52494/spare-code-dump-it-here#latest*
>
> *I pay particular attention to any posts by [username], [username] and [username] in particular. Each of them are unquestionably better and more skilled GameSalad users than me, and if I see them post something there's a great chance I'm going to learn from it.*
>
> *On a less positive note, and if you want to see me when I'm being less generous and kind-spirited, you can look at the never dull threads by [username]:*
>
> *http://forums.gamesalad.com/discussion/72718/point-system/p1   http://forums.gamesalad.com/discussion/71521/how-to-make-ball-follow-line/p1*
>
> *I regret backing down in that second thread, I believe what I said was fair and justified. I'd stirred up quite a lot of trouble not too long before though, so I didn't want to set off another big argument. That thread is composed of about half a dozen threads on the same topic he posted, which got merged into one. That's why it might seem a little jumbled. If you want to see the efforts the community goes to to help the more frustrating and challenging users, just look at any of his threads."* (indentations in original, names of community members were replaced for anonymity).

When given links, I always follow them, read the discussions thoroughly, to understand the context to which the interviewees were talking about. On top of that, I did background checks on the members who had been mentioned in the responses (for example in the excerpt above, which included five other members, four of which were seen as esteemed colleagues and one as a problematic member), to understand who they were, what were their roles in the community, how active they were, and if presented as a problem to the interviewees, what was the nature of

the problem and how did this member conducted his/her behaviour generally in the community forum, to see whether this behaviour was typical or a response to a specific member (the interviewees). This would give a bigger picture of what was happening in the community through the use of incidences identified by the interviewees, and not just relying on what the interviewees had said. Information gathered from this process were often syphoned through to the next set of questions, if further clarification needed.

INTERVIEWS

As mentioned before, the interviews were carried out using the built-in private messaging system, embedded within the community's forum web application, by the service provider, Vanilla Forum. According to the specification that can be found on the service provider website (https://vanillaforums.org/discussion/25325/are-private-messages-viewable-by-admins), contents of private messages cannot be read by other people including the administrators and owners of the forum/community, as it is highly encrypted. Unless the administrators open up the database on the server, and looks into the millions of rows and columns in the database and sift through them to find the messages, it would be highly unlikely that the messages would be accessible. This leaves a theoretical possibility, but with the amount of configuration work needed and public disapproval, both interviewees and myself were felt assured of confidentiality.
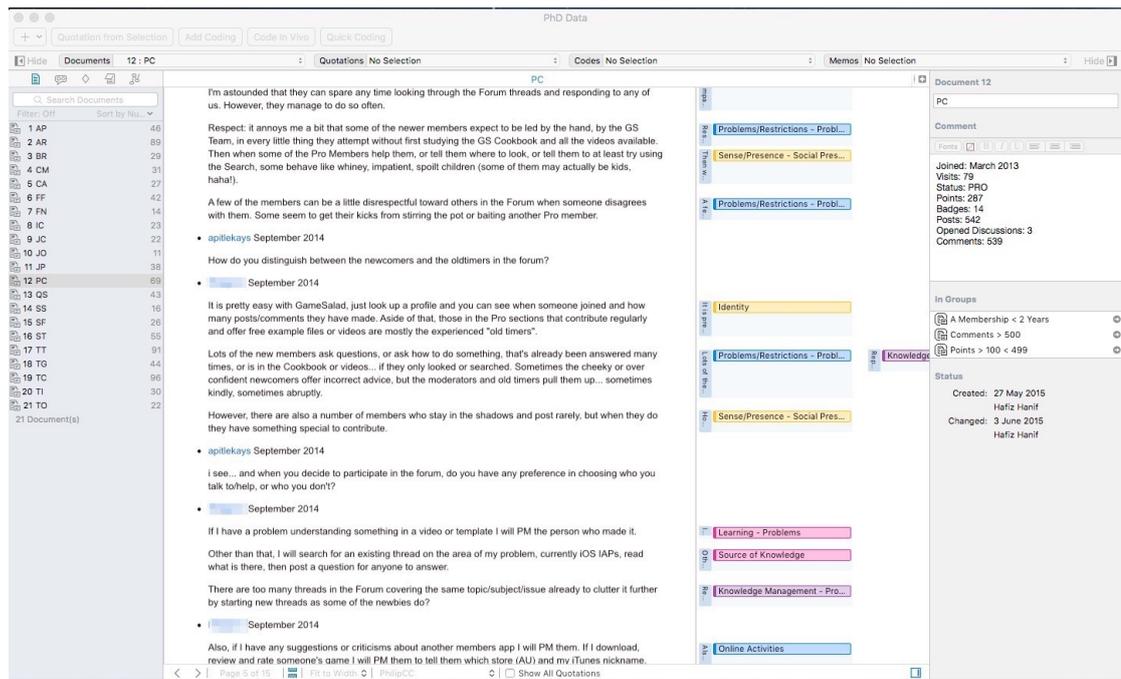
Figure 7: Screen capture of Atlas.ti interface.

I exported the conversations as PDF documents to begin analysing the interview

transcripts. For this, I had the opportunity to use two example QDA software,

Atlas.ti and NVivo prior to doing the full-length analysis. Comparing the two, I

opted to continue with Atlas.ti Mac, for its workflow, layout, and functionalities

rather than NVivo for Mac. Atlas.ti provided greater flexibility to code the

transcripts, viewing multiple transcripts at a time, exploring the codes and

quotations in Network View, as well as drilling down into the data with its advanced

filter search engine. Putting these features aside, I also would like to make a point

about the presentation of the software. While working with NVivo on a trial

account, I noticed that the user interface in the Mac version preserved its Window's

interface. While this might be that the developers would like to sustain the user

experience and usability across platforms, this was disconcerting for a regular Mac

user. Thus, I found that Atlas.ti was more appealing in terms of its layout, user

interface, as well as the behaviours and overall design of the application. It might be

the case that I have a strong background in graphic designs, but it is worth

mentioning how user interfaces and usability of an application may influence a

researcher's workflow and preference.

The process of interview data analysis is set out in Figure 8, charting a move from

broad brush 'open coding', data reduction cycle, to presentation cycle.

Open Coding
(Broad-brush)

- Coded 4 transcripts.
- Compared codes between two coders.
- Applied the codes to remaining transcripts, while open to new codes.
- Resulting in 87 codes.

Data Reduction Cycle
(Codes to Sub-categories and Categories)

- Further refinement on codes.
- 'Structural coding' combining codes into bigger groups.
- Groups became Sub-categories.
- Several Sub-categories combined to make Categories.
- Resulting in 12 Categories and 40 Sub-categories.

Presentation Cycle

- Arranged under 4 themes.
- Some mediating categories e.g. 'Extrinsic', 'Intrinsic'.
- Some re-positioning of codes.

Figure 8: Process flow for analysis and presentation of interview data.

Open Coding:

The analysis started with open-coding of four of the interview transcripts, using bottom-up (inductive) approach. The coding started with sifting through each line in the transcripts and allocate a 'unit of meaning' (Hammond & Wellington, 2013, p. 23) or code to the said phrase/sentence. Atlas.ti assisted the process by enabling me to place the codes created on the left sidebar. When there were statements that could be taken as referring to the same issue, the code was dragged onto the highlighted texts. In the end, 87 codes emerged from the analysis of the transcripts (see Appendix D).

After the set of codes was formed from the four initial documents, the same transcripts were given to a colleague to code, and the codes were then compared. The comparison between these two coding exercises showed there was a sufficient consistency (around 60 codes were found to be consistent in the comparison). In cases of difference, differences were discussed and codes amended. Following this, the 87 codes were used for the remaining 17 interview transcripts. The purpose of coding at this stage was to identify recurring concepts and ideas, through a 'broad-brush' process.

In a documented account of the coding process recorded in my diary, I mentioned the process I went through in finding the suitable fit for the codes –

> *"I am in the middle of trying to come up with a 'universal' codes, from the first few interviews that I have open coded. It's a painstaking job, the open coding - to really have to read each line and place a summary of it.*
>
> *I think my approach for open coding is a bit different from others, when I do open coding, without any idea where it leads to. I just code the lines with a term that I think best*

describe it. It is a mess. A big mess. Imagine having hundreds of different codes after completing only few interviews. My supervisor said that this is too big, overwhelming. But I think my approach to open coding is a bit different that others. From these hundred codes, I'll sit down and group then into different categories. From here, I revisit the categories and its codes again and again to refine the codes, and produce a concatenated codes based on the open codes. These concatenated codes will be used to code other interview transcripts.

I think this way is better, because by doing the coding like this, I am allowing the themes to emerge naturally from the data, without or with minimal interference of preconceived 'categories' from the literature (during the open coding sessions). I do however have the tendency to use the more popular themes and categories from the literature when categorising and refining them.

In the process of coding, decoding, and re-coding, I've made use of the spreadsheet tool inside Google Drive to visualise the codes and its categories. I have constantly decode and recode as well as re-categorising the codes to find a perfect fit for the codes. Sometimes I need to merge the categories, and separate them too. - 30th March 2015, 10:46am".

Although the process of open coding, and allowing the codes and themes to emerge from the data, was in part inductive, akin to that of a grounded theory, it was also guided by the literature. As mentioned in the diary excerpt above, terms such as social presence, identity, motivation, and participation to name a few, were long established in the literature and did not simply emerge from viewing the data. However, I allowed the data to speak for themselves, and to not be forced into pre-existing assumptions about its meaning. In an effort to manage the codes, I then arranged them into twelve broader categories: 1) Shared knowledge, 2) Frequency, 3) Learning, 4) Helping, 5) Motivation/Purpose, 6) Problems, 7) External Contact, 8) Trust, 9) Identity, 10) Structure, 11) Sense/Presence, and 12) Company.

Data Reduction Cycle:

In spite of generating these twelve categories, the 87 codes were still too many to work with. Upon closer inspection, there were several codes that could be merged

to capture similar issues. I listed the 87 codes in a Google Spreadsheet, arranging them loosely into my twelve categories, and codes that had a degree of similarity were combined. For example, the codes *'prefer to help when the user has put enough effort'* and *'prefer to help who showed effort'* were combined under the broader code *'Help: Preference'.* This process resulted in 40 codes. Figure 9 shows an excerpt from the Google Spreadsheet for this exercise. Colour intensity was used to determine the degree of importance between the code. The darker the colour, the more frequent the code were used in the transcripts (see Appendix E1 and E2 for a complete table).

Figure 9: Code reduction table on Google Spreadsheet.

Presentation Cycle:

A final phase of data analysis concerned the presentation of the findings. At first I tried to construct a narrative around the categories and codes above, but the results were disappointing. In particular, the narrative became disjointed. There were too many sections and subsections and the relationship to the research questions was

getting lost. In addition, as I worked through the data, new structures presented themselves and in particular, I could see that there were some mediating categories, and dimensions.

At the beginning of this cycle, I faced problem of redefining the groups, a struggle which had been captured in one of my research diary entries dated 16th July 2015:

> *The cycle involved defining and re-defining the categories, and sub-categories. While doing this, I discovered that I had to merge several categories into one. Looking back on one of the diary entries, reflecting this process, I found that "I need to concatenate some sub-categories into one e.g. the 'A social obligation to help' and 'The trigger of personal experience' to be under the same idea, taking the former title as the main title for the construct. I also need to ensure that the explanation goes well with the title. I need to add in additional sentences to provide a clearer 'link' in the 'The idea of a desire to sustain the community'…- 16th July 2015, 11:09am".*

To help in presenting the data, the twelve categories were reduced to eight: 1) Community Management, 2) Frequency, 3) Help, 4) Identity, 5) Learning, 6) Motivation, 7) Problems and Restrictions, and 8) Trust. Each of my 40 codes were mapped onto the eight corresponding categories and were now labelled as 'sub-categories'. For example, within the 'Identity' category, there were three sub-categories: 'perception of identity', 'sense of community' and 'social presence'. Table 10 shows the categories and sub-categories.

Table 10: Working list of eight Categories and 40 Sub-categories generated during the presentation cycle.

Categories	Sub-categories
Community Management	*Community Management – Community Managers*
	Community Management – Description
	Community Management – Community Carers
Frequency	*Frequency*
Help	*Sharing*
	Help – Aftereffect
	Help – Issue
	Help – Preference
	Help - Motivation
	Help – Motivation – Sustain The Community
	Help – Motivation – A Social Obligation
	Help – Motivation – For Own Benefit
	Help – Modes
	Help – Modes – Building Shared Artefacts
	Help – Modes – Adopting Existing Knowledge Pool
	Help – Preference – Personal Arbitrary
	Help – Preference – No Preference
Identity	*Perceptions of Identity*
	Sense/Presence – Sense of Community
	Sense/Presence – Social Presence
Learning	*Source of Knowledge*
	Learning – How – Practical
	Learning – How – Theoretical
	Learning – Problems
	Learning – Outcomes
	Learning – Perceptions
Motivation	*Motivation – Extrinsic – Community*
	Motivation – Extrinsic – Tool
	Motivation – Extrinsic – Outcome
	Motivation – Intrinsic – Satisfaction/Achievement
	Motivation – Intrinsic – Sense of Inclusion
Problems and Restrictions	*Problems/Restrictions –Problematic Company: Software Management*
	Problems/Restrictions – Problematic Company: Community Management
	Problems/Restrictions – Problematic Community
	Problems/Restrictions – Problematic Community: Gatekeeping
	Problems/Restrictions – Problematic Community: Communication
	Problems/Restrictions – Problematic Community: Culture & Norms
	Problems/Restrictions – Problematic Knowledge & Shared Artefacts
Trust	*Trust –Trust Threshold*
	Trust- Trust Development

The tool that I used to aid these cycles of refining the categories was the Network view in Atlas.ti. This view, although 'laggy' when the 'branches' were fully opened,

provided a visual way of arranging the quotations into groups. This was thought to be a replacement for a similar method using sticky papers. Nonetheless, during this time, Atlas.ti software did not have the function to form groups in the Network view. Working around this limitation, I had to innovate the space and functions, involving ungrouping and re-grouping, disassociating and reconnecting the codes and categories to form new groups.

This re-organisation proved helpful but although the eight categories were useful and workable, in another round of data reduction, I found it clearer to present just four themes: **Help**, **Motivation**, **Outcome of Participation**, and **Problems and Restrictions**. The changes were as follows:

- 'Trust', 'Identity', and 'Learning' categories were merged under a broader theme 'Outcome of Participation';

- 'Community Management', and 'Problems and Restrictions' categories were merged under a broader theme 'Problems/Restrictions'; and

- The 'Frequency' category was dropped from being counted as a theme. Data from this category was used in the description of the community forum in Chapter 4.

- 'Help' and 'Motivation' categories stayed the same.

At the end of this cycle, I was able to produce a full map of the themes, categories, sub-categories, and dimensions to guide my write up of the data and Table 11 shows the summary of reworked themes, categories, sub-categories, and dimensions which provides the structure for the following chapter.

Table 11: Summary of findings on four key themes, its categories, sub-categories, and dimensions.

Themes	Categories	Sub-categories	Dimensions
Help	Motivation	*A social obligation*	-
		To sustain the community	
		For own benefit	
	Modes	*Adopting existing knowledge pool*	
		Building shared artefact	
	Preference	*Personal preference*	
	Aftereffect	*Improving their own knowledge*	
		Developing shared knowledge pool	
	Issue	*Problematic users*	
		Linguistic problem	
Motivation	Extrinsic	*Community driven*	-
		Tool driven	
		Outcome driven	
	Intrinsic	*Sense of achievement*	
		Sense of inclusion	
Outcome of Participation	Identity	*Perceptions of identity*	-
		Sense of community	Time and involvement
			Mentions
		Social presence	Recognising names
			Proficiency
			Past behaviours
	Learning	*Methods*	Theoretical
			Practical
		Outcomes	Self-improvement
			Transferrable skills
			Closer to community
		Perceptions	-
		Problems	Over-reliance
			Advanced concepts
	Trust	-	-
Problems and Restrictions	Community	*Gatekeeping*	What the community did
			What were the effects
		Problematic culture and norms	-
		Problems and restrictions in communication	
	Company	*Managing the community*	
		Managing the software	
	Knowledge and shared artefacts	-	

SUMMARY

To summarise, this study followed the mixed methods research design, in that it perused the strengths from both qualitative and quantitative data collection and analysis, to understand the phenomena under study. Although the study relied heavily on qualitative data, quantitative data were also taken into account when describing the phenomena. With a combination of several qualitative methods including participant-observer, interviews, and observation, this study offered a unique research design to complement the exploratory nature of this inquiry.

CHAPTER 4: FINDINGS

Overview
- Explains the analysis and findings for both quantitative and qualitative data.
- For qualitative data, findings are structured around the themes emerged.

This chapter describes the analysis and findings of this research study. It includes data from the forum and online survey, as well as the findings from the interviews and observations. The chapter is organised into two main sections (quantitative and qualitative findings), each followed by an in-depth exploration. The quantitative section covers *forum data*, and *survey*. The qualitative sections consist of descriptions of the data through themes including *help*, *motivation*, *outcome of participation*, as well as *problems and restrictions*.

Quantitative

Online survey and forum data were collected twice (see Table 7, more information on this can be found in Methodology chapter, page 104). Here I present the findings covering sections on *forum data*, and online *survey*.

FORUM DATA

To understand the growth of this community over the years, I gathered forum data between March 2013 to March 2015. These data include number of registered users; average number of monthly active (unique) users; average number of threads opened weekly and monthly; and average number of posts/comments posted daily.

Table 12: Growth of GameSalad community between the year 2013 - 2015.

Description	2013 – 2014	2014 – 2015
Number of registered users	104,648	114,659
Average monthly active (unique) users	103,994	106,000
Average threads opened monthly	940	948
Average threads opened weekly	235	237
Average posts posted daily	219	204

Although the forum was accessible to the public, only registered members could leave comments. What this meant was that although the number of the monthly average active users was high, almost equivalent to the total number of registered members, this did not mean that all these users were registered members (see explanation about the context on page 92). There had been an increase in the number of registered members and average monthly users on the forum since its creation in 2009. The data in Table 12 shows a small further growth - 10,000 new members between March 2014 and March 2015 – an average of over 800 new members a month. The data shows that the community was thriving and highly active. A further breakdown of the monthly data, taken between March 2014 to February 2015 reinforces this picture (see Figure 10).
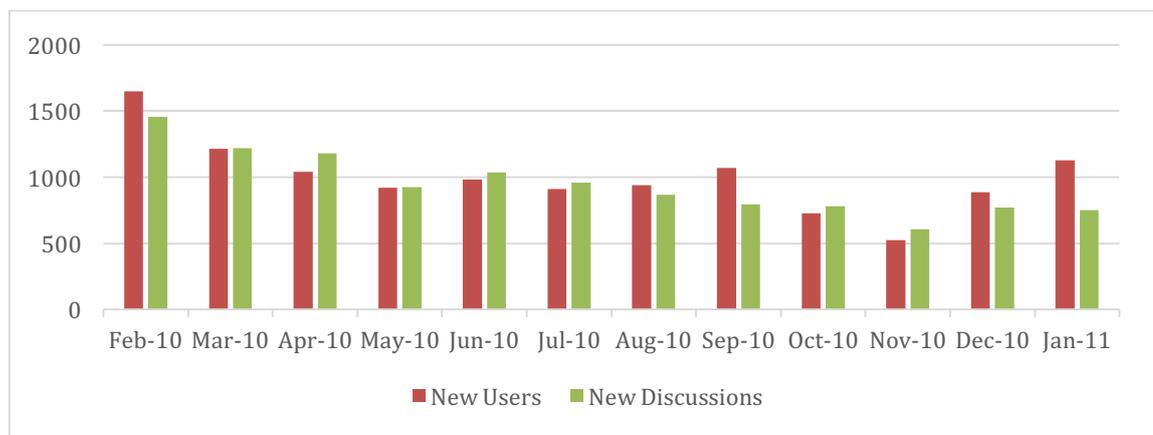
Figure 10: Monthly data on number of new user registrations and number of new discussions.

We can see several activity spikes in the number of new discussions and new user registrations. The higher number of discussions on March 2014, July 2014, and January 2015 were mostly due to the release of several 'release candidate' builds as well as the release of the stable build of the GameSalad software. There was also a competition, GameSalad GameJam, held in May 2014. The GameJam competition had resulted in a high number of page views, as illustrated in Figure 11.
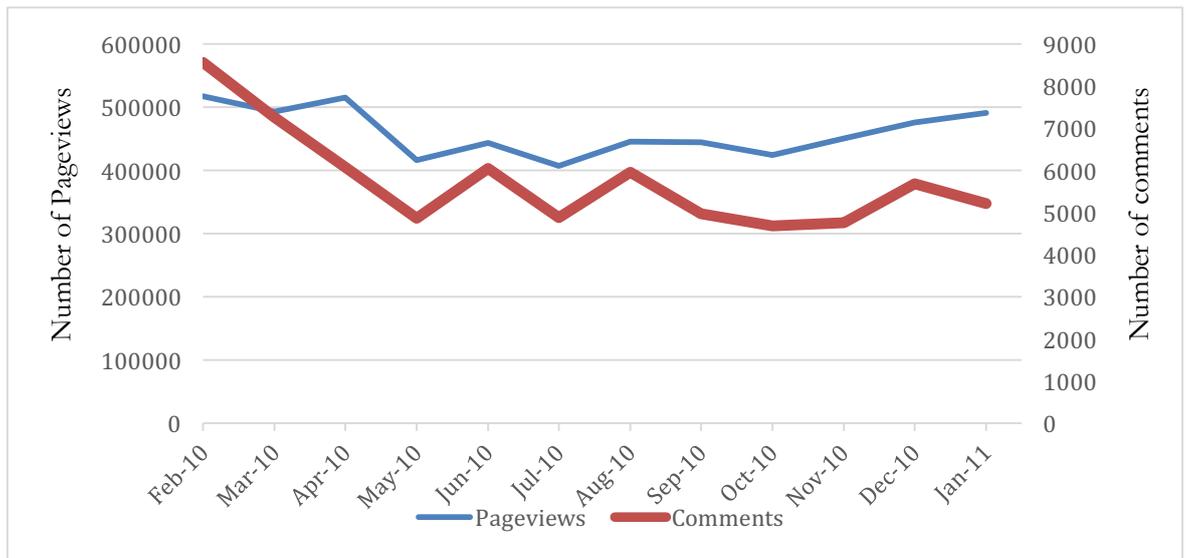
Figure 11: Monthly data for number of unique pageviews and number of comments.

There were two other spikes in the number of comments (see Figure 11). The first was in July 2014, followed by the second in September 2014. In the first instance, there was an announcement made in the forum about an acquisition of another company, 'Together Games LLC', that brought in an additional functionality to the GameSalad software. The acquisition resulted in an update to support asynchronous multiplayer game server, and this contributed to the increase in the number of comments and page views too. In the second instance, there were a number of

noteworthy threads in the forum, including discussions of the 'In-App Purchase' function.

The last spike in the number of comments was in January 2015. This was probably due to an announcement made by the company about another product they were developing called 'Graphene SDK'. This product was said to be a continuation of the current GameSalad software, with better functionality and performance. There were mixed reviews from the community on this new development. A large number of members were concerned and the effects it would have on the current software. Although the number of comments declined in the next month, the number of page views was on a constant trajectory – climbing forward. This may suggest that members were on a look-out after the announcement, reading silently for updates on this new development.

A 'normal' number of comments per month might be around 4,000 - 5,000, when there were no new updates or development of the software (data from forum administrator). This covered the day-to-day requests to solve problems on game-logic, problems with the publishing platform, new games announcements, and other miscellaneous topics. This number of comments was high, compared to other online communities and may reflect that: a) these people were comfortable using asynchronous communication and their default position was being online, and b) these people had the shared interest in game-making.

Members became more active when there were new developments in the GameSalad software. This was to a certain extent, expected, as the community was dependent on the software, and every change made to the software core engine evoked responses, either satisfaction or dissatisfaction, from the community. From observation, I saw members expressed their 'like' and 'dislike' over every change. Back and forth banter on this was a norm, although this tended to happen among the more active members of the community. Although I did not have any data from other years, there were reasons to believe that this pattern of interaction and participation were similar to any other year.

SURVEY

The survey is described in methodology, and the full survey is in Appendix A. Here I give findings about the participants including: *gender, education qualification, employment status, duration of membership,* and *login frequency.* These categories were set to get a picture of who and what the membership looked like.

DEMOGRAPHIC

The majority of the responses to the survey came from American and European countries (84%), followed by Asia (12%), and Australia (4%). Only three respondents were females, while the remaining were males. The majority of the respondents were school-leavers (80%), including those who did not complete their schooling (1%), thus most of the respondents were aged 17 years and above. In terms of membership in the community, more than two thirds of the participants had been a member for more than a year, while 18% were members for less than a

year. Nearly a quarter had been in the community for more than four years (22%), and majority of the participants (76%) logged in into the forum almost everyday. The survey received 110 responses (n = 110) out of a population of over 114k registered members. The response percentage was small but not insignificant – as observed in the interviews, a large portion of this responses were active members, and the demographic spread showed a fit to the overall population.

As mentioned earlier, responses came from America and Europe, accounting for more than 84 percent of the total. This was to some degree expected in that observations of the discussions seemed to show that while there were obviously some members who appeared to be struggling in expressing themselves, my sense was that the majority of members were first language speakers, or had good command of English. Alas, there were no data available to pinpoint the actual number of members who came from an English-speaking country.

Gender
There was a huge imbalance in the gender of respondents, in that there were more men than women - 97 percent of the total participants were men. This high percentage might reflect the wider membership but again, there were no data to confirm this, as the administrator had not set up a gender identification label. There were some but few indicators of gender in the forum - most members referred to usernames and avoided the use of gender specific pronouns. The skewed gender background came as a surprise, but on reflection, this was in keeping with other studies showing similar disproportionate gender division in technical topic areas.

It is also worth noting that because gender was not immediately apparent (or was not ever raised as an issue) in the forum, unless perceived by the choice of username and/or profile picture, or stated by the users themselves, the communication between members were not mediated by gendered issues/sentiments. Usernames such as 'timolapre1998', 'quantumsheep', 'StormyStudio', and 'Armelline' did not signal gender, suggesting that the majority of the community did not want gender to be identified. Although, there were cases flagged as 'bullying' mentioned in the interview sessions, these did not highlight specific gender issues.
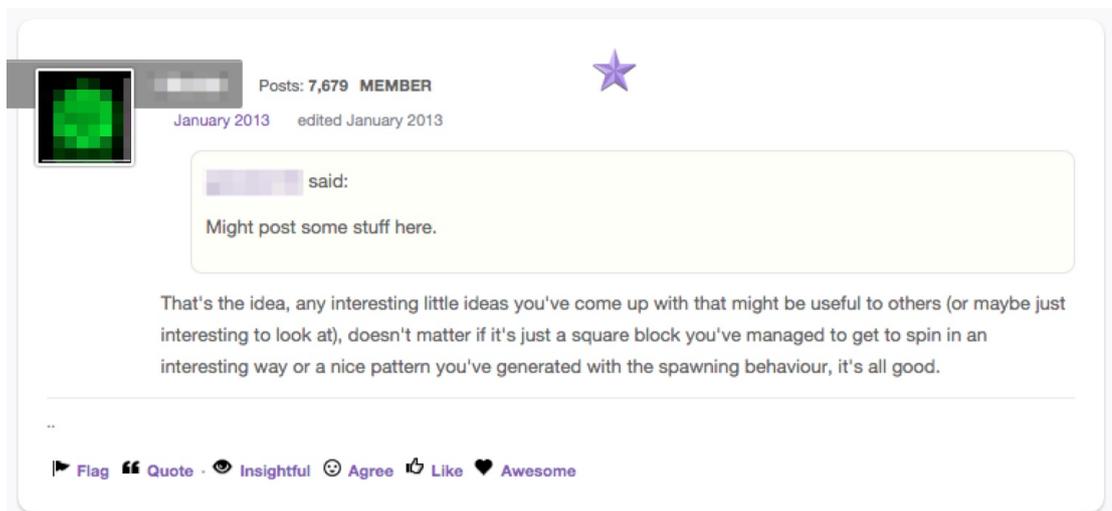
Figure 12: An example of a member quoting another member in the forum.

An interesting way to avoid gender identification in the forum was the use of quotation as reference to what other people said previously. Instead of using phrases like "he said…" or "she said…", users quoted the previous comment made for specific people. When using quotation function in the forum, the original message was replicated in poster's comment, along with the original poster's username. This gave readers a sense of continuity, and a direct way to refer to the commenter. To sum up, the imbalanced division of gender in the survey

respondents might show a bias, but there are reasons to think that the wider population was similarly skewed.

Educational Qualification

The survey participants had obtained high levels of educational qualifications. Around half had at least had a tertiary education qualification; over a third of this were first-degree holders. The percentage of participants with secondary or high-school certificate as the highest qualification was 42 percent. A small number of participants had either completed primary school, or had never completed any school.

Table 13: The frequency with which members' reported highest educational qualification.

Highest qualification	Frequency Distribution (%)
No schooling completed	0.9
Primary school	4.5
Secondary/High school	41.8
First Degree	36.4
Postgraduate Degree	16.4

These figures showed that most of the participants were aged 17 and above. Only a small percentage of the participants were school students. During the ten months observing activities in the forum, there were some instances when new threads were created, querying for assistance in homework or other assignments. This made them identifiable as school students, and along with the next item (employment status), this suggests that the number of school-age members may have been a little higher than 4.5% reported.

This opened up an interesting discussion on the nature of communication between members in this community. The fact that there were no visual aids to connect a user with his or her age, members relied heavily on textual hints across the forum board, to have a sense of who they were speaking with. In several interviews, interviewees mentioned they could guess other users' age based on how they phrased their sentences and the choice of vocabulary, though they recognised that they could not be sure. The forum also had age restriction policy, stating that "The purpose of this forum is for all you GameSalad users of all ages (**over the age of 13**) to have an environment where you can share ideas…"

Employment Status

The employment status of the participants can be divided into two large groups i.e. those in employment, and those in education. The former formed the larger group, around two thirds of the whole sample. Nearly a quarter were still in schools, suggesting that some of the 41.8 percent who claimed to have acquired secondary or high school qualification were in fact in the process of obtaining that qualification. More than two thirds of the sample were in employment, suggesting that the population was indeed a mixture of young adults and adults.

Table 14: The frequency with which members' reported employment status.

Employment status	Frequency distribution (%)
Employed for wages	36.4
Self-employed	30.9
A school student	20
A university student	5.5
Out of work	7.3

Nevertheless, being in employment did not necessarily mean being a game developer and from observations and supported by several of the interviews, there were members who were employed outside of the Information Technology industry, without a programming role and saw GameSalad as a hobby. In addition, some were engaged with independent game development, often as a part-time job. However, some members who were undoubtedly employed in game development, were highly dependent on the software and the community. Furthermore, others were using GameSalad in the hope of developing applications which they could sell in online marketplace, or through incentivised advertisements embedded in their apps or games. This was evident throughout the forum, where there were more than a few instances of members opening new threads to discuss monetisation opportunities. This was strengthened by observation of a large number of requests to have access to the software's Pro feature - enabling them to add a monetisation feature into their applications.

Duration of Membership

Table 15 shows the duration of membership among participants. This is a skewed bell shaped distribution and the modal group is 1 - 2 years. Nearly two thirds of the survey participants had been in the community for more than two years. The distribution for this data showed a declining trend of frequency over the years. This community had been alive for no more than 6 years - a fairly young community if compared to more long-lived ones. Nevertheless, it was an enduring and moderately well-established, with a stable growth, receiving an average of over 800 new users a month.

Table 15: The frequency with which members' reported duration of membership.

Duration	Frequency distribution (%)
Less than a year	18.2
1 – 2	23.6
2 – 3	20.9
3 – 4	17.3
4 – 5	14.5
5 – 6	3.6
More than 6 years	1.8

Login Frequency

Login frequency was high - this was a forum, which nearly half of the participants accessed every day. Nearly three quarters described themselves as 'often' or 'every day' users. Nevertheless, login counts may exaggerate participation in the community. Members might be logged in, and stayed as passive participants in the forum, reading through discussions and figuring out ways to solve problems. This was evident in almost all of the interview sessions - interviewees describing one of their activities as searching and reading through the forum threads. There were reasons to believe that this pattern and frequency of logins may reflect the population.

Table 16: The frequency with which members' reported logging into GameSalad.

Login counts	Frequency distribution (%)
Rarely	7.3
Sometimes	16.4
Often	30
Everyday	46.4

SENSE OF COMMUNITY

There was a strongly felt sense of community among the participants. In particular, the overwhelming majority felt that they could trust other members; they valued others' opinions; they felt good helping the community; comments they made were

acknowledged by others; they felt comfortable asking for help; and that they felt a

strong attachment to the community.

Table 17: The frequency with which participants cited sense of community and
social presence.

Item	Dimensions	Questions	Positive (%)	Negative (%)
7.	Trust	*I feel I can trust people in this community*	95.5	4.5
11.	Value of opinion	*I value other people's point of view*	92.7	7.3
22.	Appreciation	*This community makes me feel good for helping others*	91.8	8.2
15.	Acknowledgement	*Comments I have made are acknowledged by others*	87.3	12.7
21.	Asking assistance	*I find it easy to ask for assistance in this community*	85.5	14.5
23.	Attachment	*I feel strong attachment to this community*	76.4	23.6
24.	Moderation	*I felt that moderators have done a good job*	68.2	31.8
17.	Others' perception	*I care about what others think of me*	52.7	47.3
18.	Perception of goals & needs	*I think that other people in this community share the same goals and needs*	45.5	54.5
25.	Identity	*I feel that being a member of this community is part of my identity*	38.2	61.8

A similar pattern emerged in data in the form of Likert responses where there were

also positively skewed distribution of agreement in respect to sense of others'

presence; ability to contribute to the community; and perception of rivalry. Taken

together, the two tables (Table 17 and Table 18) show that there was in the

community, a high level of agreement that members were dependent on each other,

felt a sense of belonging, able to trust and appreciate others' opinion, and felt

positive towards helping. These are looked at in more details in the qualitative

findings.

Table 18: Sense of community and social presence - Likert scale.

Item	Dimensions	Questions	AS	A	U	D	DS
27.	Impersonal comments	*Comments on the forum are impersonal*	2	36	38	28	6
28.	Sensing others presence	*I am able to get a clear picture of some of the forum users*	13	65	27	5	0
31.	Ability to contribute	*I feel that I am able to contribute to the community*	25	66	12	6	1
34.	Perception of rivalry	*I see other users as potential rivals in this industry*	2	23	19	46	20

The more problematic albeit interesting one was on their perception of identity. The data showed that majority of the survey participants preferred to separate their online identities from offline, though as seen later, this is not the case among interviewees.

PARTICIPATION

Participants who expected to remain as members were happy to help others, and found it easy to fit in. Majority of the participants agreed that the forum motivated them to do additional reading, they felt like they could join discussions when they could contribute something, and they reflected on anything they posted. There was close to an equal division of agreement and disagreement in areas such as preference to finding answers themselves or preferred to be helped by others, and the importance of getting to know other members in the forum.

Table 19: Participation in the forum.

Item	Dimensions	Questions	Positive (%)	Negative (%)
8.	Membership duration (expectation)	*I expect to be part of this community for a long time*	86.4	13.6
9.	Helping others	*I like to help other users in solving problems*	82.7	17.3
12.	Fitting in	*I do not need to make effort to fit into this*	67.3	32.7

		community		
6.	Community dependence	_I like to find answers to problems from the community_	49.1	50.9
16.	Building network	_I use the forum to get to know other people_	41.8	58.2
13.	Sharing ideas	_I log into the community to present my own work and ideas_	40	60

As can be seen from items 13, 16, and 33 (Table 19 and Table 20), there were limits on engagement with the community. For example, almost one third preferred not to connect with other members outside the forum, and almost two thirds preferred looking at other people's ideas rather than sharing their own. These are looked at in more details in qualitative findings.

Table 20: Participation in the forum - Likert scale.

Item	Dimensions	Questions	AS	A	U	D	DS
26.	Motivated to do additional reading	_I am stimulated to do additional reading or research on topics discussed in the forum_	27	65	16	2	0
32.	Joins discussion to contribute	_I usually join the discussions when I know I can contribute something_	35	64	7	4	0
35.	Careful when posting	_I carefully reflect on what I post_	24	68	12	6	0
33.	Connects outside forum	_I like to connect with other users outside the forum_	3	19	39	41	8

There was a strong agreement that the outcomes of participation were positive. This was evident throughout the breakdown of data, and Table 21 shows that most of the participants benefited from the help received, used the forum to understand the software and the practice, found answers to their questions, and found the knowledge useful. Nearly all agreed that their engagement in the community was rewarding, and half of the participants hoped to attain higher status in the forum from their participation.

Table 21: Outcomes of participation.

Item	Dimensions	Questions	Positive (%)	Negative (%)
20.	Improvement on the practice	*I think this community helped me to be a better game developer*	91.8	8.2
14.	Scope of learning (specific/general)	*I use the community to advance my understanding of the product (GameSalad)*	83.6	16.4
19.	Satisfaction	*I feel that any questions I have raised have been answered*	78.2	21.8
10.	Usefulness of knowledge	*What I have learnt in this community is useful for study/work*	75.5	24.5

The strong agreement for almost all of the items in both tables (Table 21 and Table 22) signaled a positive outlook on the benefits of being engaged in the community. This are explained further in the qualitative findings.

Table 22: Outcomes of participation - Likert scale.

Item	Dimensions	Questions	AS	A	U	D	DS
29.	Engagement rewarding	*Engaging in GameSalad forum is a rewarding learning experience*	44	48	9	8	1
30.	Hoping to attain higher status	*I hope to attain a higher status in the community by participating more in the forum*	21	45	26	15	3

Interviews were held from August 2014 until March 2015, between 21 interviewees (details on interviews can be found in Methodology chapter, page 110). I now present the findings in thematic sections covering *help, motivation, outcome of participation,* and *problems and restrictions.*

HELP

In GameSalad, helping other members became a common currency, and came with a requirement for the helpers to have adequate knowledge of the tool, or at least on the topics or issues of the problem raised. This effectively positioned knowledge as a valuable commodity in the forum/community. While some provided paid services to members to help them with their game mechanics, the vast majority of members choose to help others for what seemed to be, altruistic reasons. Altruism has been the subject of debate among social science researchers, with an argument that pure altruistic behaviour does not exists. This debate, and the observed participation in the GameSalad community led me to explore the helping phenomenon deeper through individual interviews. Several categories emerged under the theme 'Help'.

Table 23: Categories of 'Help' with its frequency of mentions.

Category	The general idea	Number of times mentioned	Number of interviewees mentioning it
Motivation	Reason for giving help	37	14
Method	Ways/Process of helping	22	13
Preference	Preference in helping	19	12
Aftereffect	Outcomes of helping	8	6
Issue	Problems of helping	4	3

MOTIVATION

Motivation for providing help was discussed in depth and three sub-categories were provided: (1) *a social obligation to help*; (2) the idea of *a desire to sustain the community*; and (3) *for own benefit.*

Seven interviewees agreed that there was a sense of *social obligation to help* others while in the community and choose to lend a hand. For example, in explaining why they wanted to help, **K** noted:

> *"I don't find it to be necessary, but I feel that if you can help someone then you should. I find the GameSalad community to be big on helping developers of all skill levels overcome their problems, and I like to be part of the helping." – **K (1)***

When asked whether they felt compelled to provide help, **L** noted:

> *"Compelled, not really either. If I know how to help or what to suggest, I just do so. It is more like seeing someone with their hands full and struggling to open a door, you just help them because it is no great imposition." – **L (1)***

This illustrates the sense of obligation - a state which requires a certain amount of perceived ownership of the community, 'we-ness', and this was clearly supported by the high degree of perceived trust among members of the community that was clear in the survey – an overwhelming majority of survey respondents felt that they could trust other members.

One justification for help among interviewees was that the help given was mediated by reflection of their previous experience of facing difficulties in solving problems,

and their empathy with the newer members. This made them want to lend a hand. One interviewee stated that:

"Because I know how hard it is to start and how gratefull(sic) I was when someone helped me." –
G (1)

Some called the act as 'a pay it forward type of thing'. **C** noted:

> *"Even though you have the thoughts, "who am I to do this?" The feeling I needed to setup(sic) and pay it forward was just as strong." – **C (1)***

These responses painted a picture of a community that was interactive and reflective, and in return, created a highly participative state. The advent of a sense of returning or extending a favour among members was further supported by the findings from the survey i.e. almost two third of the respondents felt a strong attachment to the community.

Interviewees wanted to participate out of *a desire to sustain the community* through their actions. They could do this by improving/contributing to community shared knowledge pool, by mutual support for learning, and by improving the sense of community among members. **E** noted:

> *"I'd say yes I feel a compelled to help others in the community and keep the forum a happy place to be for both new and old timers." – **E (1)***

Although members were motivated to push the community's shared knowledge pool further, help was not offered unconditionally in the community. The majority

of interviewees preferred users who themselves had tried to solve the problem, as how **H** put it:

> *"Simply to advance the community's understanding. I only help people who try, and just asking without first trying is not something that I agree with." – **H (1)***

Many believed that users should at least try to solve a problem first, and only if failed, to then seek help from the community. This was also observed in the forum e.g. when a user asked a question, other community members would try to understand the problem by asking questions, seeking further details from the user. Often, community members could tell whether the user had tried to solve the problem on his/her own by looking at how the user explained the situation/problem. Users who showed a lack of effort in trying to solve the problem, would normally receive less attention from other community members, compared to users who did. The former would receive a fairly simple explanation, often a comment pointing to any existing online resources, be it video or existing threads in the forum. This was probably the reason for differentiated views when asked whether the comments from the community members were impersonal in the survey (one third of the survey respondents claimed that the comments were impersonal). The danger here was that of newcomers who were trying to understand the basics of using the tool, may feel 'told off' for asking basic/ simple questions, and not know why.

Researchers on participation in mediated environments have coined 'altruism', 'reciprocity' and the variations of the two terms to explain helping others in online communities and websites. In relation to this, as noted by **N**:

"Some people just like to help other people out I guess haha, maybe it is because if you help a lot of people and one day you need help, they know you're a good guy so they help you out too?" – **N (1)**

In the excerpt above, there was a clear evidence of a reciprocal altruism (*for own benefit*) that was likely to be a contributing factor in the helping behaviour for the majority of the community members. But of course, this varies among interviewees. One speculation is that, because the interviewees were among the most active members of the community, this meant that they had already mastered the tool of trade to some degree. Some might not feel the need to be rewarded back for the help they had been given.

METHOD

I examined the many methods by which community members provided help. Two key sub-categories were identified: (1) help by *adopting existing knowledge pool*; and (2) help by *building shared artefacts*. Accounts of these activities are discussed below.

There is a difficulty in pinpointing what equates to knowledge in this community, as knowledge is dependent on the value a member put on it. A member who is trying to find a way to move an element in his or her game, might take an interest in a tutorial on how to code an element to automatically move or behave in a certain way when a user touches the element, and considers it of great value. At the same time, he or she may see a tutorial on how to prepare a table for database in GameSalad, irrelevant, thus has no value to him or her. This places knowledge in this community as almost an opportunistic, context and purpose dependent, a kind

of 'just in time' knowledge. Thus, meaningful threads could be seen as the building blocks for knowledge pool in this community. However, the fact that discussion threads were pushed down when new threads were created meant the knowledge pool was embedded deep in the forum. This is most probably the reason why nine interviewees mentioned referring to past threads (*adopting existing knowledge pool*) as one of the strategies they used when answering queries. As **T** recalled:

> *"Also, if the question already exists I may simply point them towards an existing forum topic with a link rather than wasting my time rewriting an answer that someone else has already provided." –* **T (2)**

Another way of using the knowledge pool when answering queries was with exploiting the knowledge that one had about other people expertise. This moves the idea of 'knowledge' onto someone, not something. This means that knowledge of other members' expertise could be valuable when given the right context, or in this case, the right queries. **C**, in his reflection when using one of the forum features 'tagging', mentioned this:

> *"Yes, I'm not good at vector math at all...lol. So I will Tag people I know are good at it in the thread or will point them to a thread created by someone on the topic." –* **C (1)**

It seemed that most of the interviewees knew who were the knowledgeable others in the community, and the limits of their expertise. Several interviewees mentioned other users, and the threads that they had created, as valuable and 'fascinating' as in **F**'s answer:

> *"I pay particular attention to any posts by [User X], [User Y] and [User Z] in particular. Each of them are unquestionably better and more skilled GameSalad users than me, and if I see them post something there's a great chance I'm going to learn from it."* **– F (1 - usernames anonymised)**

The fact that this community was active in helping members to learn meant that skilled members were perceived as an 'asset' in the community, and that these members were often the people who contributed to the creation of *shared artefacts.* Other than answering queries, creating exemplar projects that contained coded programming logic was another form of help, geared to illustrate possible ways to solve a problem. Based on the responses seen on relevant threads, this practice was welcomed by both oldtimers and newcomers. The process of creating an exemplar project was time consuming. It involved opening a new project in GameSalad, configuring the contents of the project to meet the requirements to illustrate the problem at hand, and to find a proper 'solution' (often this meant that the user had to configure the visual logic programming) that was easy enough for the person asking to understand. In many cases the person asking was quite new to the software and had very little knowledge. Nonetheless, some interviewees seemed to prefer creating projects to describe the solution in the forum. In justifying his preference, **J** included:

> *"if people are in need of help with code, i usually just whip up a quick demo in gamesalad that i put up for download over at gsinvention for free..."* – **J (2)**

Another interviewee replied:

> *"If a question is simple I might just give an answer, but normally I look for any excuse to provide a sample project that demonstrates what they're after."*- **F (2)**

This tells us that even though the creation of a demo or an exemplar project was a time-consuming process, skilled members preferred to provide better solutions that would shorten the amount of time needed to answer the queries. There were threads in the forum that started with the skilled members describing the solution,

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and ended up with them uploading an exemplar project to illustrate his or her point, as the guidance had not been understood. Although this was freely practiced, not everyone agreed. In particular, **B**, one of the longstanding members of the community, found the culture of putting up demo and template files to be off-putting and a negation of knowledge and skill building in the community. He said:

> *"I find that most of the questions on the forums seem to be focussed on 'how to make money quickly with no effort' or something to do with templates or ads or IAP or how to make a clone." – **B (1)***

His comment on the templating norm opened up one of the interesting findings about this community - the 'diasporic' nature of their shared knowledge/knowledge pool. Apart from answer threads and exemplar projects posted in the forum which formed the larger pool of community's knowledge, there were a few external sites which were owned by some of the community members that housed templates and exemplar codes and these sites could be considered as part of the knowledge pool as well. They could be categorised into two types - a tutorial site, and a marketplace. Tutorial sites, which were mostly found hosted on Youtube, contained instructional videos, while marketplace sites offered free and paid templates. They were privately owned and maintained, but open for public access. Apart from the fact that the contents on those sites were created by the member of the GameSalad community, they were frequently quoted and linked back in forum threads.

PREFERENCES

At first glance, it seemed that help was given unconditionally to those who asked. But during the interview, respondents provided differentiated responses, revealing a more complex logic behind the practice. Ideally in a community, help should be

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given to everyone who asked for it, so that the community would prosper. This, in turn, will keep the community alive and active, providing a sustainable growth both in the size and participation rate. But in any community, the picture is more complex than that. *Personal preference* was found to be important.

> *".. and if I can help.. and I'm in the right mood I will help."* – *E (3)*

When asked whether they had any preference when choosing who they would help in the community, interviewees often referred to their mood, time, ability to give good advice, or the perceived attitude/behaviour of the person asking. **T** for example, referred to the attitude of the person asking the question:

> *"it depends on the attitude of the person. As long as they are nice, not yelling, and have a genuine question that's not something they could have solved by looking at the cookbook like they should have in the first place, I'll help them."* – *T (1)*

T was not alone in making choices that involved evaluating/interpreting behavioural signs in a mediated environment. Another example was **J** who reflected that he was willing to give help to a person, who he perceived to be a "nice guy". He gave help without wanting anything in return. This event might be an evidence of the altruism but there is often some reflection of 'returns' either in the past or future. As **J** recalled:

> *"this really nice guy on the forums helped me out so much for free with my project and asked for nothing in return, he provided me with some graphics because i asked."* – *J (2)*

Another observation made both on the forum and during the interview sessions was related to the case of 'high-maintenance' users, who would post requests for help to a problem, opening new threads several times on the same problem. This

type of interaction was highly discouraged in the community and moderators were constantly looking out for it. One interviewee reflected on his 'mistake' trying to help such a user:

> *"If they have three seep rate comments in one day on the same subject/question....they are probably high maintenance people and I don't try to help unless it's a simple answer...very simple. I made the "mistake" of helping this one guy and even skype chatted with him...oh Lordy." – **I (2)***

Because of this experience, **I** became more cautious when trying to help others. He would 'spend a little more time evaluating the thread' before leaving a comment. He used to want to be the first person to comment, but it was not the case anymore. Cases like these were typical in the community: desperate users trying to find answers to their problems, but lacked the appropriate skills to elicit responses. However, some interviewees displayed empathy to such people. Two interviewees thoughtfully noted the difficulties a member might be facing when trying to solve a problem, the mood they were in as a result of facing that difficult situation, and the urgency with which they hoped for answers. One of the interviewees reflected on the fact that the forum may be "a very impersonal kind of place", where:

> *"...most people are very wrapped up in their process and when they come to the forum they are usually stuck and frustrated which isn't exactly the best state of mind for forming relationships…" – **C (2)***

Interviewees looked at either the amount of detail the person asking had described, or how much had the person tried to solve the problem before turning to the community. As described earlier, members who were seen as lacking in effort, would receive less attention, or would simply be given a direction to a thread where

they would be able to find the answer for himself/herself. This seemed to be a generally agreed norm. As how **H** put in his reply:

> *"I prefer to help people who are willing to put in the effort and try to deal with the problem themselves first. People should at least try."* – **H (2)**

Although these responses may look arbitrary, they were not. They created a 'community-gating' where active members who were non-moderators policed the forum on behalf of the moderators. They "called-out" those who they thought were acting against the community's rules and norms, for the community's interest.

AFTEREFFECT

When probing for further clarification of the purpose and benefits received for helping others, the majority of the interviewees replied that it had benefited them, specifically in terms of *improving their own knowledge* of the software and developing best practices in solving problems. **L** in particular, mentioned that helping may have improved his knowledge of GameSalad and he could "clarify and cement concepts" in his mind, while helping the community. These outcomes may be positively correlated with the high level of agreement in the survey, on items around 'acknowledgement', 'appreciation', 'helping others', and 'engagement rewarding' issues. In addition, **U** shared an example where he benefited through finding better solution to a problem while reading another solution posted by other members to the same problem.

A further after effect was the *development of shared knowledge pool.* **O** touched on the effect helping could have over the community's knowledge pool, saying:

*"I just acknowledge that the more helpful the forum is in general, the better the knowledge pool will be." – **O (2)***

Similar remarks were made about improving the quality and performance of the final products/applications created by interviewees. Helping had provided an opportunity to be reflective of their own practice - a valuable process in learning.

ISSUES

As seen earlier and developed further here, there were aspects of help that were problematic – *problematic users*. Although not an overwhelming issue, it has been mentioned several times as having an effect on the community interaction and relationship dynamics. Members came to the community to seek advice and guidance, and often, they approached the community after unable to solve a problem. They might be frustrated and without a proper mediation of emotions, this could lead to a number of unfavourable situations.

"Yelling" was a term frequently used by interviewees to illustrate a post or a comment by members who used capitalised letters for all of his or her words. As a community that relied heavily on texts to deliver messages, members used emoticons and manipulate texts to better express the 'tone' of the whole message; capitalised letters, for example, were often perceived as strong, forceful, and emphatic. This, combined with punctuation marks, could sway the 'tone' of the message from being 'soft', to being 'hard'. The message was then interpreted into a perceived behavioural trait. As one of the interviewees put:

> *"...If they are angry and using all caps for their title, and mad at Gamesalad because it is somehow Gamesalad's fault in their opinion I am much less likely to help them. For a normal, nice topic with lots of detail, I will try and help the person until their issue is fully resolved." –**T (2)***

Not everybody who posted queries on the community was emotional in their post. Another type of problematic users found were the members who became over-dependent on the help given by the interviewees. For example, I came across a thread that was peculiar - there was no coherent flow on the discussion. After reading through the first two pages of the lengthy discussion, it dawned upon me that the person asking, **X**, had opened up few threads asking the same question i.e. asking others to help him understand the visual coding part of the GameSalad software. As a result of this, the moderator combined the threads into a single discussion, and warned **X** to not repeat the mistake. **X** was not the emotional type and this was confirmed by one of the respondents, who joined the lengthy discussion, but in the end, backed down because he was 'told off' by one of the moderators. As **F** put it:

> *"X is fast running out of people willing to take the time to help him though, and is a good example of someone who is polite and friendly but still no fun at all to help…" – **F (2)***

Another example, far less evident in forum activity as a whole, but documented in one of the interviews, was with the *linguistic problem* users faced. One of the interviewees, who was from a non-English speaking country, mentioned language being a barrier for him when communicating in the forum. Thus, he avoided on-going communication with others. Peeking into his comments history, much of his comments were short, and were kept to a simple comment, most probably to avoid lengthy follow-up discussions. Difficulty in comprehending what members were

asking, meant that their queries were less appealing for others to comment on. **F**, in his justification on how he handled such members, explained:

> *"I draw a firm distinction between someone who speaks poor English due to lack of effort (text speak etc.) and someone who speaks poor English due to it being a second language. I'll instinctively judge someone based on the effort they put into what they write, but I won't treat them differently because of it." – **F (2)***

Both over-dependent users and linguistics problems posed some degree of difficulty and if none of the skilled members were available or willing to help, the obligation would fall back on the moderators, who would try their best to help the members on their queries.

MOTIVATION

This section discusses 'motivation' in a broader sense i.e. looking into elements that drives participation in a general sense. What makes people want to participate in discussions, and by an extension, the community? Looking at the daily and monthly statistics from the community, it was clear that the community was a hive for activities of all kinds of nature - from the announcements of updates to the GameSalad software, to the daily question and answer threads. These activities were open - voluntary, and unstructured (in a sense that there was no instructions or sequential flow to navigate/direct discussions, as opposed to a more formal discussion). I identified in the community two categories namely 'Extrinsic Motivation', and 'Intrinsic Motivation'. Table 24 below shows these categories, followed by discussion on each category and its sub-categories in greater details.

Table 24: The Categories of motivation with its frequency of mentions.

Category	The general idea	Numbers of times mentioned	Number of interviewees mentioning it
Extrinsic	External elements that influence members' participation	71	19
Intrinsic	Internal elements that influence members' participation	19	8

EXTRINSIC MOTIVATION

The most mentioned form of motivation among the 19 respondents was extrinsic motivation, with over 70 examples recorded. I found three sub-categories that would explain the nature of this motivation, namely (1) *community driven*, (2) *tool driven*, and (3) *outcome driven* motivation. With a community this big and active, it was not surprising to see that 'community' itself was one of the biggest driving force/source of motivation for the members to participate. The community acted as a catalyst for participation, luring people to be involved in the discussions. One of the most quoted accounts that surfaced from this sub-category (*community driven*) that of co-dependence on others and the overall supportive atmosphere of the online community. The general tone of the community, especially among the community-carers, was supportive and friendly, at times light hearted. Most members who were at the receiving end of help were also reportedly very appreciative. As **N** mentioned:

> *"When I try to help people with issues they usually respond very nicely:) I really like the gamesalad community!"* – **N (1)**

This created a conducive environment to establish relationships, foster sense of community, and encouraged more participation from members. When asked about acknowledgement and respect, the majority of interviewees mentioned the pleasant experiences that they had while interacting with others in the community. Mutual

exchange was the crux of echo-interaction - the back and forth bouncing of conversations that built up the community. As **I** reflected on his community experience:

> *"If I had somehow not been greatest with the curtesy(sic) I have...or more than one or two people saying my ideas were stupid or that I was being an ass...Id probably back away from the forums. Part of it is me being nice to others...the other is they have been nice back to me." – **I (1)***

Interviewees worked and behaved in a manner that was apt for the situation. The community was guided by rules and regulation, moderated by community-carers and moderators, and as a result, this created 'asynchronous-collaborative' environment.

Another aspect of motivation (as seen earlier) was sharing of information and experiences, as members joined conversations when they knew they could contribute something. They chose discussions that were interesting, and worthwhile. The point about the community was that there was social presence, there were other people in the community, and this led to the community becoming communicative and social. At times this also meant attempting to impress others. Members who had finished building applications, would share their success with the community, as noted by **B**:

> *"And the thing was, people seemed to always want to impress each other with what they'd made." – **B (2)***

The 'showing-off' also extended to creating video tutorials or instructional threads in the community. Sometimes they were motivated to produce even more resources because of feedback from others. As mentioned by **I**:

> *"Makes me feel good "toot toot"...I get at least 1-2 subscribers a week now it seems. [...]*
> *It does make me want to do more things" –* ***I (2)***

There was another element that was embedded in the structure and the system behind the community that had an effect on participation - gamification. The community was built on top of a forum/bulletin board system, and one of the core functionalities was the scoring points given to people who participated in the community. There was a section where members could view the weekly leaderboard. These points were given based on their participation e.g. posting a comment, or answering a question. On top of that, there were also points awarded to them when other users voted their comments as 'awesome', 'insightful' etc.
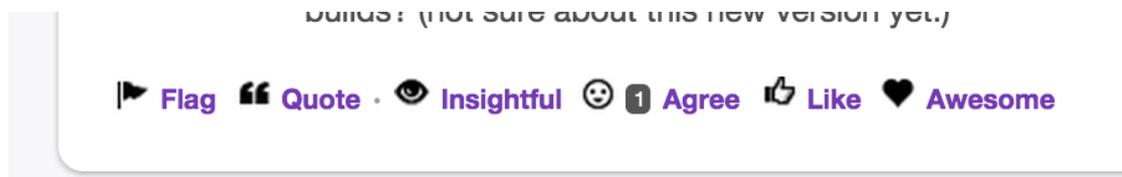
Figure 13: Point-based gamification system in the forum, showing types of reactions users could cast vote on for each comment.

The points were viewable on each member's profile. A large number of points meant that the person was active and if paired with the date when he or she joined the community, we could tell how active he or she was. Points add credibility, and often, points and votes were viewed as an added bonus. There were those who valued them highly, such as with **I**:

> *"I guess some times I feel "compelled" to answer and can also be for selfish reasons..lol. Maybe a point for first answer...or if I answer correctly for that person to hope I get a like or awesome." – I (1)*

The central attraction to everything that happened in the community, was a shared interest in the software GameSalad (*tool driven*). GameSalad enabled users to build their own mobile applications, with the least amount of programming in its traditional sense. Although dubbed as an 'easy way to build mobile games', an understanding of the logic of programming flow was needed to be able to use the software successfully. The idea of visually coding an application is intriguing, compared to the 'traditional' approach which would require an understanding in specific programming language such as Objective-C or Lua, and for the application or games to be 'hand-coded', line-by-line. GameSalad software simplifies everything, making building mobile games easier. This had encouraged users to take up the software, and the community, since the community was where the resources and knowledge of how to use the software laid. This had made the users to be dependent on the community. For the majority of the interviewees, the community complemented the tool. As **A** noted:

> *"I would say I use the forums for the following purposes: To find out how to better use GameSalad… It fit exactly what I needed: a tool that was easy enough to learn, powerful enough to get excited about, and flexible enough that students could do almost anything they imagined with it." – A (3)*

Interviewees had varied goals (*outcome driven*). It's hard to separate members in this community, with their goals: monetary gains, submitted apps in 'app store', a business setup, having a 'piece' of the app-sphere, or simply gaining experience of app-development. Members had something that they were looking for, when

building apps using GameSalad. Most cited monetary outcomes. There were mixed

reviews on the ROI (Return on Investment) for any application, as competition was

stiff, yet there were success stories discussed in threads. For example, a mobile game

application built by an independent game developer was a simple and endless game,

yet it was found to be extremely difficult and addictive. It became an overnight

success, a global phenomenon. Although there were concerns raised by some on the

methods he used to market the game, his overnight success story became an

internet sensation, particularly when the news revealed that he raked in a

considerable amount of money through in-app advertisement. This might have

sparked the motivation to pursue mobile game business for some. Some

interviewees questioned this motivation, relating it to the decrease in quality on apps

produced due to shortcuts and hurried marketing. Affected by this, **B** mentioned

that:

> *"I find that most of the questions on the forums seem to be focussed on 'how to make*
> *money quickly with no effort' or something to do with templates or ads or IAP or how to*
> *make a clone… the forum's general descent into something more 'business'*
> *orientated/cutthroat/clone-happy has meant I've cut back on the amount of time I spend*
> *on the forums/helping people." –* ***B (1)***

INTRINSIC MOTIVATION.

Internal factors that drove participation in the discussions included (1) *satisfaction or*

sense of achievement, and (2) *sense of inclusion*. Six interviewees elaborated on having

some degree of satisfaction and achievement with the project that they had been

working on, and with their interaction within the community. This directly

influenced their willingness to continue participating in the forum. One interviewee

looked back on the previous years in the 80's when he coded games from his

bedroom, stating that he was "back full-circle", producing his own games. Another

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interviewee shared his love for solving coding problems, which he described as 'puzzles', as motivation for participation and a *sense of achievement.*

Four interviewees stated that they loved being a part of the community for sharing ideas, exemplar projects, and helping others. These were the reasons for them to return to the community. As aptly put by two of the interviewees:

> *"You get somewhat of a sense of belonging and possibly being at the forefront of the future of things to come, or at least the future of software and the way games/apps will be made. The possibilities keep bringing me back." –* **Q (1)**

> *"No. I'm not competitive in general and there's much more of a sense of "we're all in this together". In a good way. –* **F (1)**

These statements signalled 'we-ness', a *sense of inclusion.*

OUTCOME OF PARTICIPATION

This section centres around the results of participation in the community. This includes discussions on several key categories, including (1) the developed sense of *identity,* (2) *learning,* and (3) the issues of *trust.*

Table 25: Categories for outcome of participation with its frequency of mentions.

Category	The general idea	Number of times mentioned	Number of interviewees mentioning it
Identity	Identity as a result of participation	131	16
Learning	Learning and knowledge acquisition as the results of participation	69	14
Trust	Trust as a result of participation	20	7

IDENTITY

In this category, I explored how members perceived themselves, and how they perceived others in the community. Sub-categories that emerged included (1) *perceptions of identity*, (2) *sense of community* and (3) *social presence*.

Table 26: Subcategories of Identity with its frequency of mentions.

Sub-category	The general idea	Number of times mentioned	Number of interviewees mentioning it
Perceptions of identity	Perceived identity in the community	61	16
Sense of community	'We-ness' in the community	38	17
Social presence	Awareness of oneself and others	32	13

When asked about their *perceptions of identity* in the community, there was a level of both agreement and disagreement in terms of the value of anonymity. Those who valued it stated that it could protect their 'real' identity, and not to let others follow their 'digital trail/crumb'. One interviewee made such a strong case, he followed my own 'digital crumb' and posted my picture within our conversation, as a proof that people could use 'digital crumbs' to trace back right up to finding other people's identity. **L** made further a point that although it was easy to be anonymous on the Internet, it was difficult to remain anonymous:

> *"I just did a Google-only search on [my username]. Have you ever done that to see what gets exposed to anyone searching for info on you? It's kind of creepy when you see what anyone clever enough to think of doing that can find out. Try searching the social media sites too. People make the mistake of using the same user name in multiple places." – **L** (1)*

It was a surprise for me, to see that the members had a much higher degree of awareness of their own identity in this community, more so when they understood

the consequences of their own actions. This showed high level of reflexivity and a sense of self/social presence, as **O** noted in his comment:

> *"Because my game is eventually posted on the forum, as it has been a couple of weeks ago. because of that, my anonymity has a hole in it. People can follow the link back to my game, learn my company and name, and associate my behaviour with it." –* ***O (1)***

This led members to be more cautious when participating in the community. They understood that by participating, their identity was open for public scrutiny. **O**, while working on GameSalad projects for a company, illustrated how cautious he was:

> *"I don't mention any specifics about myself, due to my quiet uncertainty about how careful I should be about the company connection. I simply exist as this account with few details." –* ***O (1)***

This detachment of identity might not be a norm among other members of the community, but it shows how some active members were willing to put a protective cloak around their identity, to protect their own interest.

Most of the interviewees noted that their online selves were not very different from their offline selves. In fact, 16 of the interviewees specifically mentioned that they were 'the same person' online and offline life, and no one disapproved. Some interviewees mentioned that they might take care over some aspects of their online identity. For example, they may write more consistently online because of the textual and asynchronous nature of interaction, as mentioned by **T**:

> *"They are not too different, except for the fact that I use better grammar on the forums then I do in real life!" –* ***T (2)***

Or they 'temper' themselves (hold back on comments), as per noted by **F**, when he reflected on this duality of identity:

> *"Pretty similar. On the forums I'm mostly kind and helpful and generous with my time but also argumentative and quick to call someone out if I think they're being a... unpleasant person. In real life I'm pretty much the same, except perhaps even more argumentative. On and offline I temper myself when employment is concerned, though." –* ***F (1)***

Members knew their actions (e.g. helping, sharing demo files, making video tutorials) in the community would create an image for others to perceive. When asked how would they perceive their presence in the community, the majority hoped they had left a positive image:

> *"Like I said, if I think I'm being knowledgable(sic) and helpful I hope that others will see me as such." –* ***T (2)***

From the observations carried out in the forum, the reliance of positively perceived presence and identity seemed to be applicable to members in the community as a whole. There was also more visual evidence of identity as moderators had an 'M' badge on the side of their name each time they posted a comment in a thread. Alongside the badge, there were post counts that seemed to provide a measure of status. **E**, who was rarely active in the forum at the time of the interview noted:

> *"Yes, I guess very much being less and less involved in the forum changes my view to the position in the community... I now feel like a stranger who calls in now and again and is only recognised by a few others. Though hopefully my 'post count' lets people no(sic) I'm not a complete newb." –* ***E (3)***

As **L** suggested when identifying whether a user is a newcomer or an oldtimer:

> *"It is pretty easy with GameSalad, just look up a profile and you can see when someone joined and how many posts/comments they have made. Aside of that, those in the Pro sections that contribute regularly and offer free example files or videos are mostly the experienced "old timers"."* – **L (1)**

The discussion of identity was a contradictory and corrective to the idea that an anonymous person could do anything they wish and could disassociate from any repercussions resulting from their actions. In a highly participative community like this, identity could become an asset over time. Newcomers 'look-up' on oldtimers for their level of participation, expertise, resources, and general helpfulness. This was not totally disinterested and some oldtimers leveraged on their 'presence' to provide additional, paid for bespoke services.

Because forums were text-based, members created a perception of others from words, not images. A level of 'tacit-ticity' of this approach appeared to be common among members, as illustrated by **I** in his answer:

> *"As far as constructing an image of people...usually it starts for me by hearing a voice. Just reading what they write in a post or comment and such...seems obviously impossible...but I think based on how people type...can be for the most part...a true reflection of their additive(sic) in general...I at least, from past experiences just place a mental image similar to someone I may have known or seen on TV matching how they talk or show their true nature."* – **I (2)**

In explaining further about the 'hearing of voice' while reading, **I** mentioned:

> *"Yes I believe you can determine the "tone of voice" of a person....we have conversations all the time and depending on certain phrases or sentences we understand "tone". When we type we are speaking in our heads and usually what we say in our head, when typing, translates exactly."* – **I (2)**

This is most probably related to sense and presence in the community. The following section explores the 'presence' and 'sense', as perceived by the members(interviewees) in this community.

In an interesting comment made by one of the interviewees, explaining the extent of interaction in the community, he touched on how by watching video tutorials prepared by the more experienced users in the community, created or amplified the idea of identity (added a new layer of identification), in this community:

> *"To me something that particularly creates a "connection" or rapport with the experienced users is watching their YouTube tutorials, the ones in which they talk to you, or listening to them on the Meet Ups. Hearing somebody, and more so speaking to them, creates a stronger tie than just reading what they have written.*
>
> *I think this is why people become fans of radio talk show hosts or Webinar hosts. The connection is even greater when you watch them on TV or something like a Google Hangout. If you talk to them using Skype it makes a very strong connection on both parties. MYou feel like you know them personally, even though you have never met. Of course it is all one sided and in your head unless you keep up the face to face communication for an extended period.*
>
> *You see, even our discourse at this level makes me somehow feel connected with you... and yet what do we know about each other? Not really very much." – **L (2)***

In addition, the forum administrators also organised face-to-face and online 'Meet-ups', where there would be a member (either a staff, or an oldtimer) presenting an idea on how to accomplish something using the GameSalad software. These sessions were recorded live, and videos of the session were posted in the forum after the event. This activity enhanced the '*sense of community*' and '*social presence*' of each individual who appeared in the video, further strengthen their identity among the forum users. Even though members did not attend the session live, when they watch the recorded video, a similar 'sense' could be achieved.

In addition to referring to members' statistics mentioned earlier, there were several other dimensions to understand/identify others (*social presence*), including (1) recognising names, (2) how proficient they are with the GameSalad software, and (3) on their past behaviour in the forum. In combination, these allow more room for interpretation of identity in the community.

Interviewees mentioned names that were familiar to them, names that 'keep popping up' in the forum, and these same names appeared in several interviews and were key contributors to the community's knowledge pool. As cited in this quotation:

> *"[X1], [X2], [X3], [X4], [X5], [X6], [X7]...those are who I guess I feel connected to in a few ways. They tend to be most active in discussions I create or are involved in. They are also those that I hooe(sic) to be as good at GS as they are." – **I (2)***

Another way to identify others in the community was to look into their proficiency level in using GameSalad. As noted by **L** earlier:

> *"Aside of that, those in the Pro sections that contribute regularly and offer free example files or videos are mostly the experienced "old timers"." – **L (1)***

Skilled members may have been in the community for over 4 years but could include others who had been a member for a shorter time.

Members' views of others' behaviour were subjective to the person who was judging, but the general approach was to take into consideration, how others behaved in the forum e.g. how they reacted to answers, to orders from moderators,

or how they provided solutions to others. On top of that, the forum ran competitions throughout the year, with the monthly held 'Game of the Month' competition where members could submit a game built around a theme set by the moderators. At the end of the month, the winner would be announced and the winning game would be featured in a section on the company's website. Winning this type of competition affected members' presence and status, as how **R** found out when his 'Y' game won the title in February 2014:

*"Submitting my game Y to the forum's game of the month and winning helps raise people's awareness of me being a member." – **R (1)**

The majority of the interviewees mentioned the need to spend an extended period of time in the community, to feel part of the community. The main point was that the *sense of community* involved (1) time and some degree of involvement, and (2) mentions. Of course members may stay passive, unnoticed, and consuming knowledge from tutorials found scattered in the forum, but this was to exclude oneself from being visually connected to the community.

There was a mention from one of the interviewees who made a comparison between the community 'back then' and the community now, and stated that back then, it was more of a community. When asked the reason for this, he pointed to the small number of members and described a more closely-knit relationship. However, newer members of the community were probably would not be aware of this history. This tells us that how members understand the history of the community may also have an effect on sense of community.

Feeling connected to certain users also contributed to a sense of community. As noted above, there were evidences that pointed towards an existence of a community within a community - a community of active members, who were constantly interacting on the forum. This might possibly be because the constant interaction among themselves, made them feel 'closer' to each other, as compared to other members who only occasionally posted a request, or commented. Another dimension of feeling connected in the community was when other users mentioned them or their work and contributions, mostly in a form of archived threads or sample projects, in newer discussion threads. This led to interviewees feeling like he/she was part of the community, where others acknowledge their existence and contributions.

LEARNING

I was intrigued by the idea of learning socially with others when I saw this community, and experienced it as I tried to build my own mobile application with the software. It presented an idea of learning as self-driven, supported by other people who were more knowledgeable. It was the closest I could get to the definition of community of practice I had read about i.e. I was at the periphery, slowly making my way towards the centre, with the help of the 'oldtimer', and in time, became an oldtimer myself. As a full member, I began to leave comments e.g. tips and tricks to solve problems, or at least point out the appropriate threads that might answer a problem, or at least provide a better understanding as to how to solve it. Upon reflection, it was then that I understood learning as participation. This might not be everyone's experience, and I had to make it happen.

When talking about learning, one often refers to the source of materials for learning and the source of knowledge was embedded and distributed. When asked where they found materials they could learn from the community, majority interviewees pointed to the forum as the main source of knowledge. The fact that all conversations between members were archived and most of them were never removed, the forum was regarded as the central body of knowledge for the community. There were other sources too apart from the forum - video tutorial channels, hosted externally to the forum by the Youtube service, and also websites offering free and paid templates for members. These sources were privately owned and were affiliated with GameSalad, but as a company, GameSalad had several rules and regulations over using the forum to promote these sites.

In this section, I will discuss (1) the description of *methods* of learning, (2) the *outcomes*, (3) the *perceptions* of learning, and (4) the *problems* of learning in greater details. The table below shows the breakdown of these sub-categories.

Table 27: Sub-categories of learning with its frequency of mentions.

Sub-categories	The general idea	Number of times mentioned	Number of interviewees mentioning it
Methods	Descriptions on how learning happened	47	18
Outcomes	The results of learning	10	7
Perceptions	The perceptions of learning	9	5
Problems	The problems of learning	4	4

I identified several *methods* with which members used to learn in the community. These methods were divided into two distinct dimensions - a) theoretical (understanding concepts), and b) practical (applying concepts). Although for the

most part, learning appeared to be taking place more on the theoretical side, with 37

mentions from 15 interviewees, I believe that there was a close connection between

theoretical and practical learning, as it required a certain amount of actual coding to

make the theoretical understanding operationable, as noted by one of the

interviewees:

> *"I also learn more by doing this as there are many talented, smart people here and reading*
> *over their answers adds to my knowledge about GameSalad and game design." – A (2)*

The default way of learning seemed to be by reading through the forum or online

documentation. **A**, as one of the moderators of the community, explained:

> *"There are four ways to learn from others here: 1. Reading posts that answer other*
> *people's questions. 2. Asking questions and reading the answers to them. 3. Reading*
> *responses to private messages sent to others. 4. Downloading demo files creating by others."*
> *– A (2)*

Three of the four methods **A** explained were about consuming contents in the

forum, while the fourth involved practical engagement (downloading implied using

it and seeing for oneself how the logic of programming worked). There was

somewhat a consensus among interviewees, that the forum held opportunities to

learn, as aptly summarised by **I**:

> *"if you use forums...you learn." – I (1)*

Applying concepts learned, as mentioned by eight interviewees, meant learning on

the software directly, 'trial and error', and testing exemplar projects shared by other

members of the community. Most of the queries in the forum, if not all, started to

flow into the forum, when members started dabbling with the software. The

relationship between theoretical and practical learning is therefore a cyclical/spiral process, starting from consuming the knowledge through reading the forum threads (theoretical), then to using the GameSalad software to apply the knowledge/understanding found from the initial reading (practical), and then back to the forum with problems encountered while working with the software (theoretical), and then back to the software to apply and see if the solution provided was adequate to solve the issue(s), until the user/member is satisfied with the result i.e. producing a mobile game/app.

The interviewees were in agreement when discussing about *outcomes* of participating in the community. Several dimensions emerged including (1) self-improvement, both in game programming and project management skills, (2) transferrable skills and reusable project files, and (3) feeling closer to the community. In explaining how to benefit from the community, a lot rested on finding answers members encountered and serendipitous accounts which may gave some new insights for other parts of their project, as **A** mentioned:

> *"Sometimes I learn what I was intending to learn (I ask a specific question and get a specific answer) and sometimes I learn something related but different. For example, I might ask a question about making an actor move in a straight line and learn a trigonometry equation I didn't know. Or I might learn a way to set up a table database that I hadn't considered before." – **A (2)***

The openness of access to the shared knowledge was what made serendipity possible. As for project management skills, the forum also provided a place for members to post periodic updates about their project(s), and helped to inspire others to reflect on their own projects, as per mentioned by **N**:

> *"On the other side I'm learning a lot from myself at the moment. Making a good plan before I even start, and when thats finished, I can push it out and keep working on updates." –* **N (1)**

Even though GameSalad offered a simplified programming, it provided foundational knowledge for programming logic. This was supported in one interviewee's own story of how he moved on from using GameSalad, to using Xcode - Apple's very own application programming software to build more advanced games and applications:

> *"Even after I started becoming proficient at Xcode as well as Gamesalad things I learned while playing with Gamesalad still applied, like basic control structure, programming conventions, and variables." –* **T (1)**

L also said that the sharing of codes and exemplar projects had given him the opportunity to be inspired by other members with new ideas and innovations. This made feeling 'closer to community' a result of learning.

Although majority of the interviewees were positive about *perceptions* of learning with others within the community, there was a dimension of individualism found in the interviews:

> *"If you don't put time into learning a tool and developing skills you are not going to produce anything worthwhile." –* **L (1)**

> *"Secondly, take multiplayer, GS dumped a quick half ass template and a definitions page. I took that and modified it and did two videos on multiplayer. Only after spending days working and testing and peppering the GS team for bits of info. I was able to puzzle together and understanding of it."* – **C (2)**

Both excerpts pointing towards individual actions taken, or actions that needed to be taken, in order to progress to a higher level of proficiency in using GameSalad software. While learning was seen to be taken place socially in the forum, with members interacting with each other, asking and providing help and assistance, there was to some degree, a level of independent learning needed. Intentional goal setting and sustained individual effort were necessary. It was up to individual members to peruse what was in the forum for the betterment of their own product.

As mentioned previously, the (1) over-reliance on others for help, and (2) advanced concepts were found to be the *problems* of learning, at least among some interviewees and limit the learning that went on. The point made by **B** earlier was valid:

> *"I find that most of the questions on the forums seem to be focussed on 'how to make money quickly with no effort' or something to do with templates or ads or IAP or how to make a clone." – **B (1)**

This explains why templating and providing demo project files to other members was viewed by some as unhelpful and it was limiting the effort, and hence, the learning newcomers need to have put in for themselves. This was seen clearly in some of the games released by members in the community, who took the game templates, either provided as free of charge or paid for, re-'skin' the template with new graphics (images), and published them on the appstore. As a result, multiple version of the same game can be found. This is the definition of a 'clone' in the app-sphere.

Another problem faced by the members in terms of their learning was the 'ceiling effect' and the challenge of understanding more advanced concepts and manipulations in GameSalad software. The software enabled members to combine and produce behaviours intended. But these actions are further customisable to achieve a more refined behaviours, but to do so, members need to understand concepts in Physics and Mathematics. **N**, one of the longstanding members of the community, explained that he learned from the forum and the community everyday, but there were instances that were "a bit beyond" his knowledge:

> *"…well, I learn everyday I guess. Sometimes it goes a bit beyond of my knowledge with some stuff. I was never a super star in math;)" –* ***N (2)***

TRUST

There was a 'trend' that members relied on old-timers - those who had been on the community for a long time, and had established a known identity in it, especially in the area of the software expertise. One of the interviewees mentioned of the reason for defaulting to this preference:

> *"For the most part I trust them. Most of all the veterans...they have been around long enough to have proper etiquette within the forums...how to speak to people...how they respond to threads...or creating them" –* ***I (2)***

This is seen as the most sensible way to trust others i.e. to place it in people of authority, who know more about the subject matter. As noted by **L**:

> *"What is there to trust? That the advice they give is accurate? If it's not, I'll find out soon enough when I try it." –* ***L (1)***

Apart from knowledge, prolonged and extended communication could facilitate the development of trust among members, as mentioned by **C**:

> *"In order to trust someone I would need further contact with them. Say Skype or meet face to face. Usually the people I come to know are people I have contact with past the forums. Usually it's from them hiring me to code something. How people project themselves in a business situation tells a lot about them." – **C (1)***

Nevertheless, members were selective when placing trust in other users. Some mentioned that they did not trust completely. Trust was something that others had to earn rather than given freely. There were also other interviewees who assumed trust until proven otherwise. For example, **F** argued that:

> *"This is the kind of community where there's so little to be gained by being deceptive that there's no benefit in assuming people are dishonest." – **F (2)***

PROBLEMS AND RESTRICTIONS

Under this theme, I will introduce a new 'agent' in this community - the company, who played a vital role in establishing and maintaining the community. I found three categories to the problems and restrictions faced by (1) *the company*, (2) *the community*, and (3) *knowledge and shared artefacts*. The table below shows the breakdown:

Table 28: Problems and restrictions of participation with its frequency of mentions.

Categories	The general idea	Number of times mentioned	Number of interviewees mentioning it
Community	Problems from the community	38	12
Company	Problems from the company	35	14
Knowledge & Shared artefact	Problems of knowledge management	9	8

COMMUNITY

In terms of problems and restrictions faced by the community, I identified three sub-categories namely (1) the issue of *gatekeeping*, (2) *problematic culture and norms*, and (3) *problems and restrictions on communication* in the community. The least mentioned among the interviewees was the issue of *gatekeeping*. There were two dimensions to view this i.e. a) what the community did in regards to managing the community, and b) what were the effects of community gatekeeping. In evidence of the former, members were actively monitoring the community, even though they were not moderators of the community. They 'called out' those who broke community rules, and drew the moderators attention to actions or behaviours they thought needed to be dealt with. There were several mentions about bullying in the community, and how they dealt with the situation:

> *"One thing that I always speak up about when I see is bullying - either subtle or obvious, and I've had to call out at least two moderators for getting involved in what, to my eyes, have been incredibly unhealthy and frankly mean threads." – **F (1)***

An interesting point to be made here is that an interviewee, **C**, was labelled as a bully. But from his perspective, he was providing an honest rather direct opinion of a game published by one of the members of the community. Although he saw his comment as something beneficial and helpful to the owner of the game, others were not in agreement, and saw his comments as 'mean'. In his long comment on the issue, it was apparent that what he held as his life's principles did not translate well with others:

> *"It's been a few people who sometimes don't like my old school comments on hard work and paying your dues. I really believe it's a generational thing. The "everyone get's a trophy" generation doesn't understand honest advice, they see it as a negative. It has affected the forum in recent years. This is why you see threads where people ask for an opinion on their game and if it happens to be terrible most people just avoid commenting at*

all. I believe honest feedback is vital to a healthy creative process. This is why we do beta testing and encourage honest feedback. It has been vital in improving our games. We know all our ideas are not going to be perfect and the process can blind one to the flaws. I personally feel it is a disservice to be patronizing but it is seen as negativity on the forums so I have refrained from being too candid with my opinions on the forums and focus on helping." – C (2)

As a result, he refrained from being involved in providing feedback to the community, fearing that his honesty would affect his stature in the community.

There was a general concern about the declining quality of interaction within the community, as *problematic culture and norms*. Issues such as the community's apparent shift from focusing on creating great games to finding ways to generate money through advertisements, cloning and templating practices among members, and offering free coding service without explaining the solution properly, emerged from the interview sessions. Looking at the people who mentioned this, most were old timers. The newer members generally did not have the same issue with templating and generating money, though they were in agreement when it came to the issue of cloning existing games, as it was the matter of copying other people's work. Newer members tended to have more tolerance towards issues that had been labelled as problematic by the old timers. They saw generating money as part of the process of building an application or games that generate revenue, to cover the costs of GameSalad PRO subscription, and the cost of submitting games to appstores. They saw it as an opportunity to help others.

Communication was also a problem for some members. As mentioned earlier, repeated queries posted in the forum affected the community in many ways,

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including disrupting the flow of help, building tensions between moderators and members, and giving a negative impression on the community as a whole. This would lead to other problems. For example, as observed in some problematic threads, disrespectful behaviour could be found when members were in disagreement with each other. Disrespectful behaviours include sarcasm, personal attack (on past behaviours), and making fun of others. Furthermore, behaviour in text-based environment often difficult to translate, and this may lead to other complications, as noted by **E**:

> *"Plus I'm sure there are some users who I enjoy reading and sharing comments with, where as there are others who I unconciously decide not to comment on based on comments they've made in the past (not to me directly or anything,).. i.e. I like chatting to the happy positive and polite people whether they're just starting out with GameSalad or trying to push the boundaries of what's possible... I'd always rather chat to them over the grumpy ones. It's al (sic) in interpretation of course someone I might think is funny and interesting might appear rude to someone else... i.e. sarcasm doesn't always come across brilliantly on the web."* – **E (2)**

COMPANY

The GameSalad company was responsible for providing functional software and its updates to the community, as well as managing the community. The software has been in version 'beta' for more than 5 years, alluring the company to continually develop it. The community provided support for the company in terms of feedback on their product, as well as bug reporting which was vital for the development of the product. From the launch date, to the point where this study took place, the software was still in beta, and the company have had several issues, both in terms of (1) *managing the community*, and (2) *managing the software* development. Both had impact on the community.

In terms of *managing the community*, the company employed one moderator. He was backed up by several other community moderators who volunteered their time to assist with the running of the community. One interviewee, who was one of the moderators, explained the process of becoming a moderator for the community. It was based on an application made by him to the moderators for the post, and recommendations by other moderators supporting the application. In this, we could see that some members were willing to make a commitment to manage the community. A signal of a high sense of community.

However, the relationship between community and company had created tensions. As mentioned by **F**, this had caused the company to be in a 'difficult situation' several times. The most common problem members encountered was that they felt the company should set clearer ground rules in the forum, that could strike a balance between the company's and the community member's needs. For example, there was a constant battle between the moderators and the members of the community with the rule which limit links to external sites for reasons it was suspected of unfair advantage. The rule invoked some serious debate between the moderators and members. For example, **I** noted:

> *"If I wanted to have a website for my tutorials to be purchase per view...by a paying account holder to actually make a little side money for my "product"...which DOES help GS by association....it's not allowed to promote that site. It has to be free...or it's a no go."* – **I (2)**

> *"GS does not support 3rd party sites, as I believe their stance is if it is not free or make money for GS (directly) it is not allowed."* – **I (2)**

> *"GS is severely limiting 3rd party sites...again I understand it's a business thing...don't steer money away from GS...however (BIG However)....if GS doesn't provide those features...such as the 3rd party Deep Blue Apps project mergers, scene mergers...resizes...they should be allowed to promote those." – **I (2)***

In defense, one of the moderators replied to the issue:

> *"The problem is that the owners of those sites often push their agendas on the forums in order to heavily market their sites. So even though they claim to want to provide free templates, they are providing them on the condition that they can draw people to their sites." – **A (3)***

This on-going dispute had an impact on the dynamics of the community, as noted by **A** in trying to find the middle ground:

> *"There have been changes to the rules since I joined. Most of the changes have been centered around advertising, usually because that's where people either are confused by the rules or actively try to bend/break the rules." – **A (3)***

A result of the ongoing dispute against advertising external sites, was that active members felt forced to abide by rules which were seen as inhibiting the sharing of knowledge and shared artefacts. **F**, one of the active contributing members mentioned about having to rely on only one thread to share new codes that he had developed, which affected the visibility of the thread:

> *"…. but each thing posted gets about 1/10th (literally) the views they had when posting individually….I eventually reached a compromise with the mods whereby I'd have that image at the start of my thread which I can update without needing the mods, and they'd copy each new post into the compilation of the first post for me. It's a crappy compromise, but it's better than these things sitting on my hard disk unused…. Ultimately, everybody is affected by the rule, though, as far, far, far fewer people see the things being shared, and when people search the forums they are less likely to find what they are looking for." – **F (2)***

There had been cases which had resulted in uproar, because of the ambiguous

nature of the rules, leaving one of the interviewees to see the enforcement as

'favouritism', as explained by **F**:

> *"A big problem that my thread touched on but I tried to avoid getting specifically into is that there was and to a lesser extent unquestionably favouritism at play. There are some people who were/are effectively untouchable, and rules have never applied to. There is definitely a little unofficially, perhaps even unacknowledged little club of the "top" members, the guys who have been here a long time and know each other well. They are, however, also the most helpful members on the forum who give very generously of their time, so generally I've had no problem with it." – **F (2)***

These problems took toll on the community's dynamic.

Another problem that derived from the company, was the lack of documentation

on the software. Historically, there was a wiki and a 'cookbook' - a manual for the

software, but this was seen as insufficient by the community, and as a result, the

community had to explore the possibilities of extending the software in terms of

building innovative mobile games by themselves. As noted by **C**:

> *"GS had very little if any documents and the staff rarely ever posted on the forums. We were on our own and we dug in and even wowed the GS staff at what we were doing with their software. Those folks are as responsible for the success of GS as the staff themselves." – **C (2)***

Although lack of documentation was seen as something that was negative, it was

also seen to have a positive impact towards the community building, as members

worked with each other to discover new things. It was the sense of trying to come

up with something new and share with others that had first created, what **B** labelled

as a 'tight-knit community':

> *"it was a very tight-knit community of people who were excited, looking forward to being able to publish and helping each other out while learning the software." – **B (1)***

Apart from the community aspect, interviewees also expressed some dissatisfaction as to how the company *manage its software* GameSalad as a product. The most mentioned issue covered the lack of certain features, as compared to other similar mobile game/application authoring tools such as custom collision, and custom fonts. Such features appeared to be put 'on-hold' to give time and resources on solving other problems. Lack of features was cited a number of times and led some to stop using the software and took up another tool, or was forced to design a game or an application at the expense of offering rich features in it.

> *"Sure - GameSalad helps you make games - which is awesome. Unfortunately it's missing some cool features still that were promised months, if not years ago. These seem to have taken a back burner to things like advertising methods and In-App-Purchases. This is frustrating. Especially when I'm still waiting on stuff like custom fonts, for example, which will not only make making games easier, but will give games a higher degree of polish." – **B (2)***

Another issue which caused negative feedback were 'bugs', or 'buggy' software. Mentions of bugs and buggy-ness of the software could be found throughout the website. Some portion of the daily queries were also questions on helping to solve some bugs encountered. This was mentioned by **F** in his response when asked to comment on the company's action in the light of facing these issues:

> *"Take for instance the recently 0.12.4 mess. They released a horrendously buggy version of the creator as a stable build. It was pushed to people through the automatic update system and after it was installed by many users it was pulled from distribution. This left a lot of people with a very unstable build and no clear way to upgrade or downgrade." – **F (2)***

Bugs were not always solved right away. The development team was small, and often, fixing the software was rarely a straightforward process.

KNOWLEDGE AND SHARED ARTEFACTS

The problems in knowledge and information management, and shared artefacts were well documented in earlier sections. For example, the lack of official manual, problems in sharing information due to restrictive rules, and how knowledge and shared artefacts deeply embedded in the forum. Another problem that was pertinent to the community was with the small number of active members helping to disseminate information. As noted by **C**:

> *"Nobody was really working on it other than me. In the old days there would have been like 10 people constantly chatting and figuring it out. Now everyone just waits and asks when someone is going to do a video on it." – **C (1)***

This concern was well shared among other interviewees:

> *"Lately the forum has been filled with more questions rather than answers but its probably because of the changes." – **M (2)***

> *"Sometimes the questions go unanswered if no one has an answer." – **Q (2)***

Even though questions that were left unanswered would fall back to the community moderators, there were still over 100 questions remained unanswered at any given time, signaling the constant flow of request for assistance in the community.

SUMMARY

To summarise, this chapter presents four key themes followed by several categories, sub-categories, and dimensions, along with demographic and survey data as findings for this study. The key themes found include: **Help**; **Motivation**; **Outcome of Participation**; and **Problems and Restrictions**. These key themes were driven primarily by interview data, and were informed by demographic, survey data, forum observation and document analysis.

CHAPTER 5: DISCUSSION

Overview
- Explore the findings in the light of the literature reviewed.
- Attempt to answer the research questions.

Having looked at the findings, we now turn to the discussion of the findings in the light of recent literature, and to address the research questions. The four research questions, previously posed in Chapter 1, are as follows:

- *What kind of community have active members helped create?*

- *What motivates and constrains participation?*

- *What and how do members learn?*

- *How and why do active members help?*

These four questions are summed up under an overarching question *"How does help keeps community alive?"*. As mentioned in the Introduction chapter, this study started with a purpose to have a general outlook on the participative nature of an active online community. This became more focussed on the more active members of the community as the study progressed.

Q1: WHAT KIND OF COMMUNITY HAVE ACTIVE MEMBERS HELPED CREATE?

In the literature, we found that community:

- *Is a fluid concept, often romanticised.* As a concept, community has been developed elaborately from the classical times of Confucius, Aristotle and Ibn Khaldun, and into modernity, where it often referenced to congregations of people regardless of locality and time, mediated by devices

and tools. The social aspect of community has contributed to the 'romanticisation' of the concept of community, as described by Rheingold as a place "to form webs of personal relationships" (1995). Online community is broadly defined by Preece (2001) as 'any virtual space where people come together to get and give information or support, to learn, or to find company' (Preece, 2001).

- *Has typologies.* Online communities come in different shapes and sizes. Many typologies have been found and developed by various scholars, to cover vast number of purposes and types of participation involved. Stanoevska-Slabeva and Schmid (2001), Henri and Pudelko (2003), and Porter (2004) provided several types of online communities, with which GameSalad found to be a hybrid of the three. Community of practice was seen favourably by many scholars and taken to illustrate the idea of commonality and togetherness in a practice. Wenger (2013) saw practice and participation as a mutual engagement, towards the creation of shared knowledge and artefacts.

- *Can nurture sense of community.* From Sarason's book (1974), and the work that went on to measure sense of community in mediated environment such as the work carried out by scholars at George Peabody College (Chavis *et al.*, 1986; McMillan & Chavis, 1986; Chavis & Wandersman, 1990; Hyde & Chavis, 2007; Chavis *et al.*, 2008), we now understand more about how sense of community and satisfaction play a role in influencing participation.

- *Is difficult to maintain/grow.* Online communities are often valued highly, but educational researchers identified difficulties in growing and maintaining community. There have been many studies highlighting a mixture of success and problematic endeavor when using online instruction as part of their pedagogical design. Holding a sense of community was key to participation

in virtual classrooms, Rovai (2002a) outlined four dimensions including spirit, trust, interaction, and learning, which helped build a sense of community in the classroom. Online communities are difficult to maintain because of their multi-faceted nature. Apart from the sense of community in virtual classroom mentioned earlier, researchers have begun to understand that there are other factors at play that may influence the community and members' participation, including teacher's presence (Ouzts, 2006; Shea, 2006; Shea *et al.*, 2006), feedback (Ice et al., 2007; D. Shen et al., 2008), and student motivation (Kim *et al.*, 2007; Wighting *et al.*, 2008; Yin, 2010).

In relation to these aspects of community, GameSalad was found to be:

- *A place in which members and users shared ideas, resources, and develop sense of identity.* This matches Preece's general definition of online community. Members helped each other to solve problems related to game development, and built exemplar files, which were embedded in the community as shared artefacts. As suggested in the literature, GameSalad community provided members with a sense of community and an identity in the community, although these varied among the members.

- *Able to serve both the commercial interest of the company, and the individual interest of members, but there was a tension between them.* Seen as a hybrid community i.e. an organisation-sponsored, discussion-focussed community of interest (based on Stanoevska-Henri-Porter typologies), the community was able to feedback suggestions and complaints to the company, which were used to deploy better iteration of the software back to the community. The community, through the abundance of resources and helpful active

members, managed to cater members' individual interests and needs. However, there was evidence that tensions built up between the company and community as ideas, needs, and support were not met, or in some cases, delayed. Despite this, the level of sense of community among members was found to be high. This suggests that online community is complex to maintain, and that building a sense of community is not as clear cut as how Rovai has outlined. Within any community, there are competing interests and company-led community may lend themselves a path to charges of exploitation (see Terranova, 2000)

- *Able to create resources of value.* Through the roles played by active members helping others in need, and access to the community's knowledge pool and shared artefacts, the community could be considered as a valuable resource for members. Nevertheless, not all of the members were involved in the creation of these resources. This represents a constraint on the overly-positive tone in the literature. Wenger's idea of mutuality in community could be seen among active members, but to say that all members had mutual awareness and were together in the creation of shared knowledge, seems too romantic as an idea.

- *Able to grow through design and serendipity.* The growth of the community could be attributed to both its design, and the serendipitous nature of interactions in the community. There have been many online communities that were built on top of forum or bulletin board platform, yet not all were sustained. Interactions in GameSalad were not curated, they emerged serendipitously. Yet, the odds that members would comment and help each other were good, due to the culture that had built up in the community. In some respects, GameSalad can be seen as a counter example to the literature,

which often sets out structured stages of participation (for example Salmon, 2004; Preece & Shneiderman, 2009) and sees participation as designed. This suggests that these models were indeed more prescriptive than descriptive, and participation is as much caught as taught.

- *Able to create culture around helping.* Central to the community's norm, was the act of helping. The act of helping was shaped by both past patterns and traditions. Help and helping may also be seen as a way of extending participation, moving members to become more active contributors, as with the idea of 'paying forward' in the community, among active members. This was possible in this community since there were some degree of motivation, be it intrinsic or extrinsic. This kind of culture is represented in other studies (for example Hammond, 1999; Butler *et al.*, 2007; Krebs, 2010) and offers some support for the idea that we are more community-minded that often suggested.

- *Able to show 'teaching presence'.* Shea among others mentioned teacher's presence to be one of the contributing factors to building sense of community. In the GameSalad community, there was not so much of teacher presence, though the role of Moderators was recognised, but a 'teaching presence' that mediated sense of community and social presence, through the work of Helpers.

- *Able to provide opportunity for learning.* Interviewees often found valuable resources critical to their learning. With open access to archived past threads, and guided by the goal of problem-solving, members found resources related to the specific problem they were facing. Feedback was also found to be an important aspect of learning, since members relied on active and archived discussions which often contained feedback and

suggestions. This provides some support for the positive accounts of learning reported earlier (for example Ebner *et al.*, 2005; Folkestad, 2006; Madge *et al.*, 2009; Cain & Policastri, 2011; Harasim, 2012) and suggests that there really is something valuable about the Internet-supported communication.

Q2: HOW AND WHY DO ACTIVE MEMBERS PARTICIPATE?

From the literature, we know that participation:

- *Has frameworks, typologies and theories.* Researchers came up with frameworks and typologies to aid our understanding of participation (for example Lave & Wenger, 1991; Salmon, 2004; Knowlton, 2005; Preece & Shneiderman, 2009), yet these have been treated as prescriptive rather than descriptive perhaps due to the highly complex structure of participation. One result of this prescriptive interpretation is that accounts of participation appear overly enthusiastic and optimistic. In practice, participation might not be so easily seen as conforming to the typologies and framework suggested.

- *Has many barriers and motivators.* The literature around motivators and barriers to participation were grouped around three issues namely personal, interpersonal, and environmental. Unsurprisingly, many studies reported technology (environmental) and time (personal) to be among the barriers for participation. As for motivators, there was a mixture of elements. Most prominent was interpersonal issues, which included togetherness, culture and norms.

- *Includes invisible participants.* Quite surprisingly, literature had a more positive outlook to the 'lurking' behaviour than in previous years. The idea of lurking

was seen to move from a definitive behaviour of a person online (Nonnecke & Preece, 2000; Takahashi *et al.*, 2003; Rafaeli *et al.*, 2004), to a more general, all-encompassing behaviour which all users assume regardless of roles, positions, and interactivity (Muller et al., 2010; F. C. Chen & Chang, 2011).

- *Regulates social presence.* Social presence was found to have an impact on computer mediated communication. As Tu (2000) mentioned, social presence was found to play a key role in the concept of social learning, and satisfaction (Gunawardena & Zittle, 1997). Several dimensions of social presence have been proposed including co-presence, psychological, and behavioural engagement (Biocca *et al.*, 2003), which in turn, regulates participation.

In this example, participation in GameSalad was found to be:

- *Different from typologies and frameworks in the literature.* Participation in GameSalad could not be easily forced to fit any of the frameworks described in the literature, though has resonance with aspects of several. For example, the community of practice framework might explain the connection between participation and shared repertoire of knowledge and resources in the community, but was not a good fit to describe learning and the progression of participation. The Reader to Leader (Preece & Shneiderman, 2009) framework might provide some explanation in the progression of members' participation, yet not all members were in the community to be leaders (or in this case, moderators). Salmon (2004)'s E-moderating view of participation as moving from socialisation towards knowledge construction

is seen as too structured to fit in with the description of participation that happened in GameSalad community.

- *Driven by problem solving.* As a community that provided support for users of GameSalad software, problem-solving was the central goal of activity. Interviewees mentioned this as the thing that evoked their participation, after a period of 'lurking' through the forum and finding solutions on their own. From the literature, we know that motivators for participation were centred around 'personal', 'intrapersonal', and 'environmental'. This study adds another dimension – tasks (problem solving to be specific) - that strongly frame how these other three dimensions are viewed. 'Lurking' was also found to be one of the modes of 'engagement' used by members in GameSalad community, and showed that active participation and 'lurking' may go hand in hand as active behaviour.

- *Fluid.* Participation in this community was found to exhibit a rather fluid concept of participation in which members not necessarily entered into the community at the periphery of game development knowledge and practice. One could have 'lurked' silently for many months, learning on how to use GameSalad, before started to participate in the community, as evidenced by some of the interviewees. The proliferation of game making activity in general may have resulted in new members entering the community with strong background skills.

- *Motivated by external and internal elements.* Active members were driven by community norms, a desire to build better applications, and to gain either instrumental or psychological benefits. This is fairly in accord with the literature, yet this study added that active members were influenced by the

coincidence of these elements, and not separately, as described in some of the literature.

- *Augmented by identity and trust.* Participation in GameSalad community was also driven by social metrics i.e. points and badges, as well as past conversations and behaviours, which members used in constructing an online identity. In relation to online identity creation, these elements have not been studied in-depth before.

- *Problematic at some point.* Problems of participation in GameSalad community were found to be centred around community, company, and knowledge management. Unlike some of the cases in the literature, technology was not deemed to be a significant constraint since active members were attuned to being online. This tells us that there were constraints within the community that hindered participation, and helped defined the culture and norms which members subscribed to. Selective helping could be considered as an example of this duality.

Q3: WHAT AND HOW DO MEMBERS LEARN?

Learning, as informed in the literature:

- *Is described as formal, non-formal, and informal.* Apart from the formal and non-formal description of learning, Schugurensky provided a three by two matrix to describe learning: one side a division between self-directed, incidental, and social; and another a division between 'intentionality' and 'consciousness', in a more nuanced way. The matrix showed the interplay between these elements that existed within the dimension of informal learning (Schugurensky, 2000). Learning was later described as situated

(Marsick & Watkins, 2001; Wenger *et al.*, 2011), context-dependent, and socially constructed (Madge *et al.*, 2009; Ebner *et al.*, 2010), yet the idea of learning as an individual achievement remained a strong perception by learners themselves (Folkestad, 2006).

- *Is difficult to assess.* When paired with online instruction, assessment of learning was found to be more complex, specifically assessing learners' performance. The majority of studies in the literature were found to rely on participation rates as a proxy for the quality of learning (Hrastinski, 2008b), and often neglected the details on assessment when reporting their findings. This left the literature with an overly positive note on online learning, presenting a picture of voluntary or altruistic learners rather than instrumental motivation. (for example Cain & Policastri, 2011).

- *Is considered as moving from the peripheral to central practice.* The idea of community of practice and legitimate peripheral participation described the journey newcomers often underwent while learning and mastering certain practices – moving from outside the boundary of the knowledge and practice, towards a more central role, full participation, in the community of practice (Lave & Wenger, 1991; Wenger *et al.*, 2013). A number of scholars have proposed the idea of participation as learning, in the light of community of practice. This makes participation the central tenet of learning in communities, working together to produce knowledge and shared artefacts (Gannon-Leary & Fontainha, 2007). Hrastinski (2008b) proposed a theory of online learning as online participation.

In this context, learning in GameSalad community:

- *Is intentional and conscious.* In spite of a binary descriptions of learning as either formal/informal, learning in GameSalad was found to be both. Learning in this community began with the **intention** of solving a problem, searching through threads in the forum to find possible solutions, and if need be, engage in discussions with other members. This presents a certain level of **consciousness** in determining which part of the interactions, and/or resources as of value to be learned. Yet, this was not credited learning (except for the badges, community roles, and perceived social presence) as such, in contrast to other studies found in the literature.

- *Involved perception of value.* One of the drivers of learning in this community was the thought of gaining advantage in the practice. Learning was seen as a self-improvement, an opportunity for transferable skills in the future. Active members often labelled threads and discussions that they found highly relevant to their projects and to their application development. They learned through trial and error, comparing members' code with theirs, and adopting others' exemplar projects and best practices. This can be seen as putting a 'value' to the resources found in the community, and consecutively, learning from it. Value is thus a more important attitude of participation and learning than whether is it formal or informal.

- *Involved practical alongside theoretical understanding.* The community may provide opportunities for learning, but in order to 'cement' the concepts and ideas, active members often need to practice individually, outside the forum. This means that learning is enacted outside of the community. This may provide an extension to our present understanding of learning **in** mediated/online environment. Perhaps a better metaphor is learning **via** mediated environment.

Q4: HOW AND WHY DO ACTIVE MEMBERS HELP?

Form the literature, we know that help:

- *Emerged from the duality of 'cost' and 'benefit'.* Humans were thought to behave according to cost-benefit calculation in which altruism was not explained. Help and cooperation were investigated through the mechanics of game theory, but left us with inconclusive, often problematic application in real contexts (Axelrod & Hamilton, 1981; C. D. Batson, 2011). Altruism was found to be influenced by two dimensions: personal (Ma & Chan, 2014; Chung *et al.*, 2015; Pai & Tsai, 2015), and/or context (G. Lee & Lee, 2010; van Leeuwen & Täuber, 2011; Paciello et al., 2013).

- *Is driven by motivation and greater involvement in a community.* Members of a community helped when he/she had a personal sense of responsibility (Hammond, 1999), when greater satisfaction was achieved by sharing with others (McLure Wasko & Faraj, 2000), and when they were influenced by a sense of identity and possibility of cognitive benefits (Butler *et al.*, 2007; Chuang *et al.*, 2015).

- *Depends on context.* Within this context, we have diverse moral values. DeSteno (2015) believed that humans have the capacity to be both altruistic and selfish, and this may depend on context. Based on our perceived judgment and moral, we position ourselves along the altruism and selfish spectrum, as a reaction to the context. Arguello (2006) highlighted the importance of contexts in determining probability of getting a reply, stating that the person, the question, the language, and the tone were all taken into consideration.

In GameSalad community, help:

- *Is driven by social obligation and the desire to sustain the community.* Active members were found to be motivated by moral and social obligation to help, as well as the idea that by helping, the community would become a better place for others. This can be seen in agreement with the wider literature that suggested helping to be driven from two dimensions: personal and context.

- *Creates and expand existing knowledge pool.* Help in GameSalad community was also seen as a way to push the shared knowledge pool further. This was possible by: 1) the availability of active members to provide assistance, and 2) the 'archived' discussion threads and exemplar projects. The 'archiving' of past threads and digital goods was a technology affordance that enabled the knowledge pool to exist. Discussion threads that had been worked out, were 'archived', until someone brought it up again, as possible fix to new problems.

- *Generates community norms.* Help had become a culture in the GameSalad community, in that one could expect active members to comment or provide assistance to him/her, given that the request was made according to several preferences i.e. that he/she had tried to solve the problem himself/herself, that he/she worded the request with a neutral tone, and that he/she behaved accordingly. Although it was not part of the forum rules, active members were most likely to provide assistance to members who adhered to these 'preferences'. This strengthens the focus on culture in the literature.

- *Is sometimes problematic.* Help was also found to contribute to a number of problems including the over-reliance of new members on assistance given

by active members, and that help, especially the ones that involved exchanges of exemplar project files, was seen unfavourably by certain members, as it provided a quick fix.

OVERARCHING QUESTION: HOW DOES HELP KEEP COMMUNITY ALIVE?

This chapter closes with the overarching question "How does help keep community alive?". To be honest, it is a clumsy question, but one that is needed to arrive at an understanding on the issue of help and how it affects online community participation in a more holistic way. 'Alive' is chosen as the subject of this discussion as it contrasts with orphaned/dead online communities in which there is very little visible interaction between members. An online community becomes alive when there is a buzz of activities, ideally from the interaction between members of the community and open to view using technologies and affordances of technology. The literature has provided several alternative words to which can be used to replace the word 'alive', such as active participation, active contribution, maintenance, and sustenance, but living community is a more apt description.

From one point of view, an online community that is alive has a functioning ecology that consists of members' participation and interaction, culture and norms, as well as shared repertoire of resources/knowledge linked to core purpose of the community. Each element plays its own part in keeping the community functioning, as well as supporting each others' function, an 'ecosystem of subcultures' (Rheingold, 1995), akin to a rhizomatic relationship between nodes of a

subterranean plant. Drawing on the stories of participation from its users, the state of 'living' has much to do with the spirit that members of the community collectively display. Literature tells us that part of living within an active online community is about the cultivation and assimilation of spirit and the sense of the community (Chavis & Wandersman, 1990; Rovai, 2002a) between members.

Online communities 'live' with a need to balance the barriers and catalysts to participation. They 'die' when there is not enough participation, and 'grow' when participation catalyses interactions and activities. Participation ties everything inside an online community together. In the case of the online GameSalad community, central to participation are the Helpers who make the community alive. These Helpers are the link between visions of online communities, and the issues of practicalities discussed above. Helpers play a pivotal role in determining the direction of the community. Despite having an important role, we know so little about them, and do not seem to have a definitive vocabulary to describe them. Other research studies have described them as gatekeeper, communicative learner (Hammond, 1999), volunteers (Butler et al., 2007), cybervolunteers (Krebs, 2010). However, Helpers is the term I prefer as it reflects a more prosocial dimension.

This thesis tells us that Helpers are individuals who are both extrinsically and intrinsically motivated to provide assistance to other members, who often take into account their availability of time, and their own expertise as well other contextual conditions before providing assistance, who profited (not necessarily materially) from transactions, and who are generally influenced by elements from both internal and external to the community.

Table 29: Description of Helpers.

Characteristics	Elements	Description
Motivations for helping	Extrinsic	Helpers are motivated by the desire to sustain the community, the outcome of helping, and the software.
	Intrinsic	Helpers are motivated by the spirit of community and identity.
Ways of helping	Adapt existing knowledge pool	Helpers refer to existing information, or to members with relevant expertise, when helping.
	Build shared artefacts	Helpers create resources to help others.
Benefits of helping	Learning	Helpers learn informally through exmaples provided by others.
	Identity	Helpers' identity and spirit of community are affected when giving help.
Limitations of helping	Internal	Problematic members made Helpers to be cautious when providing help.
	External	Managerial problems affect the tool, which in turn affect the Helpers.

Help and helping behaviour is contextual. It depends on the mood of the Helpers, but mood here is not an arbitrary feeling. It is defined by a set of conditions e.g. availability of time, expertise, and the attitude/behaviour of the asker. In terms of its numbers and spread, Helpers do not make up the majority of the members in the community. Though there is a certain dimension of personal benefits, Helpers are seen generally as behaving in an altruistic way in response to calls for help by other members - akin to a tradition, a norm in the community. Helping however, is not atypical behaviour. Ordinary members, those who were more oriented to the community's value, found themselves gradually taking up the role of Helpers, when they had acquired enough knowledge and information on the community and its practice, to start contributing. As seen earlier, there is a certain similarity here with

Lave and Wenger's legitimate peripheral participation (1991), moving from the periphery of practice (in this case, building mobile games and apps), towards a more central role of a Helper. The difference is that in the process of moving to the centre, members may acquire expertise outside of the community e.g. working on their own projects.

We now know how Helpers look like - their general disposition in helping others in online community, and their dependence on contextual elements in reacting to a cry for help. We also understand the context and situations that will most likely trigger interactions between the Helpers and other members.

At this point, it is interesting to compare help, with other studies. In a series of studies on volunteer and volunteerism in the offline world, Clary & Snyder (1999) exploration on the motivation behind the prosocial behaviour found similar threads as in this study. Help was given based on situational opportunities as well as the dynamics of person-to-person interactions. Thoits & Hewitt (2001) quantitative work to determine the connection between volunteering work with dimensions of happiness, found that prosocial behaviour was a product of personal well-being, and that reciprocity was expected over time. This is similar as Helpers in the GameSalad community sought to develop a positive image of themselves and thus help impacted on their standing in the community. In a similar vein, Wilson & Music's (1997)'s study of formal and informal help found that people of a higher status (in this case, ones who attained greater resources than others) were more likely to help. This matches Helpers in GameSalad, who had accumulated enough status in the community, in order to offer help to others. In a literature review by Smith (1994)

on the acts of volunteering (in charity institutions and organisations) and volunteer participation (general helping), the prosocial behaviours are based on five variables including context, social background, personality, attitudes, and situation, four of which (context, personality, attitudes, and situation) were found to be in accord with aspects discussed in this study.

In the field of behavioural psychology, findings for studies underlying prosocial behaviour also yield results that mirrors findings in this study. In particular, Pearce & Amato (1980) discussed and suggested that instead of focusing on the probability of help being given by bystanders, as psychologists had tended to do, there was a value in looking at how people took in the context in which the help occurs (P. L. Pearce & Amato, 1980). When looking at the general motivation of prosocial behaviour, Schroeder & Grazing (2015) offered a concept of duality in explaining the motivations of prosocial behaviour - distal, and proximal (p. 5-7). Originating from medical sciences, both distal and proximal refers to the position of something, relative to our body. In the case of motivation for prosocial behavior, distal motivation is taken as something that is external to ourselves, and proximal as internal to ourselves. While distal motivations explains the issue on an evolutionary biology point of view, this study echoes more on the proximal reasons for providing help. As with the findings in offline communities (for example C. D. Batson, 2011), the Helpers exhibited aspects of egoism, altruism, collectivism, and principlism.

Thus, as noted at the beginning of the thesis, online community is a 'mimicked' version of the offline community, and there is a possibility that online interactions inhibit some aspects of the offline world. The idea of helping is often discussed in

terms of identity as well as in terms of costs and benefits. Indeed, psychologists and evolutionary theorists often draw on cost and benefit analysis in the study of prosocial behaviors. This study contributes in a general way to understanding help, with an overarching conclusion that we are not *either* homo economicus *or* homo reciprocans, but capable of being both.

SUMMARY

This chapter presents the answers to the overarching research question of *"How does help keep community alive?",* and its four sub-questions. The chapter describes the kind of community that active members have helped create, the elements that have driven and constrained participation, the instances of learning and how it happens in the community, as well as the description and the motivation of help. It then offers the idea that, central to participation and community is the Helpers. It explains how help is shaped by 'contextuality' and interdependence within the community.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a conclusion of the thesis by providing a summary and recommendations for future research. It is organised into several sections: *explanation on how the thesis was organised*; *summary of the thesis and main findings*; *description of main contributions of the thesis*; followed by an outline of its *limitations, recommendations for future studies*; and ends with a *personal note*.

HOW THIS THESIS WAS ORGANISED

This document was divided into six chapters. Below is the summary of contents for each chapters.

CHAPTER 1.

Chapter 1 provided an introduction to the study, including a brief narrative on the history of networked interactions on the Internet as well as introducing the particular problem of participation in online communities, which this study was trying to address. It also mentioned a shift of focus in the study itself. This was followed by a description of my research interest, the background of the study with an explanation on the research problem, a presentation on the research questions, a narrative into the research context, as well as a statement on the significance of the study.

CHAPTER 2.

Chapter 2 provided a discussion of literature on three main topics that were related to this study i.e. community, participation, and learning. It touched on the

progression of community, from the pre-industrialised era, into the post-modern society, picking out some of the pertinent issues in the concept of community and online communities. The participation section covered a review of studies carried out on online community, an exploration on the importance of studying and understanding participation, a review of barriers and motivators of participation identified by various scholars in previous studies, as well as a review on the lurking in online sphere. It began the work of explaining and prosocial behaviour. In terms of learning, this section explored the informal – formal spectrum, as well as a discussion on incidental learning, legitimate peripheral participation, and participation as learning. These sections were followed up with a summary of methodologies often used in previous studies, and another section reviewing studies which were carried out into similar case subjects (online communities) as GameSalad in terms of its size and highly participatory nature. The cases were divided into two categories i.e. open and closed cases of online communities. Open and closed referred to the type of membership and access to the community.

CHAPTER 3.

Chapter 3 provided a detailed description on the methodology and methods that were used in the study. This included descriptions of research design, selection and the description of the case. It provided a statement on research population and samples, selection procedure and sample profile. This was then followed by a description on my role as the researcher, data collection procedures, and data analysis procedures. The coding of interview data was described as an inductive/deductive process and the stages of interview analysis covered in depth.

CHAPTER 4.

Chapter 4 presented the analysis and findings. Data were separated into qualitative and quantitative sections. The quantitative section presented analysis and findings from the online survey including an overview of the forum data derived from the document analysis. It also provided a description of the survey participants through the demographic data acquired in the questionnaire, followed by a section on analysis and findings from the twenty 2-point semantic differential scale items, and ten 5-point Likert scale items. This was, in turn, followed by a section of qualitative analysis and findings. This was organised around the key themes of **Help**, **Motivation**, **Outcome of Participation**, and **Problems and Restrictions**. The key findings suggested that Help and participation were driven by both extrinsic and intrinsic motivation, that help was often found in the form of manipulation of existing knowledge pool, as well as creating new shared exemplar artefacts, that Helpers had preferences for helping, that help had benefited both the community as well as the members. However, help could become problematic. Identity was found to be mediated by sense of community, social presence, and trust. Learning involved theoretical and practical knowledge, which in turn, resulted in increased game-development skills and personal benefits. Learning also became problematic by the over-reliance on help, and the difficulty of grasping advanced programming concepts. Tensions with the company were reported, as well as constraints on sharing knowledge.

CHAPTER 5.

Chapter 5 addressed the research questions, and ended with a longer section dealing with the main research question. The chapter presented the four sub-questions in

sequence: *What kind of community have active members helped create?; What motivates and constraints participation?; What and how do members learn?;* And *How and why do active members help?*. This was then followed by discussion of the main overarching question *How does help keeps community alive?*.

CHAPTER 6.

Chapter 6 presents the concluding chapter for the thesis. It has several sections, in particular, a description on how this thesis was organised, the summary of the thesis and the main findings presented according to research questions, a section on contribution this thesis has to knowledge, a discussion on its limitations and recommendation for future studies, as well as a section on personal reflection.

SUMMARY OF THE THESIS AND MAIN FINDINGS

This study began with a broad inquiry into the participative nature of Internet use as well as the instances of learning in online communities. Guided by a social constructivist lens into participation and learning, an inquiry into the phenomenon of help in the community was pursued. This inquiry set out to explore how 'help' keeps community alive, with four sub questions based around issues of participation, motivation, limitations, and benefits. The study was of an open online community of independent game developers, GameSalad.com - a firm-hosted online website that provided a tool for building mobile applications and games. GameSalad.com was an active community which enabled sharing of information pertaining to game development, and a site to seek and provide help. This study gave insight into the issue of participation, specifically the role of helping, as well as

insight into the informal learning that happens in an online community. A summary of the main findings for each research question is presented, followed by a concluding note on the main research question. As explained earlier, the study is especially concerned with the particular members of the community, whom I labelled as the 'Helpers'. This was a group of active members who provided assistance to other community members.

RESEARCH QUESTION ONE:

The first research question was "*What kind of community have active members helped create?*". Active members in GameSalad community helped create a place in which members and users shared ideas, best practices, and resources with others. They created shared knowledge, including threads and artefacts that were highly valued. The community was able to function and participation was largely sustained, benefitting both the GameSalad company and the community, in terms of product feedback and individual game development needs, respectively. Conversations were serendipitous, enabling a more fluid kind of interaction and participation between members. Coupled with the practice of helping among active members, the community was able to create and sustain a culture and develop norms around helping. It was also found that the community provided users and members the opportunity to develop a sense of identity, and this could be nurtured with and without direct participation. The community provided opportunities for learning, as a result of access to discussions, and shared artefacts.

RESEARCH QUESTION TWO:

The second research question was "*How and why do active member participate?*". Participation in GameSalad community was not as straightforward as portrayed in typologies and frameworks found in the literature. In addition to 'personal', 'interpersonal', and 'environmental' dimensions of motivation, this study found that members were also motivated by 'task-based goals', in which they were driven by the need to solve problems. Members were motivated by both instrumental and psychological benefits, augmented by identity and trust. Through participation, they built sense of community and perceived social presence through co-presence, mutual awareness, and visual cues.

Members were also found shuttling back and forth between active and 'passive' state of participation. They often switched from visible participation, for example, opening new discussion threads or leaving a comment, to the more covert type of participation - 'lurking'. Participation could become problematic at some points. There were many components of the community (company, community, shared knowledge and artefacts), and members had differentiated needs and practices, and as a result, tensions built around these elements. In spite of this, the community continued to exist, findings its own way of navigating through the tensions, and along the way, creating community norms that benefited aspects of participation in the community.

RESEARCH QUESTION THREE:

The third research question was "*What and how do members learn?*". The literature had suggested that informal learning sits along the spectrum of 'intentionality' and

'consciousness', yet GameSalad provided an exemplar case where both 'intention' and 'conscious' need for knowledge, existed in an informal, networked learning environment. Learning in this community was triggered by a perception of the value of the knowledge and resources. Learning in online community had often been investigated as an element that existed through participation, yet this community showed that learning might also be external to the community, as learning involved, to some degree, practical activities e.g. working on one's own projects. In relation to legitimate peripheral participation, learning in the community was seen as having various entry points into the community, and not restricted to be on the periphery of the practice and knowledge. Learning was also seen as personally beneficial.

RESEARCH QUESTION FOUR:

The fourth research question was "*How and why do active members help?*". Help was found to be driven by the psychological need to identify and support the community. Active members were driven by moral and social obligation, with the goal to contribute and sustain the community's knowledge pool. Help was also found to be an element that assisted in forming culture and norms around the community's practice, particularly in preferences for appropriately worded request.

MAIN RESEARCH QUESTION:

All four of the previous research questions were designed to build up on the main research question "*How does help keep community alive?*". As in Chapter 2, help is the 'glue' that holds the community together, without help there is no sense of community, sense of identity, learning, shared knowledge and resources, and trust, no community. The effect of helpers on the community is two-fold. Helpers

answered questions thrown by other members, and this made the community responsive to the needs of the users of the GameSalad tool. Helpers created a positive image of the community, and in return, members saw themselves as having a role in supporting, and identifying with the community, and benefiting through their interactions. The motivation to help was based on both personal and community needs. The process of helping included adaptation of the existing discussion threads and resources, and involved creating new exemplar project files. Helpers benefited with opportunities to learn, building stronger presence in the community.

CONTRIBUTION TO KNOWLEDGE

This thesis provided a number of contributions to several areas of research. In particular, it provided insight into an under-reported area of research, i.e. prosocial behaviour, especially helping behaviour in an open online community. There are a number of features which make the study distinctive in the literature, and of particular value:

- *Understanding help.* This study explains how online help looks like, what influences Helpers, how help is given, and what are the consequences of help. This is an underreported area and through this study, we now know a lot more. The prosocial behaviour found in this study has been studied in other contexts by social psychologists and accounts of studies in other fields have been useful. This study however, explored help within a different medium (open online community), and may inform the social psychology field, perhaps suggesting a more generalised understanding of help.

- *Research design.* This study employed a mixed method research design with a strong qualitative inquiry and triangulation processes. This increases the level of trustworthiness in regards to the findings. This thesis employed a rigorous process of data collection and analysis, combining the strengths of quantitative and qualitative data analysis into one research design. Specifically, this thesis used an innovative approach in triangulating the data between multiple sources, to ensure a high level of trustworthiness in reporting the findings. Triangulation is not of course entirely neglected in the literature, but it is rare and the thesis illustrates the opportunities and constraints in-depth. Previous research studies into participation in online communities have focused more on content, as well as document analysis, but this study provided another layer - narratives from the members in the community. Accessing members' perspective was crucial to understand the experience of participating and enabling the in-depth narrative of participation described earlier. A further methodological strength of the study was my prolonged engagement with the research site, taking into account my previous experience and membership in the community. Thus, I found my role as a researcher was more fluid than often reported, jumping in and out of emic and etic consideration.

- *Asynchronous interview.* This study provided some innovative accounts of carrying out interviews in an asynchronous medium, and they worked. My approach was inventive; in particular, the sequential looping of queries helped generate more in depth and flexible interaction as opposed to most

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interviews which are usually a one-off event. This type of interview is under used in the literature.

- *Resisting the romanticising of community*. Another contribution from this study concerns the idea of online 'community'. Romanticisation of community is understandable as we progress from rural community to the individualistic positionality in contemporary society. We want to carry the idea of 'community' in our social lives and in one way or another, we have managed to transfer community into the fourth dimension i.e. the virtual world. The over-romanticisation of the word has led to the problems of generalisation, especially evident within educational research. The GameSalad community was an opportunity to understand the idea of a community as a place to share ideas, resources, and knowledge; to build a sense of self, and trust; to learn and seek support; and to build connection. This community was held together by what people did, and by the people who were willing to help. But community required agency and responsibility, it is fragile. There are tensions and constraints. The urge to over romanticise was resisted.

LIMITATION OF THE STUDY

Despite the strengths of the study presented above, its has a number of limitations:

- This study was focussed on only *one online community*. This particular online community was:
    - o openly accessible and membership was optional;
    - o focused on a product developed by a company (GameSalad);

- o a hybrid community (organisation-sponsored, discussion-focussed, and community of interest);

- o based on a development tool rather than on academic context.

The question is how far these experiences may be generalised. My working assumption is that the findings are relatable. One can see the instances of helpers and helping behaviour in other online community, particularly in support websites for technical products (based on my first-hand experience searching the Internet for answers to web development and computer problems). However, more studies are needed to explore and refine the concept of online help.

- This study had a *small sample size*. Although the study utilised a mixed method research design, it only surveyed a proportion of members (n=110) and a smaller number of qualitative interviews (n=21). A bigger pool of interview participants would have enriched the study. In practice, the focus of the study shifted to the more active members, specifically those who contributed to the community in one way or another. This was entirely appropriate and in fact led to a particular strength. However, it did mean that I did not manage to investigate some aspects of participation such as lurking, though this was picked up in interviews to some degree.

- *Absence of face-to-face interaction*. The study was carried out entirely online. With more time and access, I would have visited the interviewees to carry out interview sessions in their home or office, to observe their physical

interaction with the community. I could keep a diary of these observations and look at where active members carried out their online activity. This could be another source, or another way of looking at how members learnt outside of the community. It would have enabled me to look at the process of putting into practice the knowledge they acquired online. These would strengthen the research design, as well as offering another form of data triangulation.

IMPLICATIONS AND RECOMMENDATIONS

There are a number of implications for key audiences and recommendations for future research direction. The implications and recommendations are addressed and presented below for 1) *users of online community themselves*, 2) *the Helpers*, 3) *the company*, 4) *those promoting online community*, and 4) *researchers* interested in the field:

- *For users of online community.* I will begin this section by addressing the users of online community. They have been rarely addressed in academic work, yet they are the reason studies like this are possible. If you are joining an online community, taking GameSalad as an example, take time to learn the culture and norms of practice in the community. This is important to know as it will enable appropriate participation later. Engage at the periphery of the community, if you are new to the practice, but if you know more, or considered well-versed with the practice, do not be afraid to show that you know it. Sharing your knowledge with others is elemental to the sustainability of a community. Yet, be sure to not come across as boastful or sound disrespectful. Mind your language.

Help in turn. If you have acquired skills through the assistance given by the community, do not forget to play your part in 'pay it forward' to others in need. Helping not only will provide you with the opportunity to appear as an authority of practice, you may also build your online presence, sense of community, and benefit from the network of individuals that you have helped. In doing so, you may also learn many things. For example, how to better deliver instructions to others, or how to create a successful teaching presence.

Yet, if you choose to help, do recognise that it should be a reciprocal relationship. Selflessness, though noble, is not a sustainable behaviour. You should be aware of the many benefits you can reap while helping others. In addition, be aware of the exploitation that might come, as the community grows and the company changes its policies, from offering free software with optional subscription, to more commercial offerings.

- *For the Helpers.* I commend these Helpers as they have an important role in building and sustaining the community. Through this study, I managed to understand where they came from, and the different stories of participation they offered me and this became the central tenet for this thesis. I would like to suggest that they keep on helping other people, inspiring others to participate and return the favour that they had once received. Helping is seen as the catalyst to participation, learning, and the community. Those becoming Helpers need to allow for understanding the needs of members, and remember that by helping and teaching others, you will have gained transferable skills of potential benefit in the long run.

- *For the company.* For a company that backs online communities such as GameSalad, my main recommendation is to be transparent. Engage with the community, express your gratitude of having such supportive community members, and accept tensions in the community and try to reduce them. Act on what you learn from the conversations in the community. In the long term, reward the community back with perks (such as free-subscription to your products), as this will encourage activities in the community, and will create reputational gains.

- *For those promoting online community.* For community managers and those who want to build an online community, start by accepting the idea that the community might not work. As evidenced in the literature, successful and sustained communities like GameSalad are rare, and there is no specific formula that can be the answer to the problem of participation in online community. Yet, what I have learned from the GameSalad community is that for a community to have a chance to be 'alive', support structure is needed. Support the community in any way you can. For example, appoint moderators, and give roles to other people. Nevertheless, sustained online community is not only about having a structure, but also accepting a degree of fluidity, for the community to grow. On top of this, activity in the community needs to be based on something tangible. Online communities are often driven by texts, and discussions about texts, but this may only push the interaction so far. A useful pedagogical principle is to promote problem solving as this triggers activity and provides relevance. On a further note, rewards such as badges, and profile pages can be helpful, and where appropriate, creditation of learning can be helpful.

- *For researchers.* For other researchers that are interested in this field, be clear that the field is well-researched, but there are gaps. Find a balance between the overly-romantic literature, and the panic, often pessimistic take on online environment, presented in the mass media. Know that the study of online world can draw on wider literature, and perhaps online participation is not so different to offline. Use creative methods in the exploration of your questions, and use mixed methods which in combination, may provide more trustworthy findings.

If you are interested in Help, you may want to look into these strands further, to better understand the phenomenon:

  o Is Help central to any other communities?

  o Is Help culturally mediated? Would Help in Asian countries be different from Help in the West?

  o Is Help tied to the affordances of technology? Will Help exist in the most basic form of communication/interface online?

PERSONAL REFLECTION NOTE

The journey has not been without its problems, yet it has served me as the best mentor that one could ever ask for. My pursuit for a doctoral degree in the UK was motivated by: 1) an academic pursuit to learn from the best, and 2) a personal desire to engage with the community, building networks, and tying bridges. My previous experience during MInstTech (UM, Malaysia) had provided me with a good background, and perhaps a taster for what was coming for the PhD, yet the degree of rigour and the independence of making (correct) choices had set me off to an exploratory adventure. As a researcher, this study has been an eye-opening journey, one that continues to challenge what I knew before, constantly forcing me to reflect on my own research skills. Perhaps it was part of honing the art of being a proper academic scholar - one that is reflective, thoughtful, and able. This study made me question my research positionality, my understanding of knowledge creation, my understanding of human interactions and its effects, and most importantly, questioning my ability to conduct a proper research study.

This study has shown me that behind every text found in online communities, there were individuals who came from diverse background, bringing together their experiences, ideologies, and belief system, into the online world where they leave artefacts for others to see, interpret, and interact. This study also gave me the chance to explore this underreported dimension of online sphere, leading to the discovery of Helpers and their contextual terms of participation.

Being an autodidact gave me the privilege of exploring research ideas, assisted by technologies, which have been my source of strength during the difficult times. Yet, I lacked the ability to express myself and my ideas, often resulted on frustration and numerous "I should have said like this" after-thoughts. It was either autism, or that I am an over-user of a grammar monitor. Which one is true, I do not know, but one thing for sure: it had made having a normal conversation an extremely difficult task. This is one of the reasons why I have always tended to find and join online communities, where I had the chance to 'speak' my mind, without the difficulties of a face-to-face interaction, which proved to be extremely valuable in my academic pursuit. In the event, I got to make the study of online community I am in as the focus of my PhD research.

Nevertheless, people around me have been very supportive. Firstly, without the assistance of my supervisor, Dr. Michael Hammond, I would not be able to complete the study. With his endearing support and patience, I came to understand how beautiful research studies could be, and most importantly, he gave me insight into how an excellent supervision looked like. This is among the essential incidental knowledge acquired through our participation in this research study, which will stand in good stead for my future supervisee. Next, the other doctoral researchers in the Centre for Education Studies, who had been a tremendous source of motivation and assistance, and through them that I learned that PhD should not be experienced alone. It was a shared practice, one often found the experience relatable with other students, although their research studies were of different nature and purposes. Akin to the online community under study, this network of supervisor and fellow doctoral researchers reflected the helping phenomenon, in that there were social

actors within the group that helped other students when they requested assistance, often times without expectation of a return in favour. And I am pretty sure that if the cry for help was seen as invasive, inappropriate, or harsh, none of the doctoral researchers would lend a hand. This is a study of help in theory and in practice.

"If I have seen further, it is by standing on the shoulders of giants."
- Sir Isaac Newton.

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APPENDIX A: ONLINE SURVEY

Online Community Experience

Part 1. Demographic Information

1) What is your sex?*

( ) Male

( ) Female

2) What is your highest level of qualification?*

( ) No schooling completed

( ) Primary school

( ) Secondary/High school

( ) First Degree

( ) Postgraduate Degree

( ) other: _____

3) Are you currently....?*

( ) Employed for wages

( ) Self-employed

( ) Out of work

( ) A homemaker

( ) A school student

( ) A university student

( ) Retired

( ) Unable to work

( ) other: _____

4) How long have you been a member of this community?*

_____

5) I log into this community...*

( ) Rarely e.g. once a week or once a month

( ) Sometimes e.g. twice a week

( ) Often e.g. more than twice a week

( ) Everyday

Part 2. Online Community Experience Questions

Select the option that better fits you.

		I am…		
		More like this	More like this	
6.	I like to find answers to problems from the community			I like to solve problems by myself
7.	I feel I can trust people in this community			I do not feel I can trust people in this community
8.	I expect to be part of this community for a short time			I expect to be part of this community for a long time
9.	I like to help other users in solving problems			I feel other users should work harder to solve problems by themselves
10.	What I have learnt in this community is useful for study/work			What I have learnt in this community is not related to my study/work
11.	I do not value other people's point of view			I value other people's point of view
12.	I need to make an effort to fit into this community			I do not need to make effort to fit into this community
13.	I log into the community just to look at other people's work/post			I log into the community to present my own work and ideas
14.	I use the community to advance my understanding of the product (GameSalad software)			I use this community to advance my understanding of gaming in general
15.	Comments I have made are acknowledged by others			I do not feel that my comments are acknowledged by others

Part 2. Online Community Experience Questions (Cont.)

Select the option that better fits you.

		I am…		
		More like this	More like this	
16.	I use the forum to get to know other people			It is not important for me to get to know other people
17.	I care about what others think of me			I think it is more important to offer my view than consider the feelings of others
18.	I think other people in this community have different goals and needs			I think that other people in this community share the same goals and needs
19.	I feel that my queries have yet to be answered			I feel that any questions I have raised have been answered
20.	I do not think that this community has helped me to be a better game developer			I think this community helped me to be a better game developer
21.	I feel a little bit uncomfortable asking for assistance			I find it easy to ask for assistance in this community
22.	This community makes me feel good for helping others			This community does not do enough to make me feel good for helping others
23.	I feel strong attachment to this community			I don't really feel connected to this community
24.	I feel that we could use a little bit more support from the moderators			I feel that moderators have done a good job
25.	I feel that being a member of this community is part of my identity			I tend to separate my online and offline identity

Part 2.1 Forum Experience

26. I am stimulated to do additional reading or research on topics discussed in the forum

 ( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

27. Comments on the forum are impersonal

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

28. I am able to get a clear picture of some of the forum users

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

29. Engaging in GameSalad forum is not a rewarding learning experience

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

30. I hope to attain a higher status in the community by participating more in the forum

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

31. I feel that I am able to contribute to the community

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

32. I usually join the discussions when I know I can contribute something

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

33. I like to connect with other users outside the forum

( ) Agree Strongly   ( ) Agree   ( ) Uncertain   ( ) Disagree   ( ) Disagree Strongly

34. I see other users as potential rivals in this industry

( ) Agree Strongly () Agree () Uncertain () Disagree () Disagree Strongly

35. I carefully reflect on what I post

( ) Agree Strongly () Agree () Uncertain () Disagree () Disagree Strongly

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Part 3. Opt-in for further discussion

I want to know your story.

If you want to share some of your experiences being a member of this community, please fill in the form below. Your assistance in this study will greatly push our understanding of online community experiences.

GameSalad Username:
_____

Email Address: _____

Have anything to say about this survey?

_____

_____

_____

_____

Thank You!

Appendix B: Sample interview questions

A lot of the questions are highly contextual, based on the conversations I had with the interviewees. Of course, this list is not exhaustive:

- Can you tell me, how long have you been a member of GS, and what started it all?
- What do you usually use GS forum for?
- Do you use the forum for any other purposes/ in any other way?
- How did other GS members react to your tutorials?
- You have spent a great deal of time, money and effort to learn the software and to figure out how to solve problems, so why help others with their problems?
- How frequent do you use the GS forum?
- When you look at the forum, do you have any preference in choosing who you help, and who you don't?
- As a moderator, how did GS members react to your posts, replies, announcements, advises?
- You're not getting payment for your service from GS, so why volunteer?
- How do you perceive your presence in the forum?
- Do you care about how others 'see' you, or think of you in the forum?
- What is it about being 'liked' in the GS community that makes you want to participate more?
- When you've spotted someone in need of help in the forum, did you feel compelled/ responsible to help him/her?
- When replying/helping other users, were you aware that there might be others who may be able to help them too?
- So, if you know that there are other who might also be able to help other users, then why did you provide the help?
- In a forum like this, how do you learn from other people, and how to you manage your learning?
- So how would you value the posts/threads in the forum? What determines the value?
- How do you establish trust with other users? How do you know that a person is trustable?
- What do you get out of your participation (or non-participation) in GS forum/community?

APPENDIX C: SAMPLE OF INTERVIEW TRANSCRIPT

Me	Hi F! Hafiz here. I truly appreciate your participation in the survey recently [URL], and would like to thank you for your willingness to share some of your experiences with me. This is a follow up interview for those who agreed to be contacted after the survey, and you are among the selected few. In this interview, I would like to know your story; about your participation in the community, what started it all, contributions, etc2. Please indicate if you are comfortable to continue with this interview. You reserve the right to opt out anytime during this interview.
F	I can't guarantee the speed of my responses, but sure. I would ask though that my answers are anonymised, however.
Me	No problem, as I will also jump in and out of GS, and push other questions from time to time, so responses are expected to be asynchronous :) Anonymity is a must in my line of work. So, please rest assured. Any statement/quotation taken for publication will be anonymised and names will be changed. Is that okay?
F	That's fine :)
Me	Awesome F. So, to start things off, can you tell me, how long have you been a member of GS, and what started it all?
F	I signed up for GameSalad very shortly after it came out, back in March 2009. Although I wasn't particularly active for the whole period, I'm one of the longest-standing members of the GameSalad community. However, for the first couple of years I didn't get involved in the community at all, so there are members who have "been here" longer than I have, even if I signed up well before them. I played around with the software a bit, realised it couldn't yet do what I needed it to and forgot about it. I checked back in with it every 6 months or so for a couple of years, and lurked on the forums, until the point it had implemented all the features I needed to make the project I had in mind. My first iOS release I made in Xcode, but it's long-defunct now. I started with/stick with GameSalad for two reasons really. I like that it's logic driven, and making it do what I want it to is often a fun puzzle. It's when GameSalad doesn't have an easy way of doing something that I enjoy it the most. But primarily, due to arthritis in my hands I cannot type as much as "real" programming requires, so GameSalad suits me really well. I get to solve and create without having to knacker my fingers out typing 100,000 lines of code. While I was practically bed-ridden and in massive amounts of constant pain it also helped keep my mind active and provided me with a good distraction that didn't involve me physically doing much. Luckily that period is passed but GameSalad was a great help in getting me through it! So I guess what started it all was the confluence of my health going downhill and a piece of software being created that still lets me create games.
Me	Wow. This is truly inspirational. You didn't let your health to be a reason to not being productive! I'm glad that you have recovered. I truly am :) You've mentioned about lurking on the forums while the software is being developed. Do you still lurks nowadays? Or have you started engaging with others?

F	I'm a pretty consistently active member of the community these days. Once I got going I got well involved :D I've helped a lot of members, caused more than my fair share of arguments, and generally been around. I racked up about 1000 posts in the past year of active engagement. I make a lot of little demos in response to people's questions and compile some of my little experiments and demos into a thread here:

[URL]

I'm far from the most active member on the forums, or the most helpful member, or the most prominent member, but I'd say I'm reasonably well known now and visible. I love finding questions people are asking that present a problem I can spend 10 mins working out the solution to. I love puzzles!

Most of my work with GameSalad, though, is commissioned. So although I have probably a dozen or more games on the app store most are not visibly linked to me and I don't get to announce them or show them off. |
| Me | That is a very resourceful thread! Bookmarked it! :)

So, in all of your engagement with GS forum users, how did they react to your posts and replies? |
| F | Well, I can be fairly... argumentative. I particularly dislike two things on forums - when people constantly blow their own horn and when they bully others. I've ended up in fairly heated debates when calling people out on both issues. I've also butted heads several times with the forum staff over policies they have in place that I think are absolutely absurd.

I'd say about 50% of the people I post answers or example projects for take the time to reply, mostly with gratitude, which is okay in my opinion.

On the whole though it's a very friendly and supportive community with a lot of members who give generously of their time and provide each other a lot of encouragement. It's not the best forum I've been a part of, in that regard, but it's in the top tier.

I've probably not had any negative reaction to a post that I didn't make wilfully confrontational. At least not that I recall off-hand. |
Me	You have spent a great deal of time, money and effort to learn the software and to figure out how to solve problems, so why help others with their problems? And to what extent do you normally give aid to them?
F	Well by vocation I am an educator, and after having to give up work due to ill health it's nice to be able to still dabble a little in helping people learn. If I'm completely honest, though, it's mainly that I love the puzzles. If a question is simple I might just give an answer, but normally I look for any excuse to provide a sample project that demonstrates what they're after.
Me	i see.. How do you perceive your presence in the forum?
F	Appreciated by some, disliked by others. Generally helpful.
Me	Do you care about how other users 'see' you in the forum?
F	Only in so far as it affects my ability to get client work.
Me	I see.. so, for example, when you are replying to or joining a conversation, do you choose your words carefully, or you just say it straight to them?
F	I will argue fairly freely, but sometimes I'll stay out of a discussion with client work in mind. However, I am not normally inclined to insults or incivility, so it's not usually a big concern. I do love a good debate, though.
Me	Hi F, sorry for this really late reply. Had some trouble with my Internet connection here.

What do you mean by "stay out of a discussion with client work in mind"? Are you saying that your clients are members/users of GS too? |

F	Sorry apitlekays, your last message got lost in a deluge of notifications.
	Yes, I seek work on these forums, making games for people using GameSalad.
Me	No need to apologise. I understand :)
	If we compare between 'F' in the forum, and 'F' in real life, how different/similar he/she would be?
F	Pretty similar. On the forums I'm mostly kind and helpful and generous with my time but also argumentative and quick to call someone out if I think they're being a... unpleasant person. In real life I'm pretty much the same, except perhaps even more argumentative. On and offline I temper myself when employment is concerned, though.
Me	I see.. F, have you had any experience dealing with difficult situation between members in GS?
F	I've rubbed some people up the wrong way but nothing serious. Nothing's ever got to the point of angry PMs or anything like that.
Me	What was the nature of the conflict?
F	Well there is one member whose attitude really rubbed me up the wrong way. Constantly pontificating and writing nonsense and putting people down to further inflate his own ego. I took issue with this on several occasions and we exchanged some mildly heated posts. Nothing overly serious, though. He is less arrogant and condescending now, so I've not felt the need to challenge him recently.
	Then there's things like this: [URL]
	I collect my stuff in this thread: [URL]
	but each thing posted gets about 1/10th (literally) the views they had when posting individually.
	(I eventually reached a compromise with the mods whereby I'd have that image at the start of my thread which I can update without needing the mods, and they'd copy each new post into the compilation of the first post for me. It's a crappy compromise, but it's better than these things sitting on my hard disk unused.)
Me	I see.. this is a recurring issues based on responses from others. I am interested to know what users do/did when presented with such barrier to the sharing of knowledge. This might prove to be a very interesting study :)
	How many do you think is affected by this rule?
F	Well what I did, as you'll have seen from the link, was bitch and moan :P I'd say that there are probably about half a dozen users who are seriously affected by this particular rule - who would regularly post new things to share for free with the community. There are also 2 or 3 people who own 3rd party sites that would use such posts offering freebies to promote their sites.
	Ultimately, everybody is affected by the rule, though, as far, far, far fewer people see the things being shared, and when people search the forums they are less likely to find what they are looking for.
Me	Hi F,
	Sorry for this really late reply. My father was admitted to the hospital, and I took a time off to help him at the hospital. I've sent a message to all my research participants notifying this, but I guess I missed you. I am so sorry..
F	No problem at all, hope all is okay with him. Absolutely no rush! My thoughts are with you both.
Me	Aww.. thanks F! :) He's fine now. Back at home. I can now focus on my research again.

	I notice in the thread you gave me, it was quite a quarrel among members and moderators. Related to that incident, what would you say about acknowledgement and respect in this community?
F	I think the moderators have put together and defend some very unreasonable and indefensible rules, but that some members are unjustly accusatory and place blame for things out of their control on the moderation team. There are clearly two or three moderators who do all the actual work, though, and two or three that seem to do effectively nothing. These aren't particularly big or busy forums and yet they seem to be moderated very, very inconsistently.

A big problem that my thread touched on but I tried to avoid getting specifically into is that there was and to a lesser extent unquestionably favouritism at play. There are some people who were/are effectively untouchable, and rules have never applied to. There is definitely a little unofficially, perhaps even unacknowledged little club of the "top" members, the guys who have been here a long time and know each other well. They are, however, also the most helpful members on the forum who give very generously of their time, so generally I've had no problem with it. Such groups form, either consciously or unconsciously, on all forums.

There are a couple of moderators who are very definitely aware of the effect the rules have on some members, and are always entirely professional and genuinely seem to be interested in helping make the forums a better place. Others, not so much. One thing that I always speak up about when I see is bullying - either subtle or obvious, and I've had to call out at least two moderators for getting involved in what, to my eyes, have been incredibly unhealthy and frankly mean threads. If I was put in charge of the forums I'd make a swathe of changes to both the rules and the moderator staff.

All that said, these are incredibly helpful and generous forums where many people, moderators and non-moderators alike, give enormously of their time, and the general tone and manner of the members is almost without exception friendly and polite. I've been on better organised and run forums, and I've been on forums that are more fun or exciting, but I've never been on forums with the same level of supportiveness or helpfulness as these. The rude, sarcastic or unfriendly person is the rare exception, never the rule. Even the person who used to annoy me endless with his lecturing and pontification and eternal blowing of his own trumpet has settled down now (after, I like to think, me calling him out on it repeatedly). They're good forums, with good people. |
| Me | From your explanation, a particular theme emerged: equality and exclusivity. Do you think this forum has issues with equality and exclusivity? |
| F | No more so than all forums or groups. It's not totally free from it, though. |
| Me | i see..

Do you see other users as your competitors? |
| F | No. I'm not competitive in general and there's much more of a sense of "we're all in this together". In a good way. |
| Me | Nice :)

How do you distinguish between the newcomers, and the oldtimers in the forum? |
F	I'll make (sometimes unwarranted) assumptions based on post counts and join dates, but mostly it doesn't matter much. It's a distinction I rarely have to make.
Me	If the duration of membership does not matter to you, how do you distinguish users in the forum?
F	Assuming you mean beyond their name and avatar, their attitude and, if they're asking a question, things like "Do they use passable spelling and grammar (or speak English as a second language)?" "Do they explain their question clearly?" "Do they respond politely to answers?" "Do they post the same question in 10 different threads?", things like that.
Me	i see..

		How would you describe your relationship with the long-standing users of the forum?
F		Although I'm one of the oldest members (I think there are literally one or two people still on the forums who signed up before me), I've not been active for as long as some of the real "heavyweights". I've developed generally positive interactions with most of the recognisable names (with one notable exception), but I'm sure there are a few who I've annoyed but are too polite to say so.
Me		As one of the long-standing, active users in the forum, you must have seen quite a lot. How is the dynamics between the Pro and the non-Pro users?
F		I think the fact that there are Pro-only forums that are almost never used (and most often when they are used, are used by mistake), shows there really isn't a big divide between Pro and non-Pro users. Some of the most active contributors to the forums are non-Pro members. I've never really seen any active discrimination going in either direction.
Me		Back to the issue of equality and exclusivity, in relation to the Pro and the non-Pro scene in GS forum. What can you see?
F		Pros get a badge next to their name, non-Pros don't. That's really as far as it matters to me, and I think most people.
		The proportion of... frustrating posts by frustrating users (e.g. 10 threads on the same topic, repeated questions that have already been answered in the previous response etc.) is higher in the non-Pro segment of the community but it doesn't really matter.
		It's not really an issue that's ever been on my radar.
Me		F, do you trust other GS users in the forum?
F		Well I wouldn't lend them money, but sure. No particular reason not to.
Me		How do you know that a user is 'trustable', and how do you develop trust in the GS forum?
F		I assume trust, and assume they are trustable unless given reason to think otherwise.
Me		How do you see others in the forum? (which part of them that you paid attention to when trying to understand them?)
F		This is the kind of community where there's so little to be gained by being deceptive that there's no benefit in assuming people are dishonest.
		How I see others in the forum is far too wide a question to easily answer. Mostly I see people as either people I can learn from, general members, or people who have posted unpleasant things and who I would generally ignore. I can't say I've ever tried consciously to understand other members, it sort of just happens or doesn't.
Me		Yes F, understanding others would normally come as an automatic response/action, i.e. we tend to subconsciously 'judge' others, and i am basically trying to understand how online users 'see' others in a mediated environment, how they 'judge' others, as how a person would judge others in a face-to-face environment. The absence of so many things in a mediated environment makes it difficult, yet interesting at the same time. So far, I am really very happy with the responses I received from the interviews and hope that you and others who I am interviewing aren't too bored answering my questions :)
F		I'd say I mostly judge others based on their spelling/grammar/general literacy, as well as how they respond to others. I'm much more judgemental in face-to-face environments, if I'm honest, but then there's much more to judge based on, as you noted.
Me		So language literacy is one of the elements you observe. Interesting.
		What happen if, let say, there's a user in GS forum, who is not really fluent in expressing his/her ideas across because of language barrier (e.g. English not being the native language), but has a great working knowledge of GS?
F		I draw a firm distinction between someone who speaks poor English due to lack of effort

(text speak etc.) and someone who speaks poor English due to it being a second language. I'll instinctively judge someone based on the effort they put into what they write, but I won't treat them differently because of it.

You can almost always tell between someone who isn't expressing themselves clearly due to a lack of effort and someone who isn't expressing themselves clearly due to poor English skills.

APPENDIX D: THE 87 CODES

self learning from videos, experimenting, forum
forum as another source of info
seen as knowledgeable
status claim
aware of learning preference
a community within community
shared knowledge on external sites
contribute to community
sense of responsibility
spend so much to help but expect none in return
giving back
lack of credit from newbies
problem with knowledge management - almost no documentation
problem with company - lack of communication
community-led experiments/trials
presence of an 'era' in the forum
less real relationship in the forum nowadays
users are less studious in learning
presence of a separate group in the forum
less 'hang out' than before
users being too helpful will stunt learning
low literacy due to reliance on other's help
shared knowledge on external sites
knowledge spread through: personal mention & forum answer
lack official documentation of the software's features
community now more of a consumer rather than creator of knowledge
importance of old-timer in retaining knowledge
knowledge creation by community, not by company
aware of learning preferences
learning through videos
has the knowledge and capacity to provide aid/help
pay it forward
aware of what other people needs
people thanking keeps him going
aware of what others might perceive him/her
desire to be respected because level of knowledge
satisfied if able to help other people achieve goal
expect respect from close forum users
can differentiate users in the forum: peers, students
help users enough so that they can grow from that help

aware on the levels of work other users have put before asking for help
prefer to help when the user has put enough effort before asking for help
help by pointing related resources
adds encouragement to users apart from helping them
able to differentiate users because of prolonged engagement
have been reading forums daily and produced over 6000 posts
forum - information gets buried fast
able to differentiate users by the way they express their issues
connect with other users outside forum: skype
busy with real life - reason for less active in the forum, enough time to focus on answering questions
no difference between 'Pro' and non-'Pro' users, just a label
serious users take game development seriously
close users see forum as pay it forward
they were helped by veterans of the forum, so would like to return the favour
prefer help to those who showed effort
issue of idea theft in the open forum
do not trust the users completely
trust gained via prolonged engagement
trust gained via engagement outside forum, strengthen by visual communication
established prolonged contact through commission work
visual communication support trust building
trust takes time to form
forum becoming impersonal space - they just want answers
they see forums as support team, rather than a community
building app = building business: is one of reasons to interact in the forum/community
forum as place to seek help, not forming relationships
generating gap: making communication hard/challenging
forum users retention depends on their interest in the practice
comfortable to use real name in the forum
forum users don't like honest comments
newcomers see honest comments as negative
users avoid confrontations at the expense of honesty
honest feedback is important to improve practise/products
when honest comments perceived as negative, refrain to give one, just focus on helping
problematic software
newcomers are more sensitive of criticism
other users act as shield towards someone who appears to be forward in his comments
bullying in forum against users who are honest
bullying affects participation: avoid giving honest comments
believe that knowledge is to be shared - obligation
will mention other's name to provide extended support
identity is fixed once it is established and accepted by general public

name doesn't matter when identity has been established
a lot of effect put to create knowledge
knowledge should be presentable
maturity in communication creates opportunity for a balanced argument
respect towards knowledge created by the individuals ties the relationship

APPENDIX E1: CODES AND CATEGORIES

Shared Knowledge	Participation					
	Frequency/Type	Learning	Helping	Motivation/Purpose	Problems	External Contact
OPEN CODING CODES	**OPEN CODING CODES**					
forum as another source of info	less active earlier	self learning from videos, experimenting, forum	spend so much to help but expect none in return	people thanking keeps him going	less real relationship in the forum nowadays	connect with other users outside forum: skype
shared knowledge on external sites	lurking on the forum until tool ready	aware of learning preference	help users enough so that they can grow from that help	satisfied if able to help other people achieve goal	less 'hangout' than before	link between real profession and gs
problem with knowledge management - almost no documentation	arguments with others	users are less studious in learning	help by pointing related resources	desire to be respected because level of knowledge	community now more of a consumer rather than creator of knowledge	
community-led experiments/trials		users being too helpful will stunt learning	adds encouragement to users apart from helping them	expect respect from close forum users	busy with real life - just focus on answering questions	
knowledge spread through: personal mention & forum answer		low literacy due to reliance on other's help	prefer to help when the user has put enough effort before asking for help	were helped by the veterans, so would like to return favour	forum becoming impersonal space - they just want answers	
importance of old timer in retaining knowledge		learning through videos	close users see forum as pay it forward	pay it forward	they see forum as support team, rather than a community	
knowledge creation by community, not by company		have been reading forums daily and produced over 6000 posts	prefer help to those who showed effort	has the knowledge and capacity to provide aid/help	forum seen as a place to seek help, not forming relationships	
forum - information gets buried fast				giving back	generation gap: making communication hard/challenging	
issue of idea theft in the open forum				contribute to community	lack of credit from newbies	
				building app = building business: is one of reasons to interact in the forum/community	tool not ready	
				love solving problems		
				physical disability. tool is easy to use.		
CONCATENATED	**CONCATENATED CODES**					

CODES

Issues of Shared Knowledge in Forum (SK.Issues)	Less Active Earlier (Frequency: <)	Autodidactic (L: Auto)	Types of Help (H: Types)	Extrinsic Showing Appreciation (M: Ex.Appreciate)	Sense of Community (Problem: SoC)	Connect Skype (C:Skype)
Source of K (SK:Source)	Type - Lurking (Frequency: Lurk)	Preference (L: Pref)	Preference (H: Pref)	Extrinsic Respect (M: Ex.Respect)	Communication (Problem: Com)	Job Links to GS (C:Job.Links)
Knowledge Management (SK:K-Manage)	Type - Arguments	Problem (L: Problem)		Demotivation (M: Demotivate)	Limited Time (Problem: Time)	
				Intrinsic (M: In)	Lack of Credit (Problem: Credit)	
				Reasons for Helping (M: Why)	Knowledge Building (Problem: K-Build)	
				Reasons to Participate (M: Why Participate)	Problematic Tool (Problem: Tool)	

APPENDIX E2: CODES AND CATEGORIES (CONT.)

Community				Company
Trust	**Identity**	**Structure**	**Sense/Presence**	**Company**
OPEN CODING CODES				**OPEN CODING CODES**
do not trust the users completely	seen as knowledgeable	there's a community within community	sense of responsibility	lack of communication
trust gained via prolonged engagement	status claim	presence of an 'era' in the forum	aware of what others need	lack of documentation
trust gained via engagement outside forum, strengthen by visual communication	no difference between 'Pro' and non-'Pro' user other than having access to extra functionality in the tool	presence of a separate group in the forum	aware of what others might perceive him/her	confrontation from users
visual communication support trust building			aware of the level of work other users have put before asking for help	
trust takes time to form			able to differentiate users in the forums: peers, students	
			able to differentiate user by the way they express their issues - based on terminology and complexity of the problem/issue	
			aware of other's presence	
			aware of others behaviours	
CONCATENATED CODES				**CONCATENATED CODES**
Trust: Time (T:Time)	Identifiable by Status (I: Status)	Group Within Group (S:GWG)	Identifiable Users (SP:Identify U)	Communication (Comp: Comm)
Trust: Visual (T:Visual)	Identity Based on Level of Expertise (I:Expert.Lvl)	Different Era (S:Era)	Identifiable Effort (SP:Identify E)	Documentation (Comp: Docs)
Trust: State of (T:State)			Identifiable Needs (SP:Identify N)	Confrontation (Comp: Confront)
			Aware Perception Others (SP: Aware)	
			Responsibility (SP: Responsible)	

APPENDIX G1: 1ST INVITATION TO PARTICIPATE IN ONLINE SURVEY

Invitation to be a part of something awesome. ☆

apitlekays MEMBER ⭐ Posts: 63 Coventry, United Kingdom

in Miscellaneous   May 2014

Hi all. My name is Hafiz and I am a doctoral researcher at the University of Warwick, United Kingdom. I am also a member of this community, under the alias 'apitlekays'. My work is looking at the nature of participation and interaction in online communities. This survey is a part of a pilot study for my research.

The link to the survey: http://goo.gl/JN7Zar

About this survey:
The main part of the survey consists of 30 questions. I am asking about your experience as a member in this community, and what you get out of it. There will be an option for you to opt in for a further discussion at the end of the survey. If you can do that, I'll be more than pleased to talk to you.

A note on anonymity and participation:
If you choose to participate, your identity will not be revealed. It will be anonymised, your username will be replaced with another pseudonym, for the purpose of data analysis. You can opt out if you feel uncomfortable.

Completing the survey will take about 5 to 10 minutes. If you have any questions about this study, please contact me at **m.h.md-hanif[at]warwick.ac.uk**.

I would be more than happy to share my survey findings with the community, once this study is completed.

Dat GameSalad Research Guy 😊

⚑ Flag ❝ Quote · 👁 Insightful ☺ Agree 👍 2 Like ♥ 1 Awesome

APPENDIX G2: 2ND INVITATION TO PARTICIPATE IN ONLINE SURVEY

Invitation to be a part of something awesome – Part 2 ☆

apitlekays MEMBER   ★ Posts: **63** Coventry, United Kingdom

in Miscellaneous   edited January 2015   January 2015

Hi all!

I am a researcher from University of Warwick, United Kingdom, and have been doing research in this forum from July last year. Like you, I am also a GameSalad user, and I am interested to know what makes this community ticks. **This 'Part 2' survey is NOT A CONTINUATION of the** previous survey, **it's actually the same. For Part 2, I am targeting those who haven't had the chance to join/complete the survey, to be part of the discussion.** So if you haven't answer the survey, or didn't manage to finish it last time, please take part in this study.

I have been interviewing a number of user here, and it is an awesome experience to get to know them, their side of the story, and to understand how they see and value this community. I welcome all users, not only the seasoned developers, but also those who just signed up in this forum as a member! If you really like this community (or if you don't, I'd be glad to know your side of story too!) come join this study! **The survey will only take 5-10 minutes of your time.** Of course, your identity won't be made public. **All your responses will be anonymised**, and in the case of reporting the findings of this study (yes I have to report the findings because this is my PhD study, had to put something in the thesis, right ☺) your **username will be replaced with another pseudonym.** And yes, **you can opt out from the discussion/this study if you feel uncomfortable.**

Here is the link to the survey:

click Here!
to take part in the study!

If you have any questions, feel free to contact me at **m.h.md-hanif[at]warwick.ac.uk**

Dat GameSalad Research Guy 😆

⚑ Flag ❝ Quote · 👁 Insightful ☺ Agree 👍 **4** Like ❤ **2** Awesome

APPENDIX H: SAMPLE OF SUBMITTED INFORMED CONSENT

1. (untitled)

The Study of Participation in an Open Online Community

Interview Informed Consent Form

This study explores participation among the active members of the GameSalad community - an open online community independent game developers. This study seeks to understand what and why members do what they do in the online community. This interview is part of several other methods to collect data from the community. This study has acquired ethical approval from the University of Warwick ethics committee.

1. Please tick each box to indicate agreement.

	Please Tick Here
I confirm that I have understood the purpose of this study and have had the opportunity to ask questions.	X
I understand that my participation is voluntary and that I am free to withdraw at anytime without giving a reason.	X
I understand that all the information I provide will be treated in confidence.	X
I agree to be quoted, and screen-captured, and for them to be anonymised to be used as part of the research project.	X
I agree to take part in the research project	X

2. Please leave your signature here

Signature of:

3. Date of today

16/05/2015

2. Thank You!

Thank you for completing this informed consent form. Thank you very much for your participation in this study :)

Response ID: 14

Survey Submitted:	May 16, 2015 12:52 PM
IP Address:	░░░░ ░░░░░
Language:	English (en-US,en;q=0.8)
User Agent:	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/42.0.2311.90 Safari/537.36
Http Referrer:	http://forums.gamesalad.com/messages░░░░░
Page Path:	1 : (untitled) (SKU: 1) 2 : Thank You! (SKU: 2)
SessionID:	1431795142_555775c68be2a2.95723162

Response Location

Country:	United States
Region:	CA
City:	Novato
Postal Code:	░░░░
Long & Lat:	Lat: 3░░░░░░░░░░, Long:-░░░░░░░░░

APPENDIX I: FINDINGS FOR ONLINE LEARNING RESEARCH

Aspects	Community Building		Learning Processes		Participation
Aspect of participation	Concept of learning community	Sense of community, & Social presence	Learning styles, Pedagogy, & Assessment	Workplace Learning	Typology, Theory, & Factors of Participation
(Santos & Hammond, 2007)	*Provided an identification of a type of learning community.*				
(Hill & Raven, 2000)	*Outlined strategies to enhance learning in web-based instruction: atmosphere, foundation, communication, and technology*				
(Rovai & Jordan, 2004)		*Found that blended-learning instigate a stronger sense of community than traditional or fully online courses.*			
(Miyazoe & Anderson, 2011)		*Found that using anonymity in blended-learning encouraged participation online.*			*Found that using anonymity in blended-learning encouraged participation online.*
(A. Harris, Jones, & Baba, 2013)		*Exploring differentiated leadership roles in online collaborative learning*			
(Gray, 2004)		*Telling stories helped to construct individual as well as collective identity.*			
(B. Anderson, 2004)			*Students behaved according to dimensions of online learning found in the study.*		*Students behaved according to dimensions of online learning found in the study.*
(Sun, 2014)			*Outlined 6 difficulties: following schedule, group work, collaboration, engagement, motivation, and socializing.*		
(Ng & Nicholas, 2010)			*Found the potential of using online learning for gifted students across countries.*		
(Shukor, Tasir, Van					*Developed predictive model of engagement in online learning.*

Aspects	Community Building		Learning Processes		Participation
Aspect of participation	Concept of learning community	Sense of community, & Social presence	Learning styles, Pedagogy, & Assessment	Workplace Learning	Typology, Theory, & Factors of Participation
der Meijden, & Harun, 2014					
(Thorpe & Gordon, 2012)				*Found online space to be complementary to offline and not a substitute.*	
(Lynn Thompson, 2011)		*Attempted to re-create learning online but not always successful.*		*Attempted to re-create learning online but not always successful.*	
(Hrastinski, 2008a)					*Personal participation better supported in synchronous communication, cognitive participation in asynchronous.*
(Hrastinski, 2009)					*Proposed a theory of online learning as online participation.*
(Nonnecke et al, 2006)		*Explored lurking behaviour in online learning communities*			*Explored lurking behaviour in online learning communities*
(Knowlton, 2005)					*5 types of participations: passive, developmental, generative, dialogical, metacognitive.*
(E. Y. Huang, Lin, & Huang, 2012)			*Found sensory/intuitive dimension of learning style affect participation*		*Found sensory/intuitive dimension of learning style affect participation*
(White & Le Cornu, 2011)		*Offered a concept of 'visitors' and 'residents' to reflect users engagement in online sphere.*			*Offered a concept of 'visitors' and 'residents' to reflect users engagement in online sphere.*