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A MIXED-METHOD APPROACH TO INVESTIGATE INDIVIDUAL BEHAVIOUR IN ONLINE HEALTH COMMUNITIES

A thesis submitted for the degree of Doctor of Philosophy

By

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ABSTRACT

With the expansion of online communities, extant research in multiple disciplines has attempted to investigate its adoption and use among individuals. However, the biggest challenge encountered by managers of these communities is supplying knowledge, particularly, the willingness to share knowledge among the members. It is extremely important to maintain committed members in terms of active participation. Yet their level of participation might vary based on some social, behavioral and environmental factors that eventually affect their intentions on whether to participate actively or not, in fact some users choose to discontinue participating totally in the community.

Cancers figure among the leading causes of morbidity and mortality worldwide, with approximately 14 million new cases and 8.2 million cancer related deaths in 2012. The number of new cases is expected to rise by about 70% over the next 2 decades. Among men, the 5 most common sites of cancer diagnosed in 2012 were lung, prostate, colorectal, stomach, and liver cancer. According to the world cancer report, among women the 5 most common sites diagnosed were breast, colorectal, lung, cervix, and stomach cancer. For this reason, there is an ever-increasing need to establish communities to offer empathic support to patients.

Though peer support groups have been known to offer adequate support to patients with cancer and are considered to be an important complement to the formal health care system, however, practical barriers such as time, mobility and geography limit their use, this is where the online communities serve an advantage, as they have the potential to overcome barriers posed by regular offline communities. To achieve its objectives, this study mainly adopts the Social cognitive theory and two components of the social influence theory. According to the SCT, user behaviour is influenced by two factors: personal cognition and environment. Social influence model postulates that individual behaviour in a community can be affected by the social environment and three factors constitute this, they are compliance, identification and internalization.

The study aims to provide insights on how and why patients diagnosed with cancer (and their relatives) seek social support using the Internet and social media. In particular, we seek to understand the motivation for joining these groups and the values derived from the community for the users both active and non-active.

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CHAPTER 1: INTRODUCTION

1.1 Introduction: Online Communities

A major success of present day media, for example, the internet is its social aspect. Over the years, individuals have changed their ways of seeking for information and engaging with different sources of information. The internet enables ubiquitous meeting spaces and hence satisfying an essential human need – communication. As a result, we observe new paradigms for communication, one of which is online communities (Stanoevska-Slabeva & Schmid, 2001). Distinguishing features of the communities are: strong social relationships among the members of the community, community specific structure i.e. norms and values of the community, modes of discourse, common vocabulary, a shared history, community rituals and common online meeting space (Stanoevska-Slabeva & Schmid, 2001; Haythornthwaite et al, 2001; Dholakia et al, 2004). When considered together, these elements provide an identity for the community, builds and increases long lasting relationship among individuals and foster strong commitments to the goals of the community, which is an enormous contribution to the success of digital platforms and knowledge sharing systems (Stanoevska-Slabeva, 2002).

Online communities and web 2.0 technologies are increasingly influencing the way individuals manage healthcare and chronic conditions. More people are looking to the internet for information and guidance on issues such as their conditions, experiences of others suffering from similar circumstances, treatment alternatives (Johnston et al., 2013; Yang et al., 2011), sharing of information and experiences and creating a link between patients and healthcare providers. Some studies refer to these virtual health communities as a subset of regular online communities, because through a shared communication medium, these communities can facilitate the formation of relationships among its members, and subsequently the creation and exchange of knowledge, ideas and interpretations (Wasko & Faraj, 2005; Johnston et al, 2013). OHCs, however, differ from other online communities because of their particular context and the uniquely personal nature of healthcare management, the healthcare setting usually introduces complexities that not commonly found in regular online communities. Most health-related conditions discussed in OHCs can be life threatening, the nature of information circulated within the community mostly about

treatment options, experiences and outcomes are quite sensitive, and in bad cases, they can be misleading. Also, some users are open to sharing personal information and life events. Others choose to guard such information that relates to chronic conditions and maladies.

1.1.1 Benefits associated with the use of OHCs

Perceived benefits for community members from participation are unique and in most cases, lead to a variety of individual-level outcomes. Some users derive benefits in the form of increasing their knowledge relevant to a topic (Wasko & Faraj, 2005) while for others the benefits are attributed to support (Wellman, 1990). Extant studies show that the significant benefits or function (Nambisan, 2011) of these communities are information and social support (Couson & Shaw, 2013; Cousaris & Liu, 2009; White & Dorman, 2001).

OHCs provide members with access to valuable resources irrespective of geographical, temporal or privacy constraints. These are valuable resources especially with the variety of chronic conditions that carry a social stigma; often enough affected individuals have difficulties when it comes to maintaining offline connections (Yang & Tan, 2010). Therefore, OHCs afford them with necessary resources that might not have been available otherwise. Studies have shown that OHCs remain a useful way to reach and inform women about heart disease, to refer patients to health promotions, empower patients to be more active and more aware of their healthcare management (Alkhateeb et al., 2008; Rohrer et al., 2008; Taubenheim et al., 2008; Johnston et al, 2013).

Information exchange allows users (members and non-members) to leverage the collective wisdom of others (Johnston et al., 2013), this results in users having access to first-hand insight on relevant information. The more individuals try to gain more knowledge about the community and its members through intensifying participation, the more relevant the information circulating becomes, and hence it becomes a lot easier to understand and adopt for personal use and benefit (Burt, 1992; Tiwana & Bush, 2001).

OHCs also offer intangible benefits to members via emotional support and self-development. Though family and friends provide support structures, it is common that people still feel uncomfortable especially sharing personal issues or inability to explain and relate to others who do not have any direct experience with the illness. These communities can serve as a rekindled source of support due to shared affiliation and a sense of attachment or connection gained from facing their medical conditions (Wasko & Faraj, 2005). However, participation

is crucial for individuals to obtain social support from their community. Participation in this context represents both active and non-active participation. Participation can lead to support either emotionally through forming bonds of friendship or psychologically, through bolstering the impression that health issues are not undefeatable based on shared stories of other members of the community with similar conditions.

1.1.2 Reasons for use and Values derived

An increasing number of people visit online health communities to seek health information (Nath et al, 2016).Europe records the largest percentage of OHC use, as 41.5% of the population believe they can find medical information, and 23% use the internet to acquire medical information (Zhang, 2011). China alone has a record of more than 100 million visitors to OHCs per month; the history shows its growth from January 2011 (iResearch, 2012). These communities are dimmed important for users to search for health information and to discuss personal experiences with medical conditions and treatments. As with other online communities, the platform has the potential to share general health knowledge. For example, hospital information, side effects of different drugs, healthy behaviours (Valaitis, 2011), there are still questions about the factors that determine if members of the community elect to share specific knowledge, or private information e.g. medical information. These communities have the potential to increase the exchange of medical information in several modes, some of which are mailing lists, blogs, discussion forums and primary social networking sites (Bender et al., 2011). With this, patients with similar health conditions can share experiences of all sorts ranging from treatments to nutrition regimens (Armstrong & Powell, 2009). Fellow peers in the community influence treatment decisions, health expectations outcomes and behaviour changes (Frost & Massagli, 2009).

Johnston et al. (2013) emphasized intangible benefits of online communities via emotional support and self-development. In most cases, family and friends are known to offer support structures for individuals in stressful situations. However, studies have shown that many people are uncomfortable when it comes to sharing personal issues, they are unable to explain feelings to users who are not in similar situations and in many cases, they become withdrawn from friends and family support (Wright, 2000). These health-related communities can rekindle the idea of support due to shared affiliation and a sense of belonging gained from fighting their struggles together (Molm et., 2007; Wasko & Faraj, 2005; Johnston et al.,

2013). Furthermore, participating – on the users' side will result in individuals gaining social support either emotionally from the bonds of friendships formed, or psychologically, when patients realize their health issues are not undefeatable based on the shared success stories among other participants. Indeed, online communities are an excellent source of information and support to their users (Wagner & Majchrzak, 2006; Wicks et al., 2010; Johnston et al., 2013)

1.1.3 Participation

User participation in an online health community increases the chances of achieving personal benefits. Participation in OHCs has been defined differently by several authors, ranging from frequency of interaction to the intensity or level to which an individual engages with peers in the community (Nambisan & Baron, 2009). The platforms through which interaction occurs among individuals allows them to form strong bonds with other members, and this brings about increase in scope and depth as the intensity of the relationship increases (Putnam, 2000; Johnston et al., 2013).

Participation in online communities will provide access to unique benefits that solely exist within the community (Burt, 1992, 2004, 2005); hence, when users participate actively they can be assured of more information and social benefits. However, the advantage of information derived is its utility to the individual seeking information (Adler & Kwon, 2002; Nahapiet & Ghosal, 1998). Information utility refers to the satisfaction an individual derives from the usability of an information source. The higher the level of involvement a person is with the community, the greater the chances of obtaining useful information, by gaining access to new information and hearing redundant experiences that strengthen the reliability of the information (i.e. adding credibility) (Johnston et al., 2013).

Alternatively, some users participate by engaging in passive surveillance of information shared in the community, termed as lurking. In this situation, information distributed among peers is gathered, assimilated and evaluated by the individual. In both circumstances, however, participation is said to occur because of the intensity of engagement in the community and the degree to which community knowledge is embedded within the daily activities of the individual (Ellison et al., 2007).

Studies have attempted to examine the factors that motivate participants' posting and reading community content, Koh et al. (2007) found that the concept of just viewing or reading

content (Lurking) and posting content (active participation) are inspired and stalled by differing factors. Many lurkers among community members may increase the popularity of the community regarding figures (Malinen, 2015) because they generate traffic and increase hits, but overall, they do not necessarily add value to the success of the community concerning content (Ridings et al., 2006). However, both forms of behaviour are needed as they reflect the level of commitment to existing customers (Koh & Kim, 2004).

1.2 Research motivations: increasing participation in online health communities

With the influx of users into online communities' use, many communities still fall apart soon after their launch mainly due to their inability to generate enough synergy and energy to engage long term activities (Bettoni et al., 2007), it has therefore become imminent to understand continuous interaction and user participation at a deeper level (Nolker & Zhou, 2005). Despite vast research and studies, online communities are still a debate among scholars as to whether they can exist and prosper online or not, partly associated with Preece's (2000) definition of communities as something fuzzy and warm. Research has shown how community feelings and even a sense of belonging can exist in online environments, yet only a few websites are communities, some are not and never would be. Since its inception, lack of user contributions, participation and activity have been the majorly cited reasons that lead to the demise of a community. Consequently, scholars have widely acknowledged the importance of user contribution (S. Malinen, 2015).

Hercheui (2010), reported that online community studies have mostly been descriptive as opposed to being driven by theory and strong emphasis should be placed on this novelty of phenomenon. There is a gap when it comes to consistency in this area because a wide range of communities exist not just in structure, but also purpose, and the types of users they attract. Yet they all represent the same label, online communities. Main problems encountered by research is the constantly evolving nature of communities, of which research can only capture a snapshot view (S. Malinen, 2015; Iriberri & Leroy, 2009). These snapshots fail to fail to give an accurate representation of the dynamicity of online communities.

Present day studies of online communities are at exploratory and dynamic stages, membership and activity are rapidly increasing, hence the need for more research in the areas of user behaviour to improve on the generalizability of results (Gallagher & Savage, 2013).

However, the fact remains, active participation is a necessary ingredient to ensure the survival of online communities. These online communities are notably different from traditional social environments or gatherings; there is no particular reward system in place to strengthen the mechanisms of trust and reciprocity in communication. However, community information sharing will not be successful without active participation by its members, with a lack of motivation from and for users will obstruct interaction and communication.

Investigating the effects of social influences affecting the choices made by users on whether they should participate or not has become a key research issue in the field of information systems (Bhattacherjee & Premkumar, 2004). Despite this substantial growth in numbers of online communities, several studies still point out the fact that only a handful of these communities are successful at retaining users and motivating users to engage actively (Wasko & Faraj, 2005). On the user side, few studies have empirically tackled reasons behind user participation and non-participation, and what factor influence their behaviour. Even with the emergence of new types of communities (Facebook, Twitter, LinkedIn), the issue of participation is still on the rise, increasing onboarding and engagement are still a critical problem (Wang & Chiang, 2009). Communities are a significant source of value for participants if members are willing to contribute knowledge. This study will attempt to understand the motives of members for actively participating and pinpoint the determinants of the motivations to participate. However, seldom studies considered the group influence of online community users on each user behaviour. As discussed earlier, online communities are composed of several individuals sharing knowledge among one another, and they interact with each other sharing similar interests, ideas and support. Therefore, this study also addresses the fact that individual behaviour is not only influenced by personal factors such as self-efficacy or usefulness, but also by the other members present within the community.

1.3 Research purpose: Problem statement

Encouraging participation and growing communities to be successful are cited as the most troubling challenges for online community providers. Therefore, it is imperative to understand what makes individuals participate as this poses a real question in the studies of online communities. Extant research in the community literature shows that participation leads to outcomes such as loyalty and satisfaction among members towards the online

community. Overall, social media has made users who actively participate by generating and sharing content the key elements of any social media sire (Miller, 2011; Malinen, 2015).
Thus, the research question formulated and guiding the entire study goes:
What factors drive users to participate actively in an online health community?

1.3.1 Objectives

To achieve aims of the research, the present study attempted to fulfil certain objectives that will aid in investigating the phenomenon. The objectives of the present study, therefore, are to:

1. Extensive literature in online community studies to identify and explore the characteristics of online communities, online health communities and the existing factors leading to active participation in online communities
2. Identify online community among several communities, especially communities related to the present study, for data collection.
3. Develop a framework to investigate the relationships that exist among all factors of social influence and social cognition on user behaviour.
4. A field study involving quantitative data collection and qualitative interviews from specific health related online community, to examine and evaluate the proposed study and to empirically validate the research, involving data collection from an online community.
5. Analyzing both phases of qualitative and quantitative data to provide more insight into user behaviour, within an online health community.
6. Detailed results and findings to be able to inform managers of communities on best practices to keep the energy and enthusiasm within a community on the high.

1.4 Structure of thesis

The second chapter discusses the emergence of support groups and the value of the level of communication generated in the form of personal empowerment. These communities are devoid of pitfalls such as the convenience of timing and geographical locations. The chapter discusses the issue of low participation and distinguishes it from active participation; communities can only thrive on the amount of content generated by its members. Further to this, the chapter discusses the roles of community moderators and the effects of their level of engagement as opposed to being bystanders only looking out for troublemakers in the

community. This chapter also discusses from prior studies the existing factors shown to have strong correlation with increased participation. Previous studies have adapted different theories to study online user participation including social capital, TAM, social cognitive theory. Findings from previous studies suggest that the environment, identification, increased ties and norm of reciprocity among other are positively associated with increased participation. Finally, the chapter explores the theoretical perspectives that have been used to conduct similar studies with a focus on social cognitive theory and social influence model to investigate user behaviour in the present study.

Chapter 3, discusses the methodology adopted for the study, along with the techniques and sampling method used for the data collection process. The study is made up of two phases of data collection, a mixed method approach involving the quantitative and qualitative studies. Data collection occurred at the same time though the results from the interview were all gathered before the collation of the online surveys, the survey was directed at the users and members of the community, while the interview phase targeted the managers of the community. The quantitative phase involved the use of an online survey tool to be able to assess as many users as possible. Survey monkey was the tool adopted for the study, where the respondents were asked general demographic questions before more detailed questions relating to the predetermined nodes involving the variables from both the social cognitive theory and social influence model. On the second part of the study, managers of the community were interviewed, to understand their roles in managing, moderating and encouraging more participation in the community. The study was carried out in parallel to get a clear picture of ongoing activities within the community from all actors involved.

Chapter 4 summarizes the results from the first phase of the study, i.e. the surveys and quantitative research. These results were derived from a careful regression analysis measuring the relationship between the predictors and the outcome, explaining the relationships of the hypothesis and the significant findings and deliverables from the study. Variables of social cognitive theory (such as personal factors – self efficacy and outcome expectations and trust derived from the environment) and social influence (identification and internalization) were regressed against the expected outcome (participation) to gain an insight by means of statistical analysis on the major factors that cause the existing active members to want to participate and share information among one another. Of all variable tested,

identification, community-related outcome expectation showed no causal relationship with active participation among members of the community.

Chapter 5 is a summary of the results from the qualitative phase, the interviews conducted. Analysis of this phase was carried out using Nvivo, a qualitative data analysis package. This phase was conducted to gain more insight into the roles of the managers and moderators of the community. Managers of the community were interviewed individually with questions ranging from the concept of moderation to clinical expertise and helping users develop a sense of community. The results paved an understanding of the contribution of the managers to the social capital that exists in the community, and the effect on interaction, information generation and consumption, and support.

Chapter 6 is an interpretation of the results and findings from both phases of the study and how it relates to existing literature. This chapter is an attempt to examine the factors affecting participation as they relate to both the members and users of the community and the managers/moderators of the community. The chapter emphasizes and justifies the value of trust (among other factors) in the community as a major factor leading to participation, in relation to other studies that have stressed the importance of trust in a social environment

Finally, the study concludes with chapter 7, which discusses the contribution of the research to theory and practice, and the implications of the research approach. The chapter also discusses the limitations of the present study and propositions for further studies to be carried out in the area.

2 Chapter 2: LITERATURE REVIEW

2.1 Defining Online communities

Online community is a term that has been used in several contexts (Hercheui, 2010), some studies described it as a group of geographically dispersed persons that share a common interest, while others examine it as community networks bounded to certain neighborhoods (Hercheui 2010; Graham, 1999; Preece, 2001). Also, some scholars e.g. Rheingold (2000) have associated its definition as a synonym of a network of friends or some social exchange that occurs through computer-mediated communication. In line with arguments from several scholars about a community having a boundary, Graham (1999), stated that community only exists when you can define its borders. Communities involve a group of people coming together with shared interests and values. Furthermore, the group voluntarily accepts members, and similarly members join voluntarily, and for this reason, the group must adhere to a few rules (e.g. rules of admission, behaviour and exclusion). Online groups that present these characteristics (interests, standards and voluntary membership), already have boundaries and hence can be termed a virtual community (Hercheui, 2010). Some scholars, however, prefer to use the term social network over online communities for the sole reason that the term community is traditionally related to the ideas of kinship and geographical proximity (Mitra, 1997; Watson, 1997).

Differences between online health communities and a general online community

The definitions above have been able to describe online communities and online health communities as two similar yet very different types of communities and different categories of members. Though both communities represent an aggregation of members with similar values or interests, it is imminent to clearly state the differences that exist between both community types. An online community is a platform set up to attract individuals to create content and collaborate to address varying issues depending on interests, whereas an online health community is set up specifically to address health concerns or issues, a means for patients and their family or loved ones can learn about an illness, seek support and connect with similar others.

In order to break this concept down, we must consider the large all-encompassing term of social media made up of two sub-categories, Social networking and online communities.

By definition, social networks are very much like offline social networks – a group of friends, relatives, co-workers, and acquaintances that we interact with on fairly regular basis.

Therefore a social network is the based on the relationships that have already been made, and an online social network is where the said connections can have a place to live collectively. However, the biggest difference between social networks and online communities is that communities form out of groups of people from different backgrounds and histories. From a social and anthropological standpoint, these are the most interesting areas to study because they consist of people who probably have never met, yet they are held together by shared interests and common goals. Individuals join online communities for all sorts of reasons.

Further to this, just about anything can bring individuals together but what makes they stay is polarizing. There are two things that compel community members to stick around: the urge to contribute (information) and the perception of benefitting from the community (Support).

In summary, the major difference between social networks and online communities is the origination of the connection. Connections made offline are most likely social networks and online connections are a definitive of an online community.

Virtual communities have been defined as social aggregations that emerge from the Net when enough people carry on public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace (Rheingold H., 1993). Virtual communities can therefore be seen as social networks that are formed or facilitated through electronic media. Although these communities existed in the pre-world wide web era (bulletin boards for example) the primary medium for virtual communities is now the internet. Public discussions leading to community building on the internet take place in mailing lists, newsgroups/Usenet, or discussion board forums with web interfaces. Apart from these asynchronous venues, synchronous or real-time community exist; for example, on web sites such as cancerpage.com online support groups meet on designated days at designated times in chat rooms.

However, in the health context, virtual communities often have the function and character of a self-support group, hence referred to as Electronic support groups. Where patients with certain diseases, consumers with common health-related interests, such as; wanting to quit smoking or losing weight, or informal professional caregivers exchange information and experiences.

However, other communities primarily function as information exchange channels rather than serving as support groups. In addition, communities such as wellness communities exist, where healthy people exchange information and support on wellness and healthy lifestyles (Eyesenbach, 2005). Although most health-related virtual communities are unmoderated, some are facilitated by trained professionals.

Still, as virtual communities are low-cost intervention with potentially huge psychological benefits for participants, health researchers have increasingly become interested in understanding virtual peer-to-peer help processes and have set up and studied virtual communities.

Source	Term used	Definition
Hajli et al (2015)	**Online communities**	**A platform that attracts individuals to create content and collaborate to address different issues.**
Graham (1999)	**Online communities**	**A group of similar people who voluntarily come together, and accept to adhere to rules and boundaries**
Wellman (1997)	**Social network**	**Any group of people connected by social relations through any channel of communication**
Rheingold (1994)	**Virtual communities**	**Cultural aggregations that emerge when enough people come together in cyberspace.**

		A group who may or may not meet but exchange ideas via CMC.
Preece (2001)	**Online community**	**Virtual social space where people get together to acquire and give information and support, to learn or to find company.**
Stanoevska-Slabeva (2002)	**On-line community**	**Association of partnerships who share a common language, value and interests, are guided by a common organizational structure and cooperate & communicate ubiquitously connected by electronic media.**
Preece et al (2003)	**Online community**	**Group of people interacting in an online environment, they have purpose, are supported by technology and guided by policies and norms**
Hsu et al (2006)	**Virtual community**	**A cyberspace supported by information technology which is centered upon**

		ongoing interactions among participants to generate specific domain knowledge to enable other participants in learning, contributing, and collectively building upon more knowledge
Hagel & Armstrong (1997)	**Virtual communities**	**Computer-mediated spaces with a potential to integrate content and communication with an emphasis on member-generated content.**
Liou et al (2014)	**Virtual community**	**An online social network that is constructed based on social interactions for users with common goals, interests to share information and knowledge**

Figure 1: Definitions of online communities.

Numerous industries have established online communities with the sole intention of providing an environment or platform through which they can empower members to act consistently with shared values, interests and beliefs (Rohrer et al., 2008; Johnston et al.,2013). Indeed, this is the case in the healthcare management, online heath communities provide an opportunity for interested and similar individuals to access information concerning specific maladies and doubtful treatments, and as well, it allows users who are more informed to share insights and experiences (Thackery et al., 2008). The healthcare

industry is one of the several distinct sectors where online communities can be leveraged to foster health and encourage well-being.

2.2 Support Groups

Support groups and therapy groups have been in existence since the 1900s with an aim to address psychological problems. Three decades later, there was an introduction of group psychotherapy to resolve interpersonal conflicts, and this increased up until the 1950s to assist individuals in the armed forces who seemingly suffered from psychological trauma because of war times (Klemm et al., 2003). Cancer support groups were first introduced in the 70s, and most recently the internet has been utilized as a means of further support for patients, and many years on, after inception, support groups for cancer have witnessed a dramatic rise.

Online support for cancer patients (Online health communities, electronic support groups) provide information, support in the form of personal and professional support, shared values and experiences, and advocacy for affected individuals (Madara & White, 1997).

Also, these support groups help to avoid certain pitfalls, such as inconvenient times to meet, and concerns about child care, the convenience of online health communities cannot be overlooked, as the community can be accessed 24 hours daily, anonymity and information exchange. Madara and White (1997) relate the communication on an online community as an equaliser, as it avoids visual distractions of age, gender and social status (Klemm et al., 2003).

The proliferation of internet service for acquiring information has gained a lot of attention (Hajli, 2014; Rains & Karmikel, 2009), as many users have come to accept and value this development. Patients are empowered to share information/experiences and acquire first-hand information from experiences of others. Therefore, exchange of information, knowledge and experiences with other community members is a great opportunity for the health sector to improve its services (Hajli, 2014). Hence, it can be argued that these advancements will provide different facilities that will enable consumers to become empowered to offer as well as to receive informational and emotional supports (Akesson, Saveman & Nilsson, 2007) which are antecedents to social support.

Source	Term used	Definition
Lisa Neal et al (2007)	**Online health communities**	**Platforms that provide a means for patients and their families to learn about an illness, seek support and connect with similar others.**
Yan et al (2014)	**Online health communities**	**CMC platforms that make it possible for users to exchange medical information by connecting patients with similar health conditions.**
Zhao et al (2014)	**Online health communities**	**Social networks where members collaborate with other members through sharing of knowledge and mutual help to achieve common aims via knowledge sharing and support to achieve similar**
Huh et al (2016)	**Patient support groups**	**Well-established mechanism to encourage peer-patient interaction, help improve patient self-efficacy, and increase patient awareness about self-care management**
Huber et al (2017)	**Online Support Groups**	**One of the most widespread interactive resources on the internet, which enable patients to**

		interact anonymously about personal information and provide patients with information and emotional support
Zhao et al (2013)/Josefsson (2005).	**Patients online Community**	**A particular type of online social networks whose members come together to seek information, assistance and emotional support**
Johnston et al (2013)	**Online health communities**	**OHCs provide the opportunity for interested individuals to access information concerning maladies and obscure treatments, and to allow informed users to share insights and experiences.**

Figure 2: Online health community definitions.

Despite the necessity for users to participate in online groups, studies have shown that only a small or marginal percentage of users contribute to discussions by sharing information and experiences. In fact, studies show that majority of the users in an online community are lurkers who play a passive role in virtual groups (Y. Amichai-Hamburger et al., 2016; Jones et al., 2004; Kozinets, 1999). Nielsen's 90-9-1 rule indicates that 90% of users in a community do not actively participate in online discussions, 9% users contribute to some degree and 1% account for almost all online discussions, they are the most active members of the community (Nielsen 2006a, 2006b; Van Mierlo, 2014). Empirical studies show that when new users (Newbies) post for the first time, it is usually their last (Joyce & Kraut, 2006), but again, turnover rates for the newbies are also high. This high turnover and low participation is a challenge for virtual communities, as most often, communities rely on the contributions of their members for sustainability (Y. Amichai-Hamburger et al., 2016). Without rich

knowledge, these communities seem like they are of limited value. Content and knowledge are the keys to a successful community (Chiu et al., 2006).

From the perspective of the community designers, administrators and technical team, there have been concerns about how to improve the user interface to cater for all category of users. Research in these areas has helped to produce guidelines for community creation and to facilitate sociability (Preece, 2000). Participation has become a ground for measuring and determining the success of communities, such that researchers have developed success metrics to evaluate online community success. The most commonly used parameters, in this case, are the volume of contributions and the strength of relationships among members (Iriberi & Leroy, 2009). Based on the assumption that the greater the number of messages exchanged among individuals the closer the members feel to each other, and this may lead to increased success for the community.

Previous research that has examined participation in real communities found that involvement in civil societies induces social capital and the active members form stronger social ties in their immediate environment (Oliver, 1984; Malinen, 2015). Interestingly, participation in online communities has similar effects, and active participants are the most connected. Per Welman et al. (2001) Online social networking increases social capital and promotes psychological well-being.

A possible reason for non-participation may arise from the vulnerability of contributors who feel those they are helping will not return the favour (Faraj, Wasko, & Johnson, 2008), and lurkers fall into the said category as they benefit and derive values from the experiences of others, but they do not reciprocate. This passivity in behaviour may influence other members, as communities may become less informative and hence can turn out to be boring for everyone involved, whether active or passive participants.

Lurking is particularly problematic in smaller communities where there is only a limited number of users to interact with one another.

One of the main challenges of fostering an OHC as with several other communities is the level of participation, and the supply of knowledge, i.e. the willingness of members to share knowledge with one another. For example, Zhao (2008) explained that many users want to participate in a community but as lurkers, to acquire knowledge rather than to contribute to knowledge. It becomes imminent therefore to understand why members of the community decide whether or not to share knowledge when they have a choice (Chiu et al., 2006). An attempt to identify underlying motivations for knowledge sharing in communities will help

academics and practitioners gain more insight into methods of stimulating knowledge sharing in virtual communities. The present study will try to uncover the internal factors influencing knowledge sharing among users. Lampe et al. (2010) also indicated that motivating users to contribute and participate in socio-technical systems has been the biggest challenge in the design of such systems, user participation and contribution is necessary.

2.2.1 Online Health Community Moderators

While the core values remain information and peer support (J. Huh, 2013), OHCs are increasingly incorporating experts who supply clinical knowledge and as well, to control the quality of information shared. Per a study by J. Huh et al. (2012), only a few support communities engage experts as moderators (i.e. health experts), more recently the idea of involving health professional moderators in online community support has gained growing interest.

The level of health expertise offered by an expert in health and by administrative moderators (managers of the community) can play distinct roles. Hatzler & Pratt (2011) compared posts managed by both forms of moderation. Their study found that health experts provided clinical advice and expertise (expertise from their training and personal experience), whereas administrative moderators shared patient expertise, and both of this expertise play crucial roles in the success of an OHC. It remains up to OHCs to consider how patients and health professionals can provide synergetic efforts to manage and sustain vibrant communities (J. Huh, 2013). One avenue that has lacked necessary attention in the study of the success of support communities is through engagement with the individuals who manage the said community, (for the purpose of the current study they are the three managers of the community). There has been little attention in this area till date except for a few, for example, Van Uden-Kraan et al. (2010), whose study inferred that moderators had a range of altruistic and intrinsic motives for managing online groups (Coulson & Shaw, 2013).

The role of the health professional moderator still seems to be evolving. Research needs to focus more on relationships between moderators and members of the community, which includes both traditional administrative managers and health professional moderators of online health communities. While the current study is relevant in exploring the roles and perception of moderators, the number of moderators considered is limited. Also, there is a limit to the extent we can generalize across several support groups and gain better insight into the processes of helping to shape up an online support group.

2.2.2 Members' use of Online Health Communities

OHCs are today, a popular and information ready platform for user consumption, they allow users who have similar health concerns or purposes to interact and network, participate in discussions, and collaborate with one another on solving problems (Zhang, 2015; Eysenbach, 2008; Preece, 2000). Individuals turn to these communities for a variety of reasons, from easy access to recommendations from friends and health care advisers, social support, and just to learn from the experiences of others, or even sharing health information. Zhang (2015) discussed that a visit to an online health community does not guarantee continuous participation, whether active or non-active. In fact, a study by Durant et al. (2010) showed that members of OHCs only actively engaged for very short periods, in most cases less than a year, most often, immediately after diagnosis.

Factors encouraging users to participate and remain members a community are different from factors that motivate them to be there in first place (Massimi et al., 2014; Zhang, 2015). Research in this area agrees that emotional support is the primary driver for continuous user engagement. Wang et al. (2012), investigated the relationship between duration of membership and amount of support users received in an online health community and inferred from their study that the more social support users received, the smaller the chances of dropping out. Further to this, several studies corroborated their findings and concluded that users remained in communities to share laughter and tears, to escape social isolation, and maintain a friendship with similar others (Zhang, 2015; Massimi et al., 2014; Rodgers and Chen, 2005).

Butler et al. (2007) identify socioemotional motivations (behaviour related to but not the same as continuous use) as key to active participation i.e. posting on the community. Posters are always the more likely to be a part of building the community for social purposes, such as the need to find out how others are doing, the curiosity to share information and experiences and even fulfilling the need of others by just being there. Also, Welbourne et al. (2013) described that motivations for socioemotional support for example empathy and comfort, are associated with posting support messages, while motivations for information, for instance, medical advice and health related facts are related to receiving support (Zhang, 2015). Extant research shows that factors such as altruism and the sense of fulfilment after sharing expertise information have a direct positive impact on active participation in an OHC (Massimi et al., 2014; Winefield, 2006).

Informational support is essential in keeping users in online health communities, though the role it plays remains less conclusive in comparison with emotional support (Zhang, 2015). Wang et al. (2012), in their study, found that informational support was only to satisfy members' short time need for information and had a much less effect on attracting and keeping members than emotional support on the commitment of users in an online cancer community. However, Massimi et al. (2014) explained that in their study, some members of the community remained active in the community only for information offered despite that they were ready to pull away emotionally. In fact, some members were said to have quit from the community at some point, but become active again when there is a diagnosis, or they reencounter similar medical event.

Therefore, members sharing information with one another can offer support to other members, while some members though very few feel the need to share stories and experiences, most members would rather participate by gaining support and human enhancement from the more active users.

2.3 Theoretical Rationale

Extant studies have addressed the issue of participation in support communities and communities in general by adopting a variety of theories such as TAM (Technology Acceptance Model), trust theory, social capital theory, commitment theory, uses and gratifications theory, social cognitive theory among others, to explore user participation in online communities. The outcome of the majority of studies has identified factors such as perceived usefulness, trust and self-efficacy (Zhou, 2011) as determinants of user behaviour as they have significant effects on behaviour. However, these studies have not examined the influence of the community as a group on the conduct of the user, as online communities are made up of people from different works and aspects of life, though with similar interests. These individuals come together to share their ideas and experiences, norms and values and finally to seek support or offer support to one another. Therefore, member behaviour can be swayed not only by personal motivations or perceived usefulness (Zhou, 2011) but by the other members of the group and the community. However, it is useful to note that online communities are social networks where individuals with similar interests and goals and practices, converge to share knowledge and information. And also, to engage in social interactions (Chiu et al., 2006), the nature of interactions and the set of resources embedded in the network is what sustains it. For this reason, this study focuses on both issues of

personal cognition and the social network as opposed to previous studies that have only focused on individual cognition by exploring computer use and internet behaviour. The most widely used and cited theories in the study of online communities are social capital theory and the social cognitive theory. However, a common underlying theme found in several investigations is to understand better the roles and nature of social influence exerted by the community on its members (Alon et al., 2004; Dholakia et al., 2004).

The social cognitive theory addresses the issue of user behaviour from both personal cognition and the environment as the theory asserts that user behaviour is influenced by two factors, personal cognition which are self-efficacy and outcome expectations; and the environment i.e. the social network (Zhou, 2008). The present study, therefore, adopts the social cognitive theory to identify the antecedents supporting an individual's participation behaviour in an online health community. Also, the present study combines the social influence model of consumer participation in online communities, following Dholakia et al. (2004) study, we consider two factors of social influence and how they impact on user participation.

Yan et al. (2016) applied social exchange theory to develop a benefit and cost analysis framework. Their study attempted to consider the different values and impact of general and specific knowledge of members of an OHC. The study also focused on the various impacts of perceived benefits and costs on knowledge sharing behaviour of online community members. Benefits factors adopted for the study were based on Maslow's hierarchy of needs which include reputation, sense of self-worth, face concern, and social support while cost factors include cognitive and executional costs (Yan et al., 2016). The social exchange theory explains individual behaviour involved in the process of resource exchange (Emerson, 1976; Yan et al., 2016). The theory states that people exchange resources with one another with the desire to receive something in return. The primary principle of individual behaviour is to increase benefits and decrease costs, and it has been widely applied in the study of user behaviour across several domains. Benefits considered in the study include a sense of self-worth, face concern, reputation, social support, while costs include, cognitive costs and executional costs. The study showed that status, social support, sense of self-worth and face concern all have significant relationships with knowledge sharing, therefore, for an individual, the need for growth and self-realization all encourage sharing, regardless of knowledge type. Execution and cognitive costs both have different effects too on knowledge

sharing according to the study, where executional costs are the major considerations for sharing general knowledge, and cognitive costs are the primary concern for specific knowledge. Their study revealed that members are more open to sharing general knowledge as that takes less time and effort as opposed to sharing specific knowledge which can be difficult, unpleasant and emotional.

Chiu et al. (2006) in their study combined the social capital theory and social cognitive theory to develop a model to examine the motivations behind individual knowledge sharing in virtual communities (see fig 2.1). The main factors considered according to Chiu et al. (2006) were all facets of social capital theory (social interaction ties, trust, the norm of reciprocity, identification, shared vision and shared language) and their effects on knowledge sharing behaviour. From the social cognitive theory, they proposed that outcome expectations (Personal and community-related) can prompt knowledge sharing among members of a community. The findings from their study inferred that outcome expectations of knowledge sharing are insufficient to motivate individuals to participate, though outcome expectations to some extent can contribute to knowledge sharing, but, the social capital factors such as trust, identification, social interaction ties, norm of reciprocity, shared value and vision that lead to greater knowledge sharing with regards to quality and quantity of content (Chiu et al, 2006). The study findings showed that facets of social capital combined with outcome expectations are supportive in the explanation of knowledge sharing in virtual communities.

Turner et al. (2001) examined the complementary nature of face-to-face and online social support and the idea of developing a context through which Hyperpersonal communication can develop within online communities, and they attempted to examine the development of Hyperpersonal communication within online cancer support communities. Optimal matching theory was adopted as the framework to study how Hyperpersonal communication develops within online support communities. The theory suggested that some forms of support may be most beneficial following some particular stress types. The study compared participants in online communities (based on their perceptions of illness support) with the assistance they receive from a non-mediated relationship (Turner et al., 2001). Active participation among users increases when they sense that the depth and support they receive from the community was high and when the depth and support they receive from a particular person (important to them) was little. The study was based on Walther (1996) construct of Hyperpersonal communication to describe the strong personal relationships and exchanges that take place

within online communities. Hyperpersonal Communication theory offers a process-based description of how online community relationships turn out to be more benefitting than parallel face-to-face relationships under certain conditions.

2.4 Related studies

2.4.1 Social Capital Theory

Members of OHCs engage in social interactions that are conducive for each of them to exchange information and share experiences, hence helping to generate social bonds (Zhao et al., 2016; Jayanti & Singh, 2010). Dynamicity in interaction influences both individual cognition and cognition distributed across the community to other members. There is evidence to suggest that social capital rooted in a group, has an impact on the dynamics of the knowledge creation performed by individuals through increasing the access to intellectual capital (Bouty, 2000). Increasing users' desire for knowledge combination and exchange (Zhao et al., 2016), and improving the individual capability of creating and sharing relevant knowledge. In line with these, it is no wonder that studies have adopted this theory to identify antecedents of consumer knowledge creation in OHCs (Zhao, 2015). This theory explains that social relations between a group of individuals constitute social capital which is productive resources and thereby leading to facilitation of actions and cooperation which is also advantageous to the group.

Social capital is defined as "the sum of the actual and potential resources, embedded within, available through and derived from the network of relationships possessed by an individual or social unit" (Nahapiet & Ghosal, 1998). It differs from other forms of capital as it is embedded in the structures of social networks and individual relationships with one another (Putnam, 1995). A significant contribution to the theory was proposed by Nahapiet & Ghosal (1998), that social capital consists of three dimensions, the structural, relational and cognitive aspects. Structural dimensions explain the relationship that exists between actors in a social environment as strong network ties will provide access to resources, this is a fundamental dimension to social capital because members of the community will not gain access to resources and relationships cannot be formed without network ties (Zhao, 2012). Relational dimension denotes the personal relationships developed among each of the members of a social group, through frequent interaction. Relational dimension embodies assets (such as identification and trust) formed and leveraged through the relationships established. Cognitive social capital discusses the resources that provide shared meanings and

interpretations among individuals, such as shared visions, values, norms and goals, and this helps to facilitate a common understanding of collective goals and proper conduct in a social environment (Zhao, 2012, C.M. Chiu et al., 2006). Social capital can be considered as intangible but it is a valuable resource in a social system, and studies show it is related to knowledge exchange whether in an online or offline environment. Chow and Chan (2008) addressed the issue of user knowledge sharing behaviour and found that social capital contributes to the will and desire to share knowledge and information, and influences the perception of social pressure, this also encourages user participation. Wasko & Faraj (2005) attempted to investigate why some users of online communities nevertheless contribute knowledge to others. The study was based primarily on Nahapiet and Ghosal (1996) model of social capital to examine user motivations to share knowledge and information, especially when they are all strangers to one another. In addition to this, they also found that social capital forms and plays a distinct role underlying knowledge sharing among peers, despite media richness limitations that exist in online communities. Of importance is the role of structural social capital (Wasko & Faraj, 2005), development of a critical mass of active users is imperative for sustained growth in online social networks (Marwell & Oliver, 1993). However, most online communities are made up of strangers who come together to share information and support. Such a network of individuals is characterised by flatter network structure, weak ties and geographical dispersion (Zhao et al., 2012; Dholakia et al., 2004). A dispersed network can hinder the formation of trust and social norm (Putnam, 1993), hence, the network structure might have an influence on relational and cognitive social capital (Zhao et al., 2012), and possibly leading to social exclusion – "groups achieving internal unity at the expense of outsiders, who can be treated with suspicion or hostility" (Walker, 2004). Huang, K.-Y., Chengalur-Smith (2014) discussed that some dimensions of social capital (structural and relational) fail to predict information sharing behaviour, because even with the opportunity to interact and the motivation to share information, an individual will feel reluctant if he or she lacks the cognitive capital i.e. ability to help (Adler & Kwon, 2002).

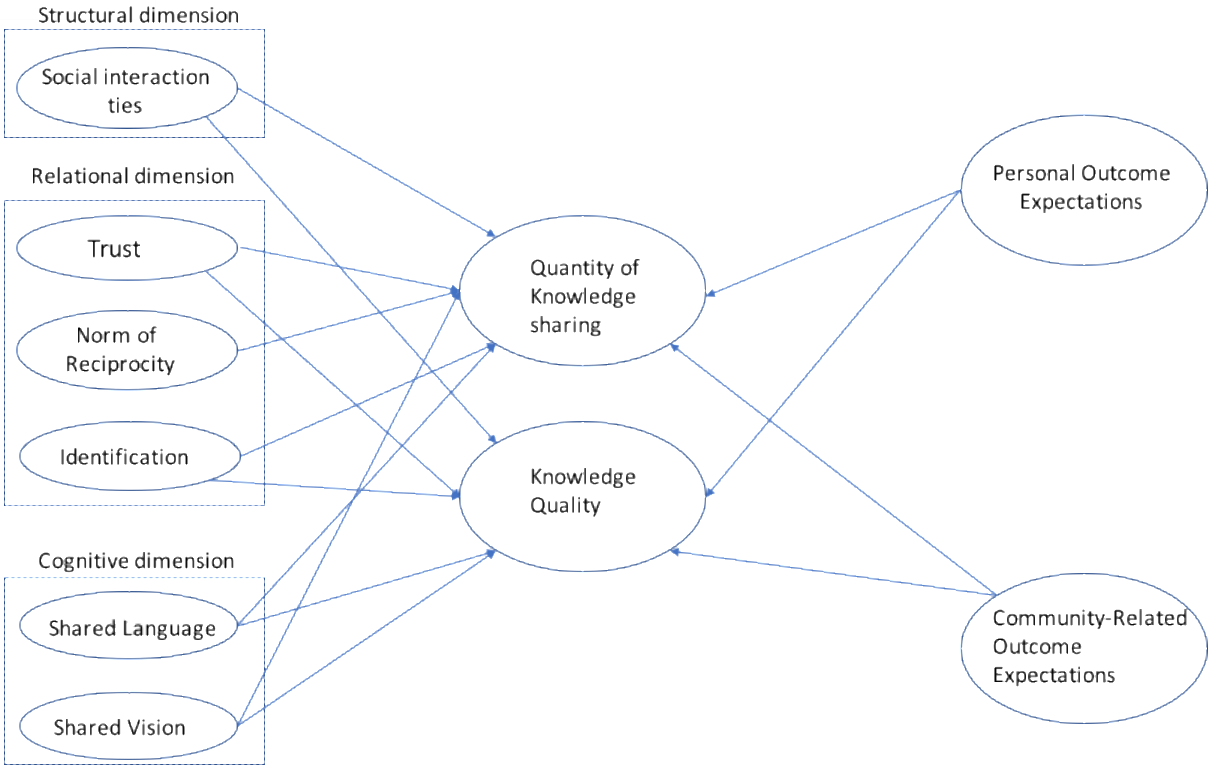

Fig 2.3 *Figure 3: model for knowledge sharing – social capital and outcome expectations, (Chiu et al., 2006).*

Liou et al. (2016) applied social capital theory in their study to explore the social interaction factors and individual factors which are shared value, identification and privacy of information, and to examine the mediating role of the need to exchange information. The study integrated the viewpoints of social interaction and individual factor to investigate the relationships among social interaction factors (shared values, trust and identification), user factor and privacy concerns on member desire to give and get information within the community. Further to this, the study explored the relationship among the relevant variables by integrating Kelman (1974) social influence processes. Firstly, by internalization, members of the community may transform visions, values and beliefs of others into their own, and therefore they adopted shared value as a construct for the study. Identification as a sense of belonging formed the second construct and finally trust as it improves interpersonal relationships and thereby promoting the creation of knowledge. The outcome of the study revealed that shared value, community identification and privacy of information all influenced trust on the website and reliance on other members concurrently, which in turn significantly influenced the desire to get and share information in the community, and this desire to share and acquire information were equally necessary for knowledge sharing. Thirdly, their study found that the desire to exchange information yielded information sharing behaviour, but, the desire to acquire information does not generate this behaviour.

Zhao et al. (2015) explored consumer knowledge creation for health management within OHC contexts. Their study tried to identify motivators that accelerate knowledge creation among consumers and to determine how active contribution of knowledge determines user intention to sustain membership. Their study discussed the concept of knowledge as tacit knowledge and explicit knowledge. Tacit knowledge is acquired from direct experiences hence it's subjective and context-specific nature, whereas, explicit knowledge concerns how things work. Therefore, it is subjective and context specific. Tacit and explicit knowledge are described in the study as mutually complementary among individuals or even group activities (Nonaka, 1994). Both types of knowledge develop knowledge creation activities which are: socialisation, externalisation, combination and internalization. Trust, density and shared language were applied to measure relational, structural and cognitive aspects of social capital. The findings of the study showed that social capital plays a significant role in facilitating knowledge creation regarding externalisation and combination (Zhao et al, 2016). Also, the results of their study showed that network density was the only dimension of social capital that influences both externalisation and combination processes of knowledge creation, i.e. as the strength of the network increases, community members will be more inclined to engage in creating and sharing knowledge and information with other members.

2.5 Social Cognitive Theory (SCT): Present study

This theory has been widely used in information systems literature with proven validity. SCT refers to human behaviour as a triadic, yet dynamic and reciprocal interaction among personal factors, the social network and the behaviour (Bandura; Chiu et al., 2006). The theory according to Bandura (2004), specifies some original set of determinants, the mechanism through which they work, and the best ways of translating this knowledge into effective practices. The principal determinants of the theory include knowledge, perceived self-efficacy that one can exercise control over oneself and habits, outcome expectations, about the expected consequences of any action taken. Chiu et al. (2006) discussed that of all the factors affecting human behaviour, standing on the basis are self-efficacy and outcome expectations. Self-efficacy is the belief in the capability of oneself to execute given tasks, and outcome expectations if a judgement of the likely result that will be produced from completed tasks (Bandura, 1997). Several studies have adopted the social cognitive theory to study human behaviour, e.g. between personal cognition (self-efficacy and outcome

expectations), computer use and Internet behaviour (Chiu et al., 2006; Hsu & Chiu, 2004; Compeau & Higgins, 1995).

Users who choose to visit a virtual community or become members of the community are not always seeking knowledge and solutions to their problems. For them it is also a meeting point for similar other with similar interests, to seek friendship, a sense of belonging and support, it is a conscious attempt to belong to a social group and develop social relationships with like-minded others. However, the behaviour exhibited by the user, according to Bandura (1989), user behaviour is somewhat shaped by the environment and personal cognition. Personal cognition involves user expectation and beliefs. These expectation/ideas are further categorized into two; self-efficacy and perceived outcome (which are the primary cognitive factors influencing the behaviour of a user). Per Chiu et al. (2006), the past decade witnessed information system research demonstrating the value of self-efficacy and outcome expectations in the prediction and improvement of computer training performance, internet behaviour and computer usage. Per Bandura (1982), if a user lacked confidence in his ability to share credible knowledge, then it is not likely he will proceed with the behaviour, especially considering that sharing knowledge is a voluntary act.

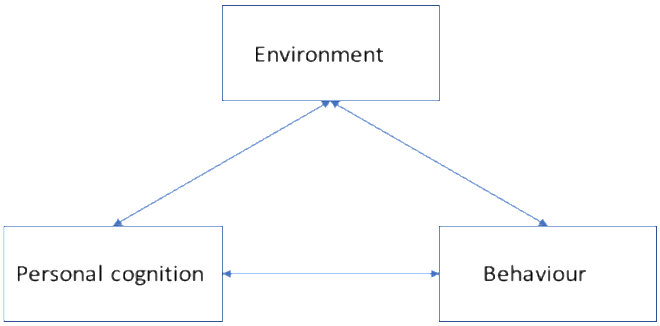

Figure 4: Social cognitive theory Bandura (1989).

2.5.1 Personal Cognition: Self-efficacy and Outcome expectations

Drawing upon the SCT, self-efficacy affects user outcome expectations, as expectations of positive outcomes are fruitless. If an individual lacks the capability to execute the behaviour (Hsu et al., 2007; Bandura, 1982), also SCT contends that a user's desire to share knowledge is not sufficient to carry it out, because a knowledge sharer must also have the capability to complete the task correctly. Capabilities such as sharing and contributing adequate and credible information in the community. Self-efficacy according to Bandura (2004) is a focal

determinant of behaviour because it affects user behaviour both directly and by the influence, it has on the other determinants of behaviour. Efficacy beliefs have an impact on the goals and aspirations individuals have, the stronger a user feels about his/her perceived self-efficacy, the bigger the goals they set for themselves with a firmer commitment to achieve the goals. Self-efficacy can be described as a foundation for motivation and accomplishment because only users who believe in their abilities and that their actions will produce favourable outcomes will proceed; otherwise, there will be little incentive to act or overcome any obstacles (Willis, 2015). Self-efficacy beliefs determine human functioning by influencing daily choices and how individuals approach them. Efficacy beliefs also define the amount of effort and level of perseverance in the face of obstacle sand impediments. Self-efficacy significantly influences thought patterns and emotional reactions.

Several IS studies have employed the concept of self-efficacy in a variety of research streams (Hsu et al, 2007), for example, examining the effects of computer self-efficacy on IT usage, the significant relationship between internet self-efficacy and internet use (Hsu & Chiu, 2004).

in the last decade IS research started to apply the concept of self-efficacy in areas of knowledge management, to investigate and validate the relationship between user self-efficacy and knowledge sharing, termed as knowledge sharing self-efficacy (KSSE).

Further research led to examining individual KSSE to determine its effects on the intention to share knowledge. For example, Bock & Kim (2002), propose that self-efficacy is a strong motivation for user intention to share knowledge, the outcome of the study showed that individuals are more motivated to share knowledge by the judgment of their contribution to the organization. Kankanhalli et al. (2005), approached self-efficacy as an element of intrinsic benefits and combined it with other variables to determine its effect on knowledge sharing, from the study we understand that there exists a positive relationship between self-efficacy and knowledge sharing. E. Willis (2015) attempted to examine online community members' discussions related to their self-management behaviours with a specific interest in the evidence of self-efficacy. The study showed that mastery experience, vicarious learning and verbal persuasions are strong determinants of user self-efficacy within the community

Bandura highlighted four categories of experiences and information sources that determine self-efficacy beliefs (Bandura, 1986; Stajkovic & Luthans, 2002). Though all determinants of self-efficacy are influential to user behaviour, it is important to realize that they become

instructive only through cognitive appraisal (Bandura, 1982). Enactive Mastery: among most individuals, the result of performance i.e. mastery experience is the most influential source of efficacy beliefs. "This is because, mastery experiences provide direct performance information for the creation of stable and accurate efficacy beliefs" (Stajkovic & Luthans, 2002). This, however, does not mean that changes will occur in self-efficacy beliefs as a result of accomplishing a task, rather the formation of self-efficacy beliefs will depend on how individuals approach a problem based on the performance generated from previous experiences. Hence, the more success a user has after carrying out a particular behaviour, the more likely the user is to repeat the behaviour and the more confidence in the action (Willis, 2015). Vicarious Experiences: Per Stajkovic & Luthans (2002), otherwise termed as modelling, occurs when individuals observe competent and relevant people carry out a similar task and be rewarded and appraised for it. People may decide to turn to competent members or mentors to gain more knowledge on a given task, necessary skills or the necessary strategies to complete any task. Vicarious experiences occur when members of the community start to compare themselves with others regarding behaviour. When a user witnesses other users succeeding at something, knowledge sharing, for instance, their efficacy also increases. Verbal Persuasion: persuasions from a trusted and competent other helps to strengthen self-efficacy. The purpose of enhancing efficacy beliefs by verbal persuasions has little to do in the aspect of increasing level of ability and skill. Rather the focus is on cognitive appraisal of individuals' self-efficacy regarding enhancing the personal beliefs of a person as to what they can accomplish by what they already have. Simply put, this is the encouragement or discouragement received by users in the community from their peers. However, Hawkins (1992) discussed that this determinant might lead people to address tasks they could otherwise have avoided, or it may push people to put in more effort. Improvement in performance is achieved by the increased willingness to attempt a new task or to put in more effort on a current task. But persuasion "is not so much a matter of belief in one's ability to accomplish a task as of response willingness" (Hawkins, 1992). According to Bandura (1982), information that is considered relevant for the judgement of personal capabilities is not enlightening, and it only becomes instructive through cognitive appraisal. Physiological and Psychological factors: this is a state of emotional arousal. This source of efficacy beliefs is important as individuals perceive it as signs of vulnerability and dysfunction (Stajkovic & Luthans, 2002). Typically, the feeling of optimism in the face of stress and anxiety will enhance self-efficacy, whereas depression despondency and despair

will only seek to diminish efficacy beliefs. According to Bandura, the intensity of user conditions or mood is hardly the case, as is the approach the individual lends to it. Members of OHCs with strong efficacy beliefs will approach a challenging and emotional state as energizing, and those who are overcome by feelings of self-doubt will find their state devastating. Therefore;

Self-efficacy is positively associated with active participation

Mastery experience is positively associated with active participation

Vicarious experience is positively associated with active participation

Physiological/psychological factors are positively associated with active participation

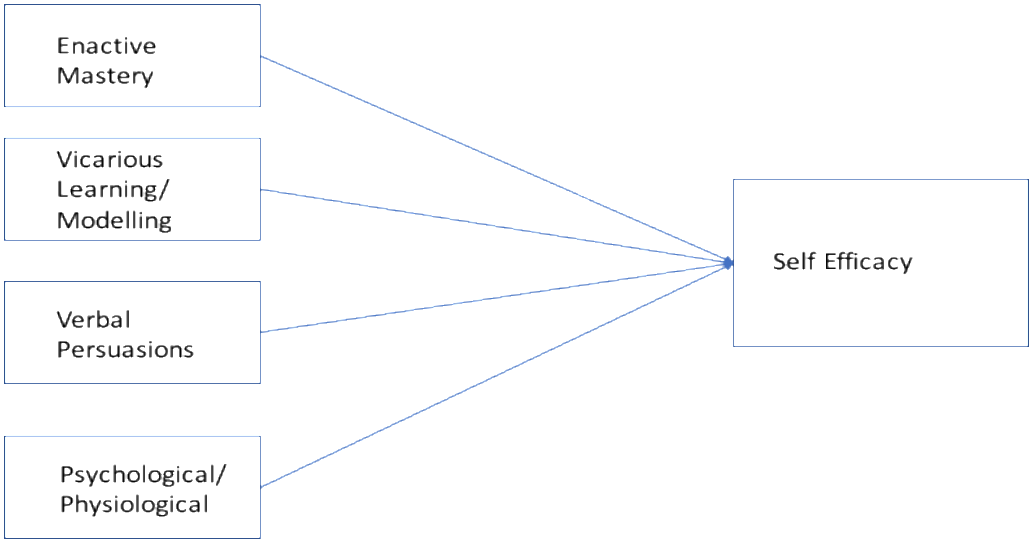

Figure 5: Determinants of self-efficacy

2.5.2 Outcome Expectations

This refers to users' anticipation of a favorable outcome when an action has been carried out. Though behaviours and actions must take place before an outcome can be judged as favorable or otherwise, it is common for individuals to plan for outcomes before they commence with a task, hence the reliance on self-efficacy alone is not enough to serve as motivation for individuals to carry out a task (Zhou, 2008). Per Bandura (1997), outcome expectations are made of three primary forms; Physical effects (pleasure and discomfort), social consequences, recognition, monetary rewards) and self-evaluation (self-satisfaction, self-devaluation). Within each of these forms, positive expectations are described as

incentives; therefore, human behaviour can be regulated by the different types and their effects (Bandura, 1997). This ideology can be employed in the context of knowledge sharing because users will be more willing to participate when the rewards exceed the cost (Constant et al., 1994). Compeau & Higgins (1995, 1999) identified two types of outcome expectations as it relates to user-computer behaviour. Personal outcome expectations and performance-related outcome expectations. In their study, POE involved a change in image and status, and in some cases, a raise in pay, whereas performance related is more associated with how users improve in job performance related to the use of computers. Following the perspectives of existing studies on this matter, Hsu et al. (2006) proposed that users of a community will share knowledge only when there are personal benefits to be received. However, in virtual communities (OHCs), the collective interest enables the establishment and flourishment of the community. Also, the knowledge inside an OHC is considered a rich and collectively owned and managed by the communities (Wasko & Faraj, 2000) and all members have access to all the knowledge. Hence, the motivation to share knowledge, in this case, can be argued to be for the community to grow rather than for personal interest, which will result in a positive image for the community. Wasko & Faraj (2000) also inferred from their study that knowledge sharing in an online community stems from motivations to grow and improve the community and moral obligation, and not so much of narrow self-interest. Therefore, researchers may conclude that outcome expectation through knowledge sharing can be grouped as personal-outcome expectations and community-related outcome expectations (Zhou, 2008; Hsu et al., 2006; Chiu et al., 2006). Personal outcome expectations entail user expectations such as personal image, respect from others, making friends in the community, and getting help and cooperation from other members, whereas community-related expectations (CROE) are about expectations of the user concerning the impact of his knowledge sharing in the community, helping to achieve the goals of the community, enriching the community knowledge base, etc. therefore,

H1e: Personal outcome expectations are positively associated with active participation

H1f: Community-related outcome expectations are positively associated with active participation

Extant studies in IS have shown that there is a significant relationship between self-efficacy and outcome expectations. In a survey carried out by Compeau & Higgins (1995), they found

that self-efficacy is strongly associated with performance-related outcome expectations and personal outcome expectations. Also, Johnson & Marakas (2000) explained that self-efficacy has a positive influence on user performance which also affects the outcome the user expects. Therefore

H3: Self-efficacy is positively associated with personal outcome expectations

H4: Self-efficacy is positively associated with community-related outcome expectations

2.5.3 Environment (Trust)

With respect to the environmental factors affecting behaviour, compared to traditional offline communities, virtual communities are freed from the temporal and spatial limitations and provides communication convenience to its users (Zhou, 2008), Yet, because of it anonymity, virtuality and lack of effective assurance mechanisms, some potential risks surround it's use. The present study views the role of the environment as trust. Trust is an inherent set of beliefs that individuals will abstain from opportunistic behaviours and not take advantage of one's situation (Moorman et al. 1992). When rules and regulations are insufficient to guarantee users that other individuals will behave the right way as expected as is often the case in virtual communities (Ridings et al., 2002), trust serves as a convenient substitute, by creating an atmosphere that will make engagement with other community members more open (Ridings et al, 2002; Butler & Cantrell, 1994), thus, trust rules out unwanted, undesirable, opportunistic behaviours among users of the community (Luhmann, 1979). This is a common behaviour in many virtual communities where some unscrupulous members decide to ridicule posts or provide unwanted, unverified information.

In virtual communities, trust can be understood in the context of trust between people i.e. interpersonal relationships (Rotter, 1971) – also referred to as personal trust by Luhmann (1998), this is because, in a virtual community, conversations are not between just one or two other people, the idea that posts shared are shared with a general audience, trust should exist at the generalized and collective level. In a virtual community, the development of trust between an individual and group of unknown others i.e. the community will eventually lead to a positive outcome for the entire community. Trust is particularly significant in the case of virtual communities as research has indicated that individuals in traditional communities excel more when they are involved with others they trust, whereas they actively avoid contact with those they do not trust (Blau, 1964). Extant studies on the effects of trust have maintained the assertion that trust is a multidimensional construct consisting of three main

beliefs: ability, benevolence, and integrity (Blau, 1964; Butler, 1991, Ridings et al., 2002), though these ideas are linked, each has been shown to be of relevance in the context of online interaction (Jarvenpaa et al., 1998), and each of the dimensions is prominent depending on what type of community it is.

Ability is the skills and competencies acquired by a user that enables the said user to have an influence in a particular area. This applies in the context of most virtual communities as they are almost always centered on a shared goal, interest or hobby, etc. and concerns about the abilities possessed by other users concerning mutual interests are important when interacting. Benevolence, on the other hand, is the perceived expectation that other users have a desire to be of help and be good to the trustee. In, in this case, the user (trustee) will reciprocate with suitable advice, discussions such as contributing to conversations to share experiences or offer help to others in need. This is an essential aspect of trust as the community will not thrive if there is no positive reciprocation. Integrity, the expectation that members of your group or the community will act according to socially accepted standards e.g. of honesty or principles, such as not sharing unreliable and misleading information.

Trust, therefore, is the degree to which OHC members perceive that other members can be dependable and have behaviours characterized by integrity (Zhao, 2013; Mayer et al., 1995). This level of interpersonal trust is emphasized in this study and separate from system trust which involves the degree of reliance on the OHC system. Studies have shown that trust encourages cooperation between members, information exchange, the disclosure of concerns and the ability to seek out help (Bradach & Eccles, 1989), which are all necessary for user information exchange in online health communities. Hence,

H1a: Trust is positively associated with active participation

2.6 Social influence Model

Kelman's (1974) motivation to examine social influence and its effects came out of his interest in understanding the changes brought about by external inputs to the attitude of an individual. Specifically, his study was directed towards understanding if attitude change resulting from external factors was temporary and superficial or a more lasting change that could become integrated the person's value system (Malhotra & Galletta, 1999). Kelman (1958) explained that attitude changes and the resulting actions produced by social influences could occur at different levels, in his view, the underlying processes where an individual

engages when he embraces induced behaviour may differ, but the resulting apparent behaviour may appear to be same (Malhotra & Galletta, 1999). Per Rashotte (2011), Social influence is the change in the thoughts, feelings and attitudes or behaviours of an individual because of interaction with another person or group who share similar interests/beliefs, are desirable or are experts. It is common, studies show, for individuals to adjust their beliefs on other users to whom they feel similar to by psychological principles. Changes in attitudes and actions of individuals resulting from social influence can occur at different levels (Kelman, 1958), and these differences in the change that occurs correspond with differences in the process where individuals accept influence, hence, the underlying processes where individuals engage when they accept induced behaviour may be different, albeit the resulting behaviour may be the same. Kelman (1958) further distinguished the various processes of influence to be compliance, identification and internalization. Each of the three processes represents a qualitative way of accepting influence. Behaviour induced through compliance is likely to be carried out under surveillance by the influencing agent (Malhotra & Galletta, 1999), contrastingly, behaviour prompted by identification is likely to be performed because of the relative importance of the individual's relationship with the agent, and behaviour prompted by internalization is performed because the individual has considered the relevance of the issue. Kelman (1958) proposes a systematic analysis of the determinants of influence, adding that the chances of a person accepting any form of influence is a combination of functions such as (a) the relative significance of the anticipated effect (b) the relative power of the influencing agent (c) the prepotency of the induced response. Each of compliance, identification and internalization can be represented as a function of the above-listed determinants, and for each process, the determinants may take a different form, therefore, the determinants of the three processes can be distinguished from one another by the nature of the effect, the source of the influencing agent's power, and manner the induced agent has become predominant (Kelman, 1958; Rashotte, 2011). Davis et al. (1989) in their proposal of TAM, addressed the effects of social processes on user technology acceptance. Also, Malhotra & Galletta pointed out the effects of psychological attachment (social influences) and the role they play in determining user behaviour. Extant IS studies seem to be more focused on compliance and its effects on behaviour, for example, Venkatesh et al. (2003), proposed a theory of technology acceptance and usage of technology, where compliance was an important determinant considered to affect user behaviour. More recently researchers have

started to explore the effects of the other two social processes (internalization and identification) on user behaviour (Zhou, 2011).

Studies have however only focused on motivations and their effects on user behaviour but have seldom examined the effects of social processes on the behaviour of the users (Zhou, 2011). The present study, therefore, draws on the social influence model by examining the how the three social processes (compliance, identification and internalization) affect user behaviour.

Compliance or subjective norm is a social process where an individual accepts influence with the hope to achieve a favorable reaction from other persons or group. The user may adopt the induced behaviour only because he expects some approval or to avoid punishments or disapproval (Kelman, 1958). When people who are regarded as important by the user (member of the community) recommend participation in a community, the user will be urged to comply with the opinions even if no positive attitudes have been formed towards the community (Zhou, 2011). Past studies have shown that compliance has minimal effect on behaviour. Bagozzi & Dholakia (2002) found that compliance did not have any effect on user behaviour and this could be because participation in an online community is usually voluntary and anonymous, members are free to come in and go as they please, so in most cases, members do not feel the need to comply with opinions and expectations of others. Zhou (2011) showed that compliance might influence intention to participate; however, this effect will be overshadowed by the effects of the other two social processes (Identification and internalization). In their study, Malhotra & Galletta (1999) found that when social influences generate a feeling of compliance, the resulting effect is negative on the users' attitude toward the new information systems. For this reason, the present study has not considered the effect of compliance on user behaviour.

2.6.1 Identification or social identity

Social identity is the part of an individual's self-concept derived from knowledge of his membership of a social group together with the emotional significance attached to that membership (Tajfel, 1974). Regarding the social identity theory, individuals define themselves regarding their social environment (Tajfel & Turner, 1979; Guan & So, 2016). Social aspects surrounding our lives shape who we are, guide how we think and what we do (Haslam et al., 2009). Of importance is that social identity is a result of communicative behavior as it is created and developed from social interactions (Scott et al., 1998), individuals can express their belonging to a variety of groups and access group image and

reputation through communicating with others (Dutton et al., 1994; Guan & Jo, 2016), and hence use the defined identity to determine their lives.

When individuals develop a sense of identity with a group, they value and imitate the characteristic behaviours of that group. Studies have shown that identification serves as the foundation for individuals' group membership to concrete group-approved behaviours (Tajfel & Turner, 1979). For example, when members of a community can strongly identify with similar and active members they are less likely to exit the community; they may become more involved as seen in the organizational context (Van Knippenberg & Van Schie, 2000).

Following Nahapiet & Ghosal's (1998) discussion, that identification makes individuals see themselves as the same with another individual or group, in the present study identification represents a personal sense of belonging and feelings of connection or having a positive feeling toward the community. Identification will serve as a resource that influences motivation to combine and interact by exchanging information with one another. However, in some cases, distinct and contradictory identities formed within groups can serve as significant barriers to information sharing, learning and creation of knowledge (Chiu et al., 2006).

According to Burke & Stets (2000), through social comparison process, individuals can pick out others who are similar to the self and are immediately categorized with the self and labelled in-group, and those who differ from the person are labelled out-group. In earlier studies, social identity was comprised of emotional, evaluative and psychological correlates of in-group classification (Burke & Stets, 2000; Turner et al., 1987). Ellemers et al. (1999) discussed three components that contribute to an individual's social identity: a cognitive component, an evaluative component and an emotional component.

Cognitive social identity is evident during self-categorization. In an online community, members of the community develop a sense of awareness of community membership, which includes factors of similarities with members and dissimilarities with non-members (Turner, 1985; Dholakia et al., 2004). Per Tajfel (1978), being a member of a community has emotional and evaluative significances. Emotional identity suggests a sense of emotional attachment and connection with other members of the group, which is also referred to as affective commitment. This component fosters loyalty and citizenship behaviours in group settings (Bergami & Bagozzi, 2000; Dholakia et al., 2004). Evaluative identity, it the individual's group-based or collective self-esteem, defined as the evaluation of self-worth as it relates to belonging to the community (Dholakia et al., 2004), it reflects the perceived value of the user, and importance as a member of the community (Zhou, 2011).

However, social identity has the potential to determine collective processes and outcomes. It has potentials to influence user motivation to contribute to group processes through recognition of resource combination and exchange (Nahapiet & Ghosal, 1998; Zhao et al., 2013). Chiu et al. (2006) explained that the development of a shared social identity among members of a community has an influence on the quality and quantity of knowledge shared among members. Given that virtual communities are glued together by the connections that exist between its members and by shared interests, problems and values, and those individuals usually hoard knowledge, individuals will not share knowledge unless to another recognized person. Perception of social unity and feeling of belonging of the community will increase the activeness of users to interact and increase the depth and breadth of shared knowledge (Chiu et al., 2006). Therefore, this study proposes that

H2.1: Cognitive identification is positively associated with active participation

H2.2: Evaluative identification is positively associated with active participation

H3.3 Emotional identification is positively associated with active participation

2.6.2 Internalization or Group norm

Group norms are defined as an understanding of and commitment by an individual member to a set of goals, values, beliefs and conventions shared with other group members (Dholakia et al., 2004). Group norms are defined as the agreement among members about their goals, shared values and expectations (Shen et al., 2010; Zhou, 2011), this component is relevant to online communities as it represents group-related information and will regulate member interaction (Dholakia et al., 2004). Users gain more understanding about group goals, values and conventions when they join the community, overtime; they perceive community norms through continuous long-term interaction. Group norms are common self-guides for meeting idealized goals shares with others because they are viewed as coinciding with one's personal goals (Dholakia et al., 2004), hence why it is useful for virtual communities since they are readily available e.g. FAQs or archived conversations from past interactions or inferable elements of group related information available in online communities (Postmes et al., 2000). Group norms exist and become known to members differently, for example, upon joining the community, a new member will try to seek out the common goals and conventions and values. Secondly, the new member(s) slowly starts to discover the norms of the community through social ties and reciprocity in interaction, leading to repeated participation over a

period, Perugini et al. (2002) described reciprocity in a social group as an internalized norm. Thirdly, new members may have learnt about the community before joining and already feel a sense of connection and an overlap with the values and standards of the community.

Strong group norms generate unanimity among community members regarding the mode of online interaction and engagement. Hence group norms enhance mutual agreement with regards to specific details of participating. In another sense, studies have shown that group norms promote a cooperative motivational orientation among group members (Weingart et al., 1993). When it becomes apparent that their values and goals are consistent with the community, they form active participation. therefore

H2b: Group Norm is positively associated with active participation

In addition to this, shared activity is preceded by mutual response on the part of members to do all it takes to complete their parts in enhancing joint action (Bratman, 1997), group norms, therefore, increase user inclination to mutually accommodate their schedules and activities with other to be able to engage in group actions and unanimity (Dholakia et al., 2004), this will lead the users to believe they have been accepted and are valid members of the community. When users realize this, they will develop a sense of trust, a willingness to be vulnerable to other members with the expectation of getting the same treatment from the other party.

H7 Group norm is positively associated with trust

2.6.3 Effect of Identification on trust

Trust is indispensable in social relationships (Lewis & Weigert, 1985). Social interactions are associated with intimacy and reciprocity in communication among members of the community. This interpersonal trust differs from system trust, which pertains to the willingness to rely on an OHC system (Zhao et al., 2013). Intensive interactions among individuals are essential to foster interpersonal relationships; therefore, community members develop trust for other members they communicate with because of the frequency in communication (Liou et al., 2016). Hence, social interactions encourage and increase confidence among the members of the community. Per Grabner-Kräuter (2009), when members trust one another and the system, it influences their confidence in the community in general, and consequently, an individual's general confidence in an OHC affects his attitude towards the community and the degree to which he likes or dislikes the community (Zhao et al., 2013). These parallel thoughts and behaviours create group identification and trust between community members and other members in general (Kim et al., 2012). Identifying

with other members of an OHC is a vital factor of community characteristics to predict member-behaviour in the online community (Kim et al., 2012). Studies have shown that OHC members through identification will share hobbies, goals and lead other members with shared interests and similar values, feelings, beliefs and behaviours in the community. Hence identification among members improves trust among members and accelerates their trust to the messages exchanged within the groups they belong to (De Cremer & Van Vugt, 1999; Liou et al., 2016). Therefore

H7a: Community identification is positively associated with trust among members

2.7 Proposed research framework for the study

The framework proposed for the present study is aimed at understanding the underlying factors that increase user motivation to participate in an online support group, (Macmillan community in this case), and to examine the effects of these factors on user behaviour. This would undoubtedly aid in giving more insight on why users are happy to participate yet some users remain silent within the community. The study adopted the social cognitive theory and social influence model to examine user behaviour as it relates to active participation. Factors considered are trust, self-efficacy and outcome expectations of users, as they affect the overall behaviour (active participation) by determining the effect of the social network (environment) and the abilities of the user (cognition). However, the overall behaviour of the user must be considered along with the causes and antecedents of user behaviour. The study, therefore, adopted Kelman's (1978) social influence model to understand the effects of the group, on an individual. Hence, we propose that user behaviour is affected by both the environment and personal cognition, but still influenced by embedded resources such as the effect of social processes on the individual.

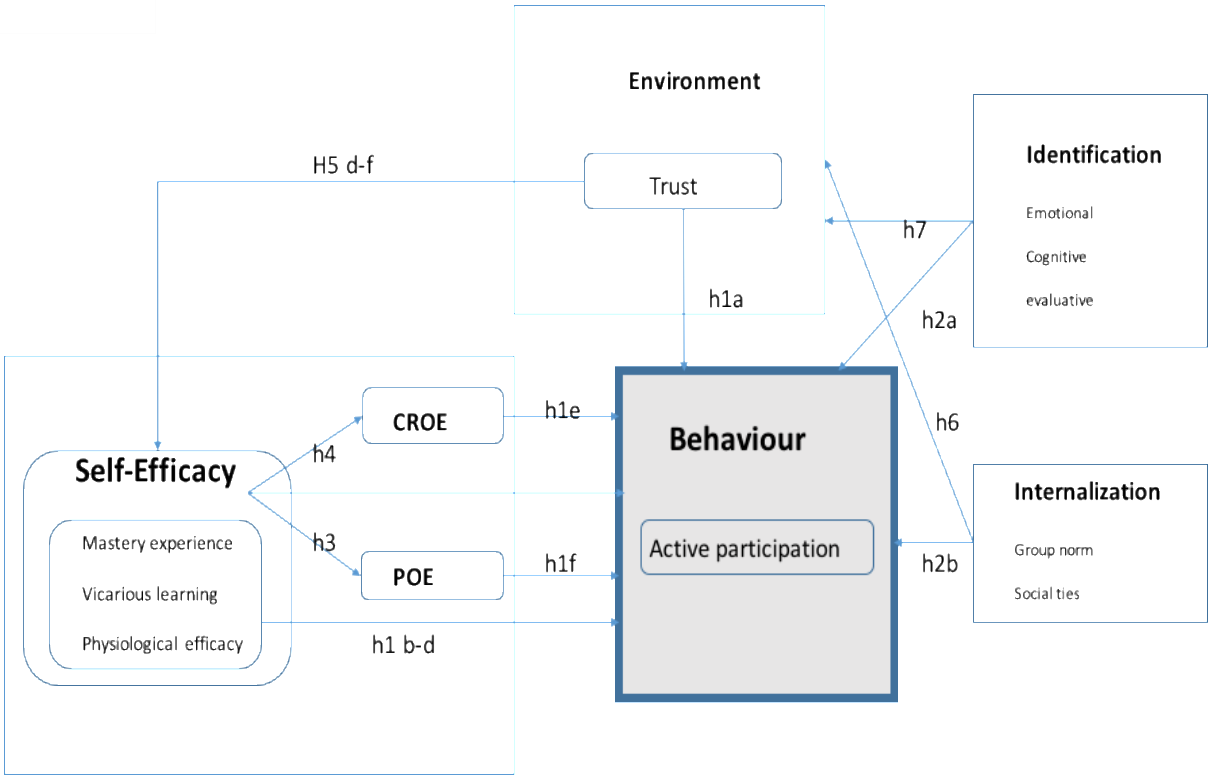

Figure 6: Proposed framework to be used for the study.

2.8 Summary

The proposed study demonstrates the potential effect of several factors on user participation behaviour. Factors relating to both social cognitive theory and SI model help to determine user behaviour and underlying motivations leading to behaviour. The study shows that self-efficacy and outcome expectations which are very vital parts of human behaviour have considerable effects on the overall behaviour of users. Of interest to the study is the impact of the social environment along with the social processes that occur and how they influence the user, hence identification (social identity) and internalization (Group norm).

The study also examines the moderators of the community, they manage and control information dissemination and strive to encourage interaction among members, this study, therefore, attempts to understand the role of the moderators within the community and methods they use to accomplish this task.

The next chapter will focus on the methodological approach for the study, with main focuses on the methods that have been adopted for the study as opposed to a broader discussion of research methods in the IS field.

METHODOLOGY

3.1 Introduction

Information system is in itself a multidisciplinary field, the nature of research carried out in IS tends to be complex, and selecting an appropriate research method is not very straightforward. These concerns have long preoccupied IS researchers and have played a significant role in developing the discipline, which has resulted in a rich discussion of different approaches (Mathiassen, 2002). Experts have agreed that no single approach can fit all studies, rather, a variety of research approaches, methods and techniques can be used in many different situations. This chapter will describe and present the philosophical assumptions supporting this study and describe the research methods, strategy and paradigms adopted in this research. According to Creswell (2007), it is important to explain the research approach as an effective strategy to increase the validity of social research. Information systems research spans across several disciplines including social sciences, business and management (Galliers and Land, 1987). The question of what method of research is most appropriate for information systems has been a focus of concern in this field for a long time (Mingers, 2001).

Orlikowski and Baroudi (1991) considered three broad paradigms of research, positivist, Interpretivist and critical. Their study showed that between 1983 and 1988, 97% of IS research articles used a positivist framework.

3.2 Diversity in IS Research

The IS field has been known to be diverse. According to Robey (1996), a field this diverse requires disciplined methodological pluralism, a phrase that was coined by Landry and Banville (1992). In their work, methodological pluralism is explained as a position that favors a diversity of methods, theories, even philosophies, in scientific inquiry. Methodological pluralism lies between monism and an anarchic anything-goes attitude, though both extremes are regarded as untenable for any science, rendering pluralism as a desirable state that can be used in most fields, even those which seem to be viewed retrospectively as operating with unified paradigms (Laudan, 1984).

Benbasat and Weber (1996) identified three types of diversity have been prominent in the IS discipline for over a decade (a) diversity in problems addressed (b) diversity in the theoretical foundations and reference disciplines (c) diversity in methods used to collect, analyze and

interpret data. Several studies have looked upon the threats and promises of diversity in IS research and how this may affect the progress of this field. Some promises of diversity include (a) the expansion of the foundation upon which knowledge claims are based, (b) attracting more people, good people to the IS field, (c) fostering creativity in the field, (d) advancing the valued principle of academic freedom (Robey, 1996).

Having explored the promises and threats of diversity, the following section will examine the research paradigms in the IS field to determine which paradigm will serve as most appropriate to guide the development of an ontological approach to explore the reasons for participation and no-participation in an online community. Further to this, a comprehensive discussion of the rationale for selecting a pragmatist paradigm.

3.2.1 Research Approach

These are the plans and procedures adopted for research that cut across steps involved in research, from general opinions to specific methods of data collection analysis and interpretation. Overall the decision involves which approach should be adopted to study a topic. Further to this, informing the decision should be the philosophical assumptions brought to the study which are; the research designs, research methods and interpretation. Selecting the desired approach is based on the nature of the research problem or the issue being addressed, the researcher's personal experience and the audiences of the study. In planning the steps towards completing this study, the researcher addressed the problem of low participation in an online support community through the pragmatic worldview especially because of its diversity and multiplicity of methods in approaching an issue. It becomes imminent to explore the existing motivations for participation through the lens of the users and as well, the managers of the community. A convergent parallel mixed method was adopted to aid in the data collection. This approach allows both strands of quantitative (user behaviour using online survey) and qualitative data (in-depth interviews with the managers) to be collected simultaneously and results can be merged during the overall interpretation to identify the convergence, divergence, contradictions or relationships between both data sets. The reason behind the adoption of this method was to allow the researcher to develop a complete understanding of the existing problem by obtaining different but complementary data.

3.2.2 Research Design

Understanding what makes an online community successful is quite complicated, although the development of these communities requires a particular technology, it is evident that technology alone does not guarantee a successful development (De Souza and Preece, 2004). A constant theoretical and realistic challenge in the design and adoption of sociotechnical systems is that of motivating users to participate actively, not just to seek information but also to contribute to them. Studies of online communities argue that some individuals are driven by self-interest, while others emphasize more altruistic motivations. Though they are increasingly pervasive, at their core, online communities remain a voluntary structure; whether individuals participate and in what way – is largely their own choice (Moon and Sproull, 2008), users of these communities have the option to come and go as they please. This study integrates the Social cognitive theory and the social influence theory to construct a model for examining the motives behind people's knowledge sharing in virtual communities. The study holds that the facets of social influence – compliance, identification and internalization will affect individuals' knowledge sharing in virtual communities. The study also argues that outcome expectations can engender knowledge sharing in virtual communities. In the quantitative phase, data analyzed from 866 members of Macmillan online cancer group provide support for the proposed model. The results generated from the study will help to identify the motivations underlying individuals' knowledge sharing behaviour in online communities.

The qualitative phase of the study was conducted using in-depth interviews with the managers of the community to explore the roles of the manager on the behaviour of the users. Because of the volume of messages and the anonymity of users, guaranteeing information quality or inducing quality content remains a difficulty (Chen, Xu, & Whinston, 2011). The second phase of the study investigates the role of the managers of the community as (lead moderators) and examines how it affects the content quality of the community. Information sharing and user generated content have recently become ubiquitous online phenomena. With the level of growth of these online support communities the Macmillan community must concern itself with the quality of content generated; therefore, proper moderation in online communities shows promise for ensuring content quality. However, there has only been little research in the study of the effect of moderation or design of a moderation system. Hence the need to understand the effects of managers because modern web-based applications in many cases involve direct input from a multiplicity of users (Chen, Xu, & Whinston, 2011). In the

case of user-generated content, users have different backgrounds as well as various objectives unknown to the designers and managers of the community. The challenge associated with a community like this is the creation of an environment where users exchange positive comments so that other users may find high quality and reliable information within the environment. With little expectation from members of a reasonable level of information credibility and reliability, the community could quickly lose the attention of its members and the possibility of onboarding. This phase of the study examines the effect of moderation on the performance of the members of the community. Studies have shown that communities consist of dedicated and opportunistic members, a proper moderation system moderates the ongoing conversations, and the end results affect both the readers of the comments posted and the reputation of the commentator.

3.2.3 Research Paradigms in IS Research

A paradigm can be viewed as a set of fundamental beliefs that deals with ultimates or first principles (Guba & Lincoln, 1994). A paradigm represents a worldview that gives meaning to the nature of the world, a person's place in it, and the series of possible relationships between that world and its parts. Based on Guba & Lincoln (1994) inquiry paradigms defines for inquirers what they are about and what falls within and outside the limits of relevant research. The core beliefs that give meaning to research paradigms can be summarized by the responses provided by advocates of any given paradigm to three key questions (Guba & Lincoln, 1994), which are all connected in such a way that the answers provided to either question in any order, constrains how the others may be answered

- The ontological question: the form and nature of reality, what is there that can be known about it?
- The epistemological question: the nature and relationship between the knower and what can be known
- The methodological question: how can the inquirer go about finding out what is believed can be known?

Orlikowski and Baroudi (1991) explained a classification of the three sets of beliefs that are responsible and necessary for delineating a way of seeing and researching the world, as they reflect the underlying beliefs of the researchers.

1. Beliefs about the phenomenon and object of study. The physical and social reality (Ontology)
2. Beliefs about the notion of knowledge (epistemology)

3. Beliefs about the relationship between knowledge and the empirical world (Methodology)

Beliefs about Physical and Social Reality:

a. Ontological beliefs have to do with the essence of the phenomena under investigation; it explains whether the empirical world is assumed to be objective and therefore independent of humans, or subjective, hence, existing only through the actions of people in creating and recreating it.
b. Human rationality: this deals with the intentions ascribed by researchers to the people they study.
c. Beliefs about Social relationships: how people interrelate in organizations, groups and society

Beliefs about knowledge:

a. Epistemological beliefs are concerned with the criteria by which valid knowledge about a phenomenon may be constructed and evaluated.
b. Methodological assumptions identify which research methods and techniques are appropriate for the gathering of credible empirical evidence.
c. Beliefs about the relationship between knowledge and the empirical world: concerned with the role of theory in the world of practice, and reflects the values and intentions that researchers bring to their work. That is, what the researchers think they need to accomplish their work and the inference of a given research study.

Following (Chua 1986; Orlikowski & Baroudi, 1991) research epistemologies can be categorized into positivist, interpretive, critical research and Pragmatists. Positivist studies are based on a priori fixed relationships within phenomena and are typically investigated with structured instrumentation. These studies primarily test a theory with a major aim to increase predictive understanding and generate meaning. Positivist study results are based on formal propositions, quantifiable measures of variables, hypotheses testing and drawing inferences about an occurrence from a sample to a stated population. Interpretive studies, on the other hand, is based on the assumption that people create and associate both subjective and intersubjective meanings to the world around them. Interpretive studies, therefore, attempt to understand the meanings assigned by individuals to understand the phenomenon. Generalization to a population is not sought in interpretive research; rather, the desired outcome is to understand the broader structure of a phenomenon, which can then be used to

inform other settings. Critical studies aim to access and evaluate the status quo, by seeking to assist in eliminating causes for unwarranted alienation and domination. By so doing, opportunities for realizing human potential is enhanced (Hirshheim & Klein, 1994). Pragmatism derives from the works of (Cherryholmes, 1992; Murphy, 1990). Though several forms can be associated with this philosophy, mostly, pragmatism as a worldview arises out of actions, situations and consequences as opposed to antecedent conditions. There is a concern with application, what works and solutions to the problem (Patton, 1990).

3.2.4 The Pragmatic worldview

Rather than focusing on methods, researchers emphasize the research problem and use all available approaches to understand the problem. Tashakkori and Teddlie (2010) conveyed the importance of focusing attention on the research problem and furthermore, using pluralistic methods to derive knowledge about the problem (Creswell, 2013). Based on (Cherryholmes, 1992; Morgan, 2007; Creswell, 2013) pragmatism provides the following philosophical basis for research.

1. Pragmatism is not connected to any single system of philosophy and reality. This applies to mixed methods research in that inquirers draw freely from quantitative and qualitative assumptions when they engage in research.
2. There is a freedom of choice among individual researchers. In this way, the researchers are free to choose what methods, techniques, and procedures of research that best meets the needs and purposes of the research and the researcher.
3. To the pragmatists, the world is not an absolute unity, just the same as mixed methods researchers look to several approaches for collecting and analyzing data rather than subscribing to just one way.
4. The truth is essential in pragmatism. Thus, in mixed methods study, investigators use both quantitative and qualitative data because they work to provide the most appropriate understanding of a research problem.
5. Pragmatists need to establish a purpose for mixing methods, a rationale for the reasons why qualitative and quantitative data must be combined in the first place.
6. Hence for the mixed methods researcher, pragmatism worldview will open the door to multiple methods, different world views and different assumptions, as well as the various forms of collecting and analyzing data.

Pragmatism embraces the use of mixed methods and models because it provides an efficient and applied research philosophy (Tashakkori & Teddlie, 1998). Though there have been many complaints about a lack of epistemological rigor for mixed methods (Bryman, 1984; Giddings, 2006) there also have been strong arguments that its epistemological roots are embedded in the classical pragmatists (Johnson & Onwuegbuzie, 2004). Pragmatist rejected positivism and antipositivism and hence reoriented to another criterion; the capacity to solve human problems (Rorty, 1989). Thus, for pragmatists, the purpose for science is beyond just finding the truth or reality but rather to facilitate human problem solving (Powell, 2001; Berwick, 2005). The researcher adopted this paradigm because the study of the Macmillan community could be efficiently evaluated through the pragmatic approach as this paradigm embraces highly relevant aspects such as; commitment to works in practice, appreciation of plurality and desire for integration of results. In fact, it is the inherent desire to change and influence practice that makes it appealing. The Macmillan community is sub grouped into several other communities which manage all forms of cancer ranging from those directly affected to users who have friends or relations that have been affected. The effective management of pain, emotions in a social environment continues to be an elusive outcome, and the reason for this state of affairs is complex and multifactorial (Carr, 2008). Using a research paradigm which that can embrace this complexity and yet offer new insights which can have an effect on user behaviour, and community management will be of considerable importance to managing online communities. Pragmatism has been acknowledged as the best paradigm for justifying the use of mixed methods research (Tashakkori and Teddlie, 1998; Teddlie and Tashakkori, 2003; Rallis and Rossman, 2003) and considers the research question to be more important than either the method used or the paradigm that underlies the method (Tashakkori and Teddlie, 1998; Teddlie and Tashakkori, 2003).

Triangulation

Denzin (1978) was first to outline how to triangulate methods, his work defined triangulation as the combination of methodologies in studying the same phenomenon. Four types of triangulation were described in his study

- data triangulation: using a variety of source in the study
- investigator triangulation: the use of several researchers for the study
- theory triangulation: multiple perspectives and theories used to interpret the results
- Methodological triangulation: using multiple methods to study a problem.

Denzin (1978) went further to distinguish within-methods triangulation from between methods triangulation.

Within-methods triangulation refers to the use of multiple quantitative or multiple qualitative approaches.

Between-methods triangulation, on the other hand, is the use of both qualitative and quantitative approaches

Further work by Morse (1991) outlined two types of methodological triangulation, to include:

Simultaneous triangulation: which involves the simultaneous use of quantitative and qualitative methods with limited interaction between both sources of data during the data collection stage, but then, the findings can complement one another at the interpretation stage.

Sequential triangulation: this approach is utilized when the results of one approach are necessary for the next method.

Yin (2009) defined triangulation as "the practice of employing several research tools within the same design… the procedure allows the researcher to view a particular point in research from more than one perspective and hence to enrich knowledge and test validity. Triangulation can be applied in all research process". Three outcomes arise from triangulation according to Denzin (1978), convergence, inconsistency and contradiction, and whichever of these outcomes prevail, researchers will be able to construct superior explanations resulting from the observed social phenomena. Hussein (2009) described the concepts as complementarity, convergence and dissonance. Complementarity (Inconsistencies) can help the researcher to produce a more detailed picture of the phenomenon under investigation. Convergence across multiple methodologies can instill more confidence in the conclusions drawn (Risjord, Dunbar & Moloney, 2002). And dissonance (contradiction) between findings has the potential to reveal individual cases and unique outliers, which could have remained unexplored otherwise (Jicks, 1979), hence, creating hypotheses or ideas worth testing or further explored in other studies (Risjord et al., 2001).

Triangulation in research can serve the following purposes (Jick, 1979)

- Allows researchers to feel more confident of their results
- Stimulating the development of creative ways of data collection
- Leading to thicker and richer data and uncover contradictions

- It can result in the integration of theories
- To achieve validity and credibility in the research.

More recently, studies have shown that triangulation allows researchers draw on the strengths of different research approaches and thereby increasing the rigor and validity of the study (Johnson & Onwuegbuzie, 2004; Thurmond, 2001; Williamson, 2005). Other studies on triangulation purport that triangulated research can lead to a deeper and wider understanding of the phenomenon being investigated (Johnson & Onwuegbuzie, 2004; Olsen, 2004; Hussein, 2009), based on the premise that using different approaches will offer some form of diversity of perspectives on the same issue and allow the researcher to address a wider range of questions than possible if only one method were adopted (Williamson, 2005).

Despite the strengths with the use of triangulation in social science research, there is still much debate on its utilization and adoption. A key criticism associated with this approach centers on the quantitative versus the qualitative paradigm argument. Traditionally, quantitative research adopts a positivist epistemological perspective to study a phenomenon whereas the qualitative research rejects the positivist paradigm and adopts an interpretivist viewpoint. Researchers from both ends of this continuum claim that since data generated from qualitative and quantitative methods are based on different assumptions concerning their nature of reality and how they can be studied, they cannot be effectively combined (Williamson, 2005). Some authors, however, postulate that mixing methods may present alternative research paradigm, between the traditional quantitative and qualitative divide (Olsen, 2004). The argument is based on a pragmatic philosophy, acknowledging aspects of both qualitative and quantitative paradigms (Mays & Pope, 2000), which argues that, though there is an external social reality that can be assessed by the researcher, the access is not direct, and all research will involve subjective perception and interpretation (Hammersley, 1992). Hence, both qualitative and quantitative methodologies are equally useful instruments whereby researchers can interpret and examine several aspects of common occurrences. Mixed methods thus offer a practical alternative, allowing researchers to draw on the strengths of both qualitative and quantitative methods and select which will be most useful for addressing their research questions.

3.2.5 Triangulation in the study

This study adopted a pragmatic approach to data collection, using the simultaneous triangulation approach in order to rule out any chances of bias in either the data source or the methods when the data sources are used in conjunction with one another, and secondly the

result will be a combination of truth and some social phenomenon (Denzin, 1978, p.14). The literature review suggests that online support community experience is a complex phenomenon influenced by an interplay of several factors. Bearing this in mind, combining qualitative and quantitative methods would allow for a more comprehensive integrated understanding of online support communities (LaCoursiere, 2001). Mainly, simultaneous triangulation was seen as a suitable way of investigating the similarities and distinctions between the data collected. For instance, it may be that the data gathered from the forum reveals the level of support users give and receive from one another, hence showing that users are supportive to one another, whereas the online survey indicates that participants do not perceive this form of communication as supportive. These inconsistencies if explored may help to shed some light on areas in which researchers, online community managers and health professionals need to focus some attention on. Other issues and challenges relating to conducting mixed methods will be discussed further in this chapter.

3.3 Quantitative and Qualitative methods

Qualitative and quantitative procedures should not be viewed as rigid and distinct categories, neither are they opposites or dichotomies, but instead, they represent different ends of a continuum (Newman & Benz, 1998) where a mixed methods research resides in the middle of this continuum as it incorporates elements of both qualitative and quantitative approaches.

More often than not, the distinction between qualitative and quantitative research is framed regarding using words which are considered as qualitative, rather than numbers (quantitative), or using close-ended questions (quantitative hypotheses) rather than open-ended questions (Qualitative interview questions).

More specifically researchers tend to focus on the underlying philosophical assumptions brought to the study, the types of research strategies that have been adopted by the study e.g. quantitative experiments or qualitative case studies and the particular method employed in conducting these strategies. In quantitative studies, most data are collected quantitatively on instruments where qualitative data are more inclined towards observing users or a setting. Quantitative approaches have been more dominant from the late 19th century up until the mid 20th century. However, a historical evolution has resulted in a growing interest in qualitative research and the development of mixed method research.

Recently, studies have demonstrated high counter pressures against quantification as a stand-alone method. Internal and external critiques to the conventional positivist approach have

been mounted to warrant the need to reconsider the utility of qualitative data and also to question the very assumptions on which the recognized superiority of quantification is based. However, some likely limitations of the quantitative methods according to Guba & Lincoln (1994), are;

- Context stripping – when quantitative approaches focus on selected subsets of variables, they strip from consideration, through appropriate controls or randomization, other existing variables that might exert their effects and substantially alter findings.
- Exclusion of meaning and purpose – human behaviour cannot be easily understood without referencing meanings and purposes attached by human actors to their activities. Qualitative data will aid in providing rich insight into human behaviour.
- Etic/emic dilemma – etic (outsider) theory brought to bear by an investigator sometimes has little association with the emic (insider) view of studied individuals, groups or societies. Qualitative data usually helps to uncover emic views.
- Inapplicability of general data to specific cases – generalization, though often statistically meaningful has no applicability in the individual case (for example the fact that 80% of a given population present symptoms of lung cancer does not necessarily mean that a particular patient with similar symptoms has lung cancer). Qualitative data can help with such ambiguities.

In summary, quantitative research is a research strategy that emphasizes quantification in data collection and analysis and hence

Quantitative	Qualitative
A deductive approach to the relationship linking theory and research, where the emphasis is on the testing of theories	Emphasizes an inductive approach to the existing relationship between theory and research, and hence emphasis is placed on the generation of theories
Incorporates the practices and norms of the natural scientific model and positivism in particular	Rejects the practice and standards of the natural scientific model (positivism)
Takes a view of social reality as an external, objective reality (Bryman & Bell, 2015).	Takes a view of social reality as a continuously shifting emergent property of individuals' creation

Table 1: (Bryman & Bell, 2015) Qualitative and Quantitative analysis

3.3.1 Combination of methods

The positivist experimental ideal of research has been the dominant approach to information technology studies, where researchers examine the effects and relationships among variables. This is why the consequences of information systems in organizations is the assumption that either technology or humans are antecedents of change rather than, that change is emergent, it emerges from the complex interactions between them. Most studies in the IS field are based mainly on methods of quantitative measures. Hence, organizational features, user features, technological features, and information needs are static, independent and objective, rather than as dynamic, interacting constructs, i.e., concepts with meaning and attribute, that are open to constant changes over time and may be defined differently according to how individual participants view and experience the relationships that exist or emerge between them (Kaplan & Duchon, 1988).

As most studies are restricted to readily measured static constructs, they neglect aspects of cultural environment and social interaction and negotiation that could affect not only the outcomes (Lyytinen, 1987; Kaplan & Duchon, 1988) but also constructs under study.

Qualitative studies became increasingly popular in the IS field, though it was never really the dominant paradigm this method and interpretive perspectives have been used in a variety of ways (Barley, 1986; Hirscheim et al., 1987). Interpreting regarding social action and meanings are becoming more popular as evidence grows that information systems development and use is a social and technical process. Gradually over the years, other fields started to shift toward combining qualitative and quantitative methods to provide a richer, contextual basis for interpreting and validating results. In this research, quantitative and qualitative were integrated methods to provide for more testability and context within the same study. Collecting different data, by various methods, from various sources has provided a wider range of coverage, and has also resulted in a fuller picture of the unit under study than would have been achieved otherwise. Moreover, using multiple methods will increase the vigor of results because findings can be strengthened through triangulation or when an explanation is developed for all the data when they diverge (Trend, 1979; Kaplan & Duchon, 1988).

Cook (1985) devised the term critical multiplism regarding the ideas that research questions can be examined from more than one viewpoint and it is, therefore, a useful approach to combine different methods with different biases. Another study Sechrest and Sidana (1995) outlined reasons for methodological pluralism which include (a) for verification purposes (b)

to provide basis for estimating possible error in the underlying measures (c) to aid the monitoring of collected data (d) to probe a data set to extract more meaning.

3.3.2 Mixed methods

This approach to inquiry involves collecting both quantitative and qualitative data, integrating these forms of data and adopting distinct designs that may include philosophical assumptions and theoretical frameworks. At the core of the premise of this method is that the combination of qualitative and quantitative approaches will provide a complete understanding of a research problem than either approach alone (Creswell, 2013).

Johnson, Onwuegbuzie & Turner 2007) noted nineteen different definitions with each subtly different from the other, though they all share similar opinions on the use of one approach, data collection and analysis. A comprehensive definition of mixed methods research: "Mixed methods is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth, depth of understanding and corroboration" (Johnson, Onwuegbuzie & Turner 2007).

In mixed methods studies, the combination can be useful at several stages of the study. Either method can complement the other depending on the approach the research gives to the study. In this study, the researcher is aiming to understand the underlying motivations for the users of the Macmillan community in relation to their participation. According to Sieber (1973), during the data analysis stage, quantitative data can facilitate the assessment of generalizability of qualitative data and shed new light on qualitative findings and conversely, qualitative data can play a significant role by giving meaning to or clarifying and validating quantitative results. At the data collection stage, quantitative data can be used to provide base line information and helping to avoid the issue of talking to only a particular group of individuals (Sieber, 1973). Also, Galliers (1992, p. 148) explained that the IS field is a pluralistic scientific field and it can best be understood and analyzed only with the help of pluralistic models. Hirscheim (1991) based his argument on the fact that information systems are more social than technical, they are seen as social communication systems which are embedded in a cultural context; therefore, multiple perspectives and interpretations have to be taken into consideration when researching in this field where the use of various research techniques is crucial.

3.3.3 Classifying mixed methods design

Creswell (2006) proposed four major types of mixed methods design: the triangulation design, the embedded design, explanatory and exploratory designs. Due to the different terms used for the designs of the classification, there has been a substantial amount of overlap of existing typologies; hence, a further classification by Creswell (2013) identified three basic methods for conducting mixed methods: the convergent Parallel design, the exploratory sequential design, the explanatory sequential design.

The convergent parallel design: this entails the simultaneous collection of both qualitative and quantitative data both having equal priority. The analysis of this is compared and merged to form an integrated whole (Bryman & Bell, 2015). This design is associated with triangulation exercises where the researchers aim to compare both sets of findings, and in situations where the researcher's goal is to offset the weaknesses of both research methods by capitalizing on their strengths.

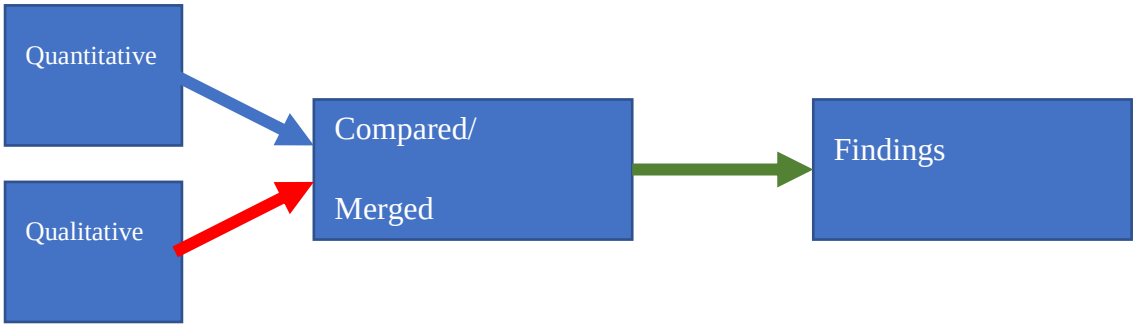

Figure 7: diagram is showing the convergent parallel design.

The exploratory sequential design: this method entails the collection of qualitative data and then followed by the quantitative data. It is used mostly when the researcher wants to generate hypothesis or hunches that can then be tested using quantitative research and with investigations in which there is an aim to develop research instruments such as questionnaires which can then be employed in a quantitative study (Bryman & Bell, 2015).

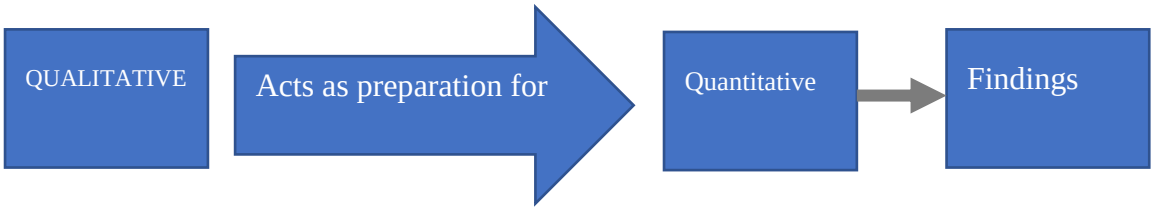

Figure 8: Diagram showing the exploratory sequential design.

The explanatory sequential design: this involves the collection and analysis of quantitative data followed by gathering and analysis of qualitative data to make more sense of and elaborate the findings from the last study.

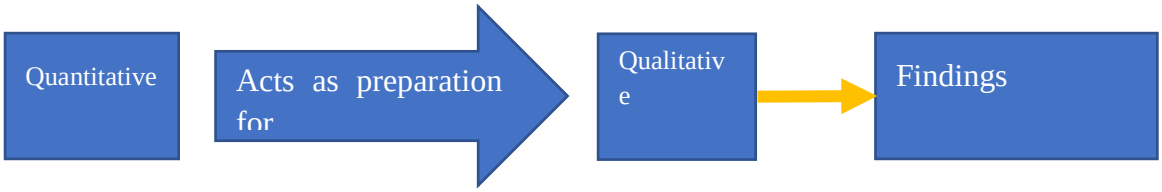

Figure 9: Explanatory sequential design.

According to Creswell & Plano Clark (2011) there exist three advanced approaches that incorporate the elements of the convergent, explanatory and exploratory approaches. They are

The embedded design: which can have either the quantitative or qualitative research as the primary method but draws on the other approach within the context of the study. The need for this approach may arise as a result of enhancing either qualitative or quantitative research with the other approach, or when the researcher feels either approach alone will be insufficient for understanding the phenomenon of interest (Bryman & Bell, 2015).

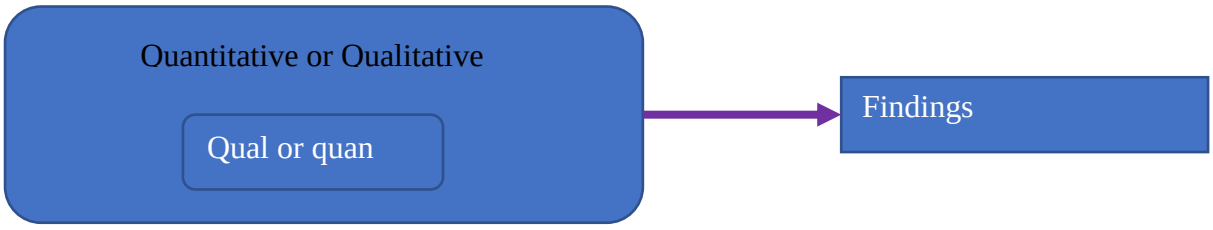

Figure 10: Embedded design

The transformative mixed methods: this methodological assumption suggests that the researcher starts with qualitative data collection to learn about an existing phenomenon, after that they can supplement their qualitative data collection at this time with quantitative data that might be available from existing sources (Mertens, 2012).

Multiphase mixed methods: in this approach, researcher conducts several mixed methods projects sometimes including convergent or sequential approaches and in some cases, including only quantitative or qualitative studies in a longitudinal study with the primary focus being a common objective in the projects. This is common in studies which multiple phases of the project stretch over time (Creswell, 2014).

Choosing the right design relates to three decisions according to Creswell (2006) and they are: the timing of the use of data collected (i.e. the order in which the data will be utilized) the weight of both qualitative and quantitative approaches (i.e. the emphasis given to each) and the approach to mixing both datasets (how the two datasets will be related or connected.

3.3.4 The timing decision:

In selecting a mixed methods approach, a researcher must be able to determine the timing of the quantitative and qualitative methods. Timing refers to the temporal relationship between the quantitative and qualitative components within the study (Greene et al., 1989). The concept of timing is discussed in relation to the time the data sets are collected. Bryman & Bell (2015) refer to this concept as the sequence decision, which method precedes which.

In studying the user participation in Macmillan, the researcher collected both strands of qualitative and quantitative data at about the same time (July to August 2015) with equal priority given to both methods. Analysis of the both sets of data was kept independent with the intention to merge both sets of data during the overall interpretation. At the end of the study, the researcher will look for convergence, contradictions or relationships between both sets of data.

3.3.5 The weighing decision:

Going beyond the timing or sequence decision, the researcher must determine the relative weighting of both approaches in the study. It is essential to consider the relative importance or priority of the quantitative and qualitative methods to answer all possible questions posed by the study (Creswell, 2006). This choice is also referred to as the priority decision (Morgan, 1998; Bryman & Bell, 2015). Is the qualitative or quantitative method the primary gathering tool or do they both assume the same weight?

The present study assumes that both methods assume the same weight. This is because the quantitative study has helped to understand the views and need of existing users, but as stated in previous chapters, studies have failed to explore the underlying components and social processes embedded within a social network. It is therefore imminent to study these processes and how they affect the users, through the lens of the moderators or the managers of the community; hence the interview carried out with the three managers of the community.

The mixing decision:

Another procedural consideration for choosing a mixed method lies in how the quantitative and qualitative methods will be mixed (Creswell, 2006). Using both methods without

explicitly deciding how they will be combined is simply a collection of multiple methods. According to Creswell (2006), the datasets from both qualitative and quantitative methods can either be merged, or one embedded into the other, or they can be connected (i.e. when the analysis of one type of data leads to the need for the type).

This study adopted the convergent parallel method of data collection. The selected approach is based on the necessity of the study to investigate the values of the managers of the community as well as user behavioral statistics. An integrated summary of the predictors (derived from the theories) of behaviour, and the views of the community managers will provide valuable insight in the interrelation of possible motivational factors, and guidelines to increase user response, particularly active participation within the community.

3.4 Research Strategy: Case studies

A case study is an experiential analysis that investigates a contemporary phenomenon within its real-life setting, especially when the boundaries between phenomena and context are not distinctly evident and it, therefore, relies on multiple sources of evidence (Yin, 1994). Case study research investigates predefined phenomena without but with no involvement in precise control or manipulation of variables: its focus is on an in-depth understanding of events and its context (Cavaye, 1996). According to Yin (1994), both qualitative data collection and analysis methods and quantitative methods may be used.

There are three reasons why case study research should be conducted as a research strategy in information systems (1) it allows the researcher to study information in a natural setting, learn about the state of the art and create theories (2) the researcher can answer how and why questions i.e. understanding the nature and complexity of the processes taking place (3) the researcher can gain valuable insights into emerging topics especially with the rapid pace of change in the IS field. According to Benbasat et al. (1987), the researcher must determine the unit of analysis most appropriate for the project. The unit of analysis can either be individuals, groups or an entire organization. In some cases, the unit of analysis may be a particular project or decision.

3.4.1 Participants of the study:

Macmillan Cancer support

Data used for the study was collected from the Macmillan cancer support community. The organization started in 1911 when Douglas Macmillan used his inheritance to establish the

society for the prevention and relief of cancer. The Macmillan community has over 100,000 members registered to the organization who belong to different groups and forums within the wider community. This community is an aggregation of supported, professionals, volunteers, campaigners and individuals who are affected by cancer. The organization caters for a wide range of cancer patients to offer support, energy and inspiration.

The members of the community were mostly women with the most common age group falling between 45–65 years old. The first phase of the study involved the use of quantitative research tools such as the web survey, Survey monkey was used, and a total of 1566 responses were received within a period of 2 months. Most users were registered members of the community, and the study was split into two parts consisting of members and non-members of the community. 866 responses from the registered members were considered for the quantitative study. The interviews were directed at three individuals who are the managers of the community. The researcher only focused on three interviewees as they were the managers of the community, so the need for selecting interviewees did not arise.

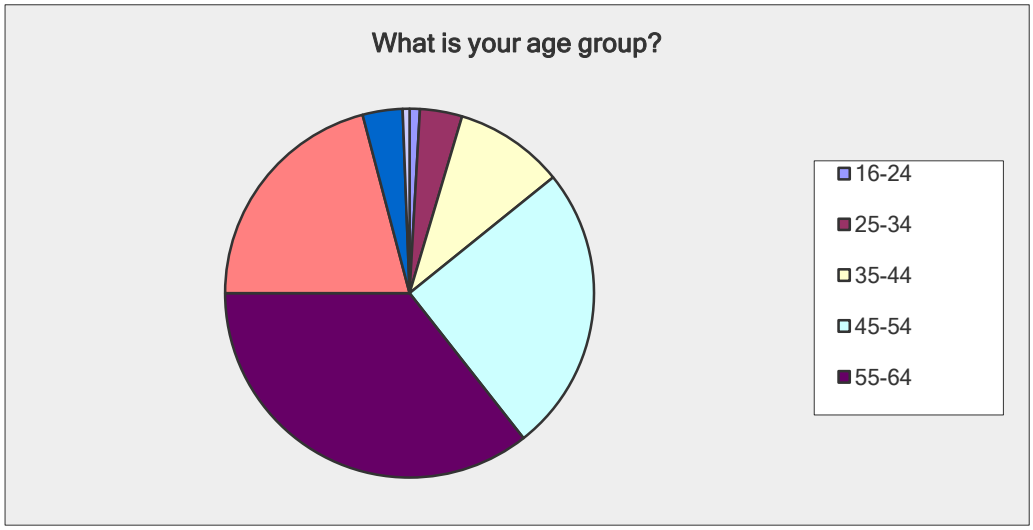

Figure 11: Diagram showing age group of users

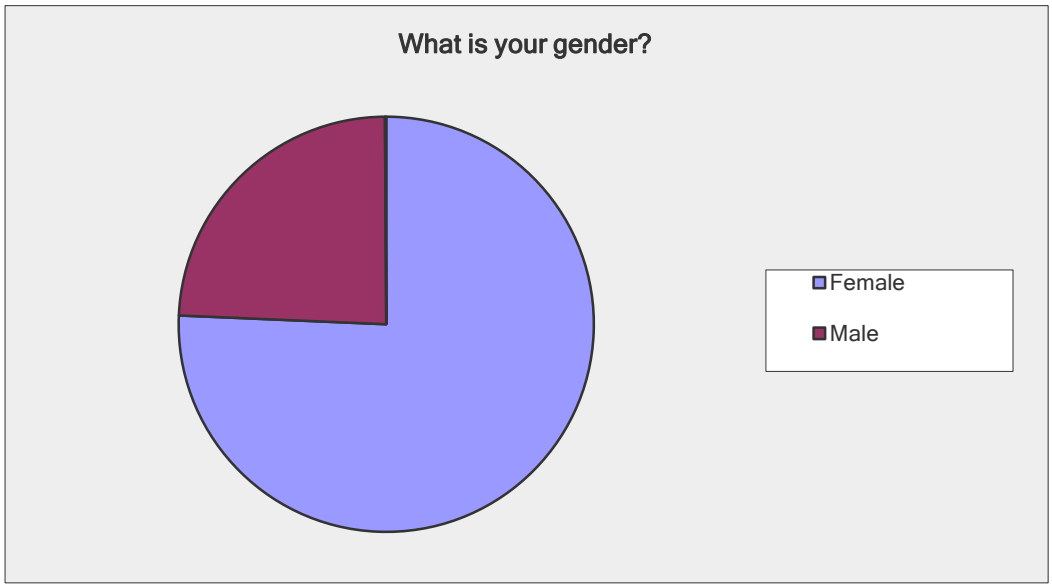

Figure 12: Diagram showing gender distribution of users

3.4.2 Participant invitation to Survey

The participants of the survey are all members of the community, and users of the internet who have access or who tend to visit the community and understand the medium of language used in the communities. Geographical boundaries are not a constraint (Wright, 2005).

Google search was used to find online support communities to seek for communities that offer support to users with a focus on health-related matters. Of the several communities that were identified, five communities were considered as cases for this study. Given that it is relatively easy to create an online community, but rather difficult to sustain users' visits and their intention to participate, it is believed that the major communities in the area of health and support would attract a substantial number of users to integrate into the community, generate sufficient discussions to encourage potential users and keep the users coming back. However, no clear criteria about community size and frequency of visits are used to consider the representativeness of communities. Given the easy creation and number of support communities existing, the researcher shortlisted the communities based on the following criteria

1. Communities with membership above 10,000 if group number is indicated in the community
2. Communities with recent discussions. The last discussion reported in the community is within the last month if there is timing shown in the discussion(Thesis).

A formally written Email was sent to the management of all five support communities inviting them to participate in the study at hand, and indicating the aims and objectives of the

study and how the results could impact the community and also improve on the problem of participation.

Macmillan community was the only community who picked interest in the study and were willing to participate. The community met the criteria very conveniently, as they have over 100 000 members and generate 3000 threads of messages daily. The researcher also explained benefits associated with participating in the study include: an overview of the community's position on the research question, a rich description and detailed understanding of the nature of phenomenon within the online community. Also, the results from the study will be pertinent to their decisions and approach in managing the community and will be made available within a given timeframe. Also, the researcher reached an agreement with the participating organization concerning confidentiality requirements about the entire study, data and findings, and all limitations on the disclosure of identities of the participants.

3.5 Qualitative phase of study

Interviews:

Interviews are common occurrences in our social lives because there are several different forms of interviews ranging from job interviews, media, social work and appraisal interviews. All various types of interviews share some similar features such as the eliciting of information by the interviewer from the interviewee (Bryman & Bell, 2015). In research interviews, the interviewer aims to elicit all manner of information from the respondent including bits of information such as the respondent's behaviour or that of others, attitudes, beliefs, values and norms. There are different forms of interviews, but the primarily employed is the structured interview. More popular forms of interviews are unstructured or open-ended interview and semi-structured interviews (Thomas, 2011).

In a structured interview, also referred to as a standardized interview, the aim is for all respondents to be given the same context of questioning. Hence each respondent receives the same interview incentive as the others. The goal here is to ensure that the replies from the interviews can be aggregated, and this can only be achieved if the responses are in response to identical cues (Bryman & Bell, 2015).

3.5.1 Unstructured interviews

These are conducted in conjunction with the collection of observational data (Bloom, 2006) and are widely used in the ethnographic tradition of anthropology. Ethnographers collect data by observing participants and recoding filed notes as they observe from the side lines.

Simultaneously, the researcher identifies one or more informants with based on their knowledge and roles in a setting to be interviewed on an ongoing basis (Bloom & Crabtree, 2006). The interviewer then elicits information concerning the meanings of observed behaviours and interactions with questions constantly emerging as the researcher gains more knowledge about the setting.

3.5.2 Semi-structured interviews can either occur with an individual or a group.

An individual in-depth interview gives allowance to the interviewer to probe into social and personal matters with the interviewee. Group interviews allow the researcher to gain a wide range of valuable information, but due to the public nature of the process, it prevents investigating into deep matters as with the individual interviews. Group interviews take the form of focus groups where multiple participants share information and experience about a specific subject.

In the context of this study, semi-structured interviews are adopted as they enable the researcher to reveal the role of the moderators within the community. This part of the study will aid in unearthing the effects of social processes and components embedded within a social network on the users of the online community. The managers of the community manage the interaction and information shared in the community. Hence, they hold some controlling power on the activities carried out within the community. Therefore, it becomes imminent to examine the relationship between the managers and the users of the community. An in-depth study with each of the managers of the community with no restrictions on matters discussed was adopted in this phase of the study.

3.5.3 In-depth Interviews

In-depth interviews served as the exploratory qualitative research tools chosen for this study to understand the general attitudes and the behaviours of online community participation, based on the different backgrounds and experiences of the users. The interviews were directed only at the three community managers of Macmillan. While still hands-on, community management serves as a more strategic way to oversee, monitor and improve the community as it grows. Though the community managers stated they are involved in moderation activities, their job also includes content coordination, proactively addressing and engaging members and maybe giving feedback where necessary to senior management. Very active members of the community – referred to as champions of the community, have also been engaged by the managers to serve the purpose of moderating daily conversations within

the community. They keep a watchful eye on community activities, a very welcome idea because the threads of messages coming in daily will need a more hands-on approach to deliver value to the users effectively. While there exist many communities that need increased levels of traditional moderation, like communities geared towards children, the Macmillan community utilizes a combination of self-policing (by the champions) and online community management. Also, private online communities include more functionality than comments and threads of discussions. The community managers will bridge the gap between the goals of the organization, customer needs and the social components available to them in the online community platform.

The qualitative study will shed light on the role of the managers in increasing user satisfaction and hence facilitating participation, the injection of social components in the community and what they (the managers) perceive to be the benefits and limits of online support seeking. According to LaCoursiere (2001), eliciting qualitative information from users can result in better understanding of the phenomena of online support. Qualitative data not only offers better insights into the experiences of the managers but also allows for increased understanding of their perception and evaluation of the information shared and activities carried out in the community. For these reasons, an in-depth interview seemed like the ideal approach in initiating a better investigation of online support communities.

In-depth Interview

Three members of the Macmillan community were interviewed. They represent the managerial team of the online community and were chosen for the study because (a) they are the managers for the entire community (b) they have direct and indirect impact on the existing and future developments and improvements to the community (c) deep knowledge on user behaviour and how these behaviours are related to online community behaviour.

The objectives of the interviews with online community managers were:

a) to understand the attitudes and behaviours of the members of the community

b) to understand the dynamics of online community

c) to understand the concept of communication within the community, how members interact with one another

d) gain insight into experiences and expectations on online community management.

e) To discuss and gain insight into the determining factors for the success of online communities.

3.5.4 Sampling

The sampling technique to be adopted in a study to obtain a representative subset of the target population is a major concern in research. Choosing the right approach to this depends on the nature of the research.

Sampling procedures in the behavioral science are divided into two groups - probability and purposive, but in essence, there are four broad categories (Teddlie & Yu, 2007) these are probability, purposive, convenience and mixed methods sampling.

Probability sampling techniques are used primarily in quantitative studies as it involves randomly selecting a large number of units from a population so that the probability of inclusion for every member of the community is determinable. The aim is to achieve representativeness, i.e. the degree to which a sample represents an entire population.

Purposive sampling techniques are used in qualitative studies and can be defined as selecting units based on specific purposes that relate with answering the questions of a given study. In this sampling method, appropriate settings, persons or events are chosen for the information they can give that cannot be gotten as well from other sources (Maxwell, 1997; Teddlie & Yu, 2007).

Convenience sampling involves drawing samples that are willing to participate and easily accessible.

Mixed methods sampling involves selecting unit for a research study using both probability sampling and purposive sampling. The use of probability sampling is to increase external validity, and purposive sampling strategies will improve transferability. Further to this, Teddlie & Yu (2007) proposed a provisional typology of Mixed methods sampling strategies; these are; Basic, sequential, concurrent, multilevel mixed methods sampling. Basic Mixed Methods sampling are typically types of the purposive sampling techniques, but yet they include a component of probability sampling. This approach may be used to generate narrative data in Qualitative oriented research.

Sequential mixed method sampling explains the selection of units of analysis for a mixed method study through the subsequent use of probability and purposive sampling strategies, quantitative and then qualitative or vice versa. Information from the first sample (derived from a probability sampling procedure) is sometimes required to draw the second sample (purposive procedure) (Teddlie & Yu, 2007). Concurrent Mixed methods sampling involves the simultaneous use of probability and purposive sampling in selecting units of analysis for a given study. Both sampling procedures are used at the same time in this case, as neither sets

the stage for the other. Multilevel mixed-method sampling is a general sampling strategy whereby probability and purposive techniques are adopted at different levels of the study.

This research employed the use of the concurrent mixed method strategy to collect codes and analyze data jointly, where probability sampling techniques are used to generate data for the quantitative strand and purposive data techniques used to generate data for the qualitative strand. Both sampling procedures occur independently. To understand the impact of the managers on the community, what measures they take to foster communication, and how they can infuse the components of the social influence model in the community and it members, all three managers of the community were approached to be recruited, and they were willing to participate.

The process of carrying out the in-depth interviews commenced with an information page which described the details of the research, participant rights and the details of the researcher. This was followed by a model consent form to indicate that the participants will not be named if they did not wish to and seeking the approval of the participant to partake in the study. The questions were grouped into different categories to explore the following issue: Participation of the members and how the effect of managers on this, moderating conversations, Clinical expertise, Sense of community, and perceived advantages and disadvantages of the Macmillan online support community (Appendix). Questions were derived from the broad aims of the study.

3.5.5 Invitation to in-depth interview

The community managers that participated in this study were recruited based on mutual consent. At the start of the study, the researcher contacted Macmillan community and asked to investigate the activities that went on within the community. The community had among its staff, three community managers each with several years of experience in online communities. Besides managing the moderators of the communities, the managers were responsible for (a) the smooth operation of the community and sub-communities – smaller communities of users affected by different types of cancer. For example, breast cancer, lung cancer groups, carer's groups (b) keeping track of the different users and ensuring that every user gets along (c) member regulation to ensure members follow the rules (d) ban users who breach the terms and conditions of the community. (Appendix 1)

3.6 Quantitative phase of study

This study investigates internet users' (Macmillan) community participation behaviour using an online survey over a four-month period, from August to November 2015. An online survey is a research strategy, whereby meaningful quantitative information is systematically gathered from a large sample taken from the internet population (De Leeuw et al., 2008; Wright, 2005). See Appendix 6.

3.6.1 Sampling for quantitative study

The online survey adopted a probabilistic random sampling as the best approach to reach the required and most suitable participants for the study. This method was chosen as most effective because it gives each member of the Macmillan community an equal and known chance of being selected. In studies with a large population, it may be impossible to identify every member of the population, therefore leading to a bias in the pool of available subjects.
The sample population is made up of members and non-members of the Macmillan community; the study was more concerned about the activities of the members as this will help to identify the factors that could be improved upon to increase onboarding and user participation. The target respondents are therefore internet users who are either registered with Macmillan community or tend to visit the community frequently without signing up as registered members. As part of its activities, an online survey is conducted in the summer of every year by the managers of the community, to elicit user satisfaction with the community with an aim to improve the community to suit the desires of its members. For the quantitative study, the researcher contacted the managers of the community and reached an agreement to partake in conducting the online survey for the summer of 2015, which was sent out in August and closed in November 2015.

3.6.2 Research Tool

The survey was hosted on a web-based survey software tool, survey monkey. This tool was favored among numerous web-based surveys because it is relatively cost effective, easy to use, and has allowed researchers to launch and design surveys independently. Additionally, it offers several designs and technological features, including the ability to download data in various formats, formats for multiple questions, and capacity to detect multiple responses. The entire survey was carefully crafted, ensuring that it was clear and easy to follow. Each page had a progress bar to show the respondents how much progress was being made and

how far they had gone in completing the survey. The survey incorporated information about the project being carried out, and a message was sent on to the community to encourage members to take part in the survey, and the guidelines for completing the survey. According to Wright (2005), these factors will help instill faith and trust in the credibility of the researcher which will most likely encourage people to complete the survey.

The survey began with a short introductory page indicating the necessity of the study, the rights of the participant and contact details of the organization should the need arise to make contact.

Participants were asked to provide background information at the beginning of the survey, to include age, gender, location and how they have been affected by cancer. Further questions were related to reasons from participating in the community, self-efficacy, expectations of the participants, their satisfaction with other members and with the community itself, congruence of values with others and a sense of community.

3.6.3 Data Collection Methods

Online surveys:

This method involves sending the questionnaires to a large group of participants covering a wide geographical area. These survey based questionnaires are usually received cold, without any previous contact between the researcher and the respondent and studies show there is usually a low response set (K. Kelley et al., 2003), hence, for this study a population of as many users of the Macmillan community was targeted, because as response rates are low, a large sample is required when posting the questionnaires for two main reasons: (a) the ensure the demographic profile of interviewees reflects that of the survey population (b) to provide the researcher with a sufficiently large data set for analysis.

Online survey products also referred to as web or internet surveys (for example survey monkey), have in the last few years emerged as highly convenient research tools (Buchanan & Hvizdak, 2009). The usefulness of these tools cannot be overemphasized as they enable researchers to create and deliver surveys to potential respondents/participants in a convenient, expeditious manner, and furthermore, they produce results in synchronous time, so respondents and researchers can watch data compilation happen instantaneously.

Studies of online populations have increased the use of online surveys, thereby presenting scholars with new challenges regarding the application of traditional survey research methods to studies, such as online behaviour and internet use. Over the years the technology behind online surveys has evolved, it is no longer a time-consuming task necessitating experience

with web authoring programs, HTML code or scripting programs (Wright, 2005). In this day, survey authoring packages and online survey services have made it easy and fast. Advantages include access to individuals irrespective of geographical location, the ability to contact participants who are difficult to reach, the convenience of automated data collection thereby reducing the researcher's time and effort. Disadvantages, on the other hand, include uncertainty over data validity and sampling issues, concern surrounding design, implementation and evaluation of an online survey.

Online surveys are among the most popular methods of data collection for online research. They offer considerable savings in cost and results in prompt responses when compared to postal surveys (Fricker & Schonlau, 2002). As a result, they are increasingly becoming an attractive option for researchers from several disciplines. However, scholars suggest that the decision to employ online surveys should involve evaluating the appropriateness of the method for the specific topic under study (Naus, Phillip & Samsi, 2009), because the current proliferation in online surveys may lead to survey fatigue among users (Witte, 2009).

As most websites tend to store minimal contact information, the internet presents the only viable method for reaching and recruiting users/participants to a study. The participants can be asked to provide contact details in order to receive a postal survey, however past research indicates that individuals accessing online communities have high regard for the anonymity afforded by the medium (Coulson & Knibb, 2007; Tanis, 2008), hence, requesting for the postal addresses may be viewed as a form of intrusion and will discourage some users from being a part of the survey. More so, the potential sampling frame of online communities can consist of hundreds of thousands of members spread across the world, using an online survey may offer a more cost-effective way of conducting the research on this population.

Administering online surveys can also create a sense of anonymity, hence facilitating self-disclosure among participants. Indeed, extant studies have shown that there are more honest responses in online surveys in comparison to postal surveys (Bryman, 2004). Coderre, Mathieu & St-Laurent (2004) noted that participants who responded to e-mail questions tend to complete open ended questions and deliver insightful comments compared to those who respond by mail. However, some potential limitations exist in the use of online surveys; detecting deception can be a difficult task when using an online survey (Mendelson, 2007). Unlike the interview methods, surveys do not allow a researcher to investigate individual responses in an attempt to detect inconsistencies; therefore, researchers cannot be sure about the actual identity of respondents.

Another possible disadvantage linked with the use of online surveys relates to response rates. Some studies have shown that response rates for online surveys tend to be lower than postal surveys (Crawford, Cooper, Lamias, 2001; Fan & Van, 2010). Reasons behind this are yet to be understood, and hence, researchers do not have the practical strategies required to increase response rates at present but a possible cause for this may lie in the fact that internet users are usually bombarded with research solicitations on daily basis and for that reason have less motivation to complete what is viewed as yet another survey (Kraut et al., 2004).

3.6.4 Survey questionnaire design

Some major aspects to consider here are clear presentation, closed answers and the Likert scale

Clear presentation: A self-completion questionnaire must have a lay out easy on the eye. Survey monkey is web based and has an outline and font display that appears very convenient for the users. This tool was used by the researcher and the Macmillan community to conduct the web based survey.

Vertical or horizontal Closed answers: keeping in mind that most questions in a self-completion questionnaire are likely to be of the closed kind, a major consideration is whether to arrange the fixed answers vertically or horizontally. More often than not, many researchers tend to use a vertical format when possible because in some cases, where either arrangement can be adopted, confusion can arise when a horizontal one is employed (Sudman & Bradburn, 1982) e.g.

Very good _ good _ fair _ poor _ very poor. In this example, there is the risk that a hasty completion of this exercise will result in the participant ticking the wrong space.

Response sets in a Likert scale: An advantage of using closed questions is that they can be pre-coded (Bryman & Bell, 2015), thus turning the process of data for computer analysis into a fairly simple task. For example, questions in the survey were scored as

Strongly agree = 5

Agree = 4

Neither agree nor disagree = 3

Agree = 2

Strongly disagree = 1.

3.7 Validity and Reliability

Reliability defines how much a particular test, procedure or tool such as a questionnaire can produce related or similar results in different circumstances assuming no other changes occur. Validity is subtle in concept; it relates to the closeness of what is believed to be measured to what is intended to be measured, Punch (1998) described validity as the extent to which a measure represents the concept it claims to measure. In quantitative studies reliability is the proportion of variability in a measured score due to variability in the true score (Roberts et al., 2006), hence a reliability of 0.8 means 80% of the variability in the true score is true, and 20% is due to an error. In essence, any research tool is supposed to provide the same information as it is used by different people, this is termed inter-rater reliability and if it is used at different times – (test-retest reliability). Validity in quantitative studies can either be internal or external. External validity has to do with the ability to apply the findings of the study to other individuals and other situations, ensuring that the conditions under which the study is carried out are representative of the situations and time to which the results apply (Black, 1999). Internal validity tackles the reasons for the outcomes of a particular study and then help to reduce other unanticipated grounds of these results. Internal validity can be accessed by three approaches; content validity, criterion related validity and construct validity.

Content validity is the weakest level of validity; it is in line with the relevance and representativeness of item representativeness, e.g. individual questions in a questionnaire, to the intended setting (Roberts et al., 2006). Criterion-related validity is used when a tool (questionnaire) can be compared to other similar validated measures of the same concept or phenomenon (Eby, 1993; Roberts et al., 2006). Construct validity describes the initial concept, notion, question or hypothesis determining which data is to be gathered and how to go about it. This was adopted for the study as the researcher deduced hypothesis from a theory that is relevant to the concept (Bryman & Bell, 2015).

In qualitative research, validity and reliability are concepts seen through the lens of trustworthiness, rigor and quality in qualitative paradigm (Golafshani, 2003). To achieve these constructs, the researcher must consider avoiding all forms of bias and increase truthfulness of a proposition regarding some social phenomenon using triangulation (Denzin, 1978). Before the analysis of the entire study commenced, the researcher selected 100 respondents from the total respondents and conducted an exploratory factor analysis,

followed by a reliability test. The results reflected that all constructs were reliable, and achieved the minimum cut off value of 0.7 in Cronbach's alpha.

Testing the questionnaire: Pretesting is essential to the successful communication and delivery of intended messages to the target respondents for improving the quality of the data and responses (Summers, 2001). For this reason, six individuals who have at one time or the other being involved in online communities were invited to partake in the pretesting survey. They were all PhD students and also, members of online communities. Some of the constructs were modified after the pre-tests to deliver a more logical flow to the survey questions. The questionnaire items for this study were derived from existing studies and therefore had already been subject to validation; nonetheless, they had to be adapted to suit the objectives of this research. Hence further validation took place, with the aid of a pilot study.

3.7.1 Data analysis

This research adopted various data-collection approaches, the analysis of the data collected was accordingly driven by both quantitative and qualitative methods. Quantitative analysis was carried out using IBM SPSS version 20 to conduct statistical analysis. Qualitative data analysis was conducted using Nvivo 11 to aid in the management and organization of code generation, storage and management of data. This research has therefore built its analysis plan and data processing practice with regards to the analytical techniques that are applied to qualitative and quantitative data.

3.8 Summary

This chapter gives a detailed description of the methodology, research design and measurement scales used in the research. The study adopted the pragmatic paradigm and justified the reasons. A convergent parallel mixed method approach was adopted using quantitative (Online survey) and qualitative (in depth interviews) research to understand user participation behaviour in an online community. The use of two phases of the research for data gathering from both strands was justified, and they include, the in-depth interviews with the managers and online survey for the members of the community. The next chapter discusses the findings from both phases of the study and compares them with reports from existing literature.

4 CHAPTER 4: QUANTITATIVE ANALYSIS

4.1 Background

The chapter explains the quantitative and qualitative methods used, the process of testing the quantitative hypotheses, the demographic characteristics of the test sample, data analysis procedures adopted and the findings elicited from the analysis. Exploratory factor analysis was used to construct questionnaires to measure the underlying variables and to decrease the data-set to a more manageable size while preserving as much of the original information as possible (Andy Field, 2013). Multiple regression was used to determine the relationships between the predictor variables (Independent variables) and the outcome variables (dependent variables).

However, the qualitative phase of the study will provide an insight into how and why an online support community can be beneficial for individuals affected by cancer and the role of moderators in facilitating communication among members, the quantitative phase will focus on whether accessing an online community is in any way associated with measurable psychosocial outcomes by continuous participation and knowledge sharing among members of the community. Indeed, studies have explained that these communities bring people together virtually from different geographical locations, knowledge sharing among users still has not lived up to expectation (Hsu et al., 2007), as 90% of community members are passive readers, mostly just one-shot participants who do not maintain their memberships (Preece et al, 2004; Wang et al., 2015). The extent to which user experiences online, influence well-being and the behaviour of the user - which in this context is the motivation to participate within the community - is thus an important issue that warrants further investigation. The study is interested in exploring whether user behaviour in the community is associated with factors such as outcome expectations, self-efficacy, the environment, social identity, sense of belonging and group norm. These are factors extracted from the social cognitive theory and the social influence theory. Studies have shown that among several factors that affect the degree of benefit derived from support communities, membership and activity level play a significant role (Barak & Dolev-Cohen, 2006).

The study presented in this chapter was therefore particularly concerned with exploring whether the variables of both theories used were associated with an increase in activity levels, which could lead to extended stay or membership and improved psychosocial outcomes. The study will also look at the effects of negative online experiences on the participation level of users. This part was of importance as many community members in other studies have indicated that there were a lot of negative comments in their communities and this may influence their attitude and acceptance of online support.

4.1.1 Demographic Profile of the Respondents:

Data collection commenced in August 2015 through November 2015. More time was allowed for the collection of the quantitative phase because of the risk or chances of members missing the invitation link to participate in the survey if, for example, they do not visit the community page very frequently. Some members visit the community just to source information and may skip the instructions to be a part of the survey in progress. In cases where the member is concerned about the comments and postings of other members, due to the volume of daily threads on the Macmillan community, the invitation link could become obsolete very quickly, hence, follow up messages were posted to remind the community members concerning the survey. Data collection was conducted via survey monkey. A total of 1511 members and non-members of the communities were collected. 1115 were women (75.6%) and 357 men (24.2%). Appendix 3 is a summary of respondents' demographic characteristics and distribution charts.

4.2 Methods

This section discusses the methods of data collection, the processes involved in preparing the data and then analyzing the collected data to test the proposed hypothesis and answer the research questions.

4.2.1 Coding and Editing Data

At the end of the online survey data collection, the researcher proceeded into editing and screening the data. This phase precedes the coding of the data. Editing and screening are both considered simple but critical. Because it is foundational, any mistakes during the process would result in significant negative consequences on the later steps during the analysis. The entire results are based only on completed questions deemed appropriate for the analysis. The coding phase involved assigning binary variables to user responses in the SPSS data file.

4.2.2 Survey items

The final survey instrument addressed the six facets of the social cognitive theory and social influence theory, among a broad selection of questions constructed to examine user behaviour across the community (see appendix 6 for full survey):

The sections described in the survey consist of:

- Background information: respondents were prompted to provide information about their demographic characteristics: age and gender.
- Use of the support community: Respondents were asked about their awareness of the community, to indicate whether they are members of the community or not, this was because the survey was open to both members and non-members of the community. They were asked to indicate how long they had been using the Macmillan community, the frequency of visits to the community, the problems they encounter in using the platform and the overall satisfaction level of the user. Some of the questions used in this section were open ended, to allow the emergence of new issues and to be able to identify issues most salient to the respondents.
- Compliance, identification, and internalization are facets of the social influence model, and they were measured based on existing studies on the effect of social influence in community participation (Tao Zhou, 2011; Bagozzi & Dholakia, 2004). Identification was measured based on three reflective dimensions: Cognitive, evaluative and affective social identity.
- Self-efficacy, outcome expectations and trust derived from the social cognitive theory were used to examine the behaviours of the user, which in this study was the level of participation of the users in the community.

4.2.3 Ethical issues for the study

Ethical approval for the study was obtained from the ethics department of the university. An ethics form was downloaded for this purpose. Several measures had to be taken to ensure the confidentiality and privacy of all respondents and also to make sure that the participants are aware of the nature of this research and their rights as the participants involved.

The managers of the community were given full information with regards to the purpose of the study, the methods and their rights to privacy, to confidentiality and withdrawal from the study. All these were in the form of a participant information page and a model consent form. The researcher's contact details were also made available should any individual wish to raise

some concerns and queries regarding the research. Participants were also informed that participation was entirely voluntary, and the option to skip some questions if they did not feel like answering or not comfortable enough to answer.

Secondly, some measures were taken to protect the privacy and confidentiality of the participants in the study. Firstly, names or personally identifying information were not prompted for or indicated in any part of the study. A password protected access to the raw data is withheld by the researcher.

4.2.4 Data Screening

The process helps to ensure that the data are clean and set to be used for further analysis. This phase was conducted to be sure that the data is normally distributed – a prerequisite for regression – all missing values are replaced and outliers omitted. Pallant (2005) explained the importance of carefully examining missing values to figure out whether they happen randomly or non-randomly.

The significance of this cannot be overlooked because randomly distributed missing values show there is no bias, but in a case where the missing values are non-random or follow a systematic pattern, the generalizability of the results might be affected (Tabachnick & Fidell, 2007).

The data examined revealed that 14 users refused to answer any questions besides the age and gender and this resulted in a series of missing data. Based on the recommendation above these users were not considered in the entire study as it can affect the generalizability of the results.

4.2.5 Outliers Detection and Multicollinearity

Outliers can be defined as cases with standard deviations that are over or well under the standard deviations of the majority of other cases. Pallant (2005), argues that outliers are expected if data are normally distributed and extend more than three standard deviations from the mean. Detecting and treating outliers is a necessary step as it might affect the validity and reliability of the data. Though some scholars suggest that outliers should be removed, others recommend keeping them by adjusting their values to less extreme ones (Tabachnick & Fidell, 2007). Multicollinearity occurs when variables have a high correlation with each other in a regression model. The tolerance and the Variance inflation factor are two primary values used to determine multicollinearity. If tolerance value is less than 0.10 and VIF value higher than 10, the multicollinearity exists between the variables. The study variables did not

challenge multicollinearity as tolerance values are above 0.10 and VIF values are below 10 in all the regression models (Appendix 4 and 5).

4.2.6 Treating open ended questions

Inductive content analysis was carried out on responses to open ended questions to identify the range of reasons for users accessing the community, reasons for non-participation and some advantages and disadvantages associated with the use of the community. Firstly, the analytic stage involved reading each response severally to get very familiar with the dataset. Further to this, the second stage involved coding the respondents' answers. Finally, the list of preliminary codes generated were collated and labelled. Overlapping codes were grouped together under higher order categories (Ela & Kyngas, 2008). For example, codes such as understanding, not-alone, reassured were all labelled as Social support.

4.3 Results:

4.3.1 Characteristics of Participants

A total of 1511 users completed the online survey questionnaire, of these, 866 were members of the community, others were visitors, either frequent visitors or otherwise. Of the total population of respondents, 75.64% were females and 24.2% male. The age of the respondents ranged from 16 to 75+ with the age group of 55-64 being the highest participants at 35.9%. The least age group of 16-24 had 7 participants; three respondents refused to declare their ages. Also, 35-44 was the second highest respondents with a total of 235 responses, and the 65-74 group had 155 responses. Among the entire population of 1511 respondents, 866 users are registered members of the Macmillan community, with the female population still very much higher than the male (78.2% female, 21.7% male).

What is your age group?		
Answer Options	Response Percent	Response Count
16-24	0.8%	7
25-34	3.8%	33
35-44	11.2%	96
45-54	27.3%	235
55-64	36.7%	316
65-74	18.0%	155
75+	1.7%	15
I'd rather not say	0.3%	3
answered question		860
skipped question		6

Figure 13: Age distribution among members.

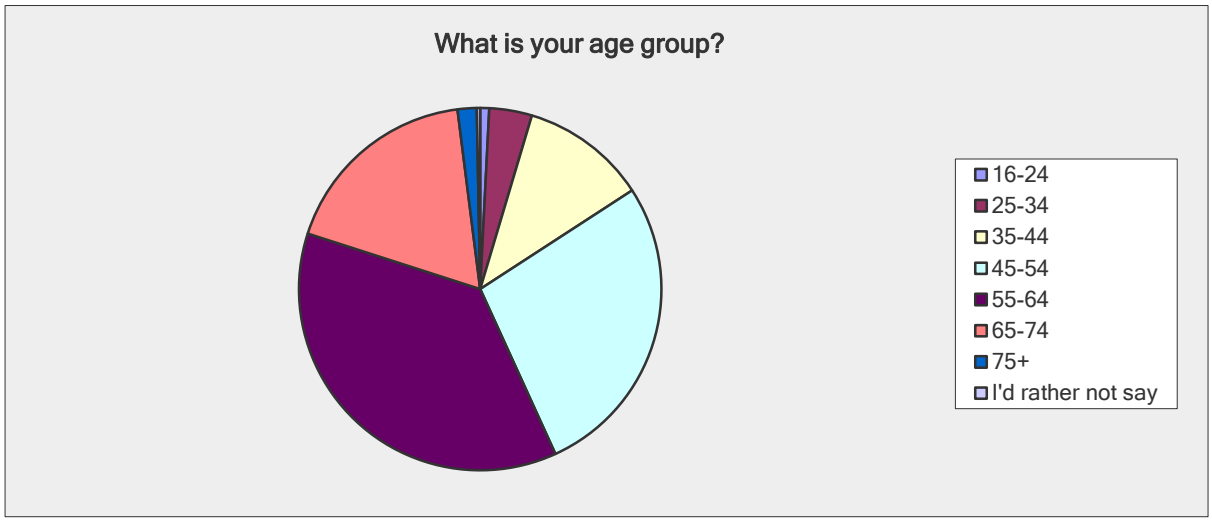

Figure 14: Pie chart showing the age distribution of members

Participants were asked if they belonged to other communities or support groups and found that 67.8% (405 respondents) belonged to Facebook support communities followed by twitter communities – 20.8% (124 persons) and Breast cancer care community with about 103 persons (17.3%). When asked about the duration of membership, because it was useful to note if there was any improvement in behaviour for users who have been members longer than others, a majority of the respondents to the questionnaire had been members of the community for up to two years 24.4%, a total of 209 respondents. 101 users claim to have been members for 2-3 years, 176 have been members for 7-12 months, 125 had been members for 4-6 months.

How long (approx.) have you been a member of the Community?		
Answer Options	Response Percent	Response Count
Less than a month	4.9%	42
1 - 3 Months	13.5%	115
4 - 6 Months	14.6%	125
7- 12 Months	20.6%	176
1 - 2 Years	24.4%	209
2-3 years	11.8%	101
3 years +	10.2%	87
answered question		855
skipped question		11

Figure 15: Duration of membership in Macmillan community

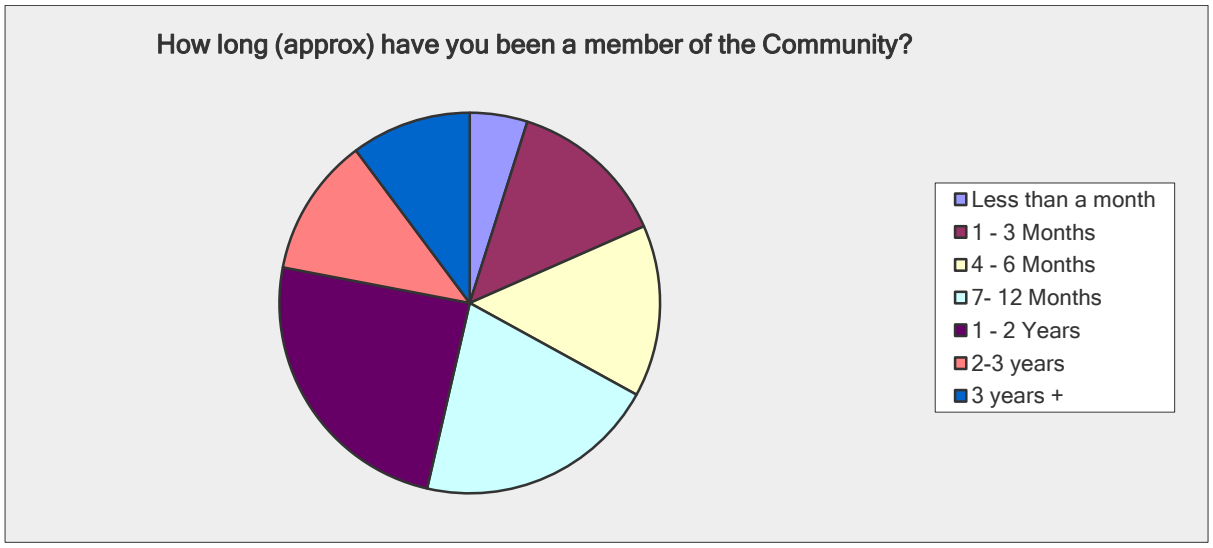

Figure 16: pie chart distribution of membership

85.5% of the users find the site easy to use while 122 find that they have problems accessing the website. A majority of the users who find it hard to use (52.9%) do not know how to find their way around.

If you answered 'no' to the above question, what problems do you come across on the site?		
Answer Options	Response Percent	Response Count
I don't understand forum terminology very well (i.e. post, discussion, comment)	14.5%	20
I don't know how to find my way around	52.9%	73
I don't know when someone has replied to me	21.0%	29
I don't know how to change my email notifications	9.4%	13
I often come across technical glitches on the site	19.6%	27
I don't like using the mobile site	10.9%	15
I have problems with the mobile site	13.0%	18
Other (please specify)	21.7%	30
answered question		138
skipped question		728

Figure 17: Ease of use

More than half of the members of the community claim to be satisfied with their use of the community with 18.6% stating that they are extremely satisfied, 36.5% are very satisfied, 27.6% are fairly satisfied, and only 0.7% are extremely dissatisfied.

Overall, taking everything into account, how satisfied are you with your use of the Online Community?		
Answer Options	Response Percent	Response Count
1. Extremely Satisfied	18.6%	143
2. Very Satisfied	36.5%	280
3. Fairly Satisfied	27.6%	212
4. Neither	11.6%	89
5. Fairly Dissatisfied	4.0%	31
6. Very Dissatisfied	1.0%	8

7. Extremely Dissatisfied	0.7%	5
answered question		768
skipped question		98

Figure 18: : user satisfaction level of the community

When users were asked their reasons for refusing to participate, by sharing information or posting to the community, as much as information is a key driver for any online community, users' response is indicating that majority of users are satisfied by just reading available posts (53%). A good percentage of users feel they need to settle into the community and maybe post in the future (47.4%).

Answer Options	Response Percent	Response Count
Just reading the posts is enough for me	53.0%	131
I prefer to keep my anonymity	14.6%	36
I never had any intention to post	3.6%	9
I'm shy about posting	19.0%	47
I'm worried about posting	7.7%	19
I have nothing to offer by posting	10.1%	25
I don't know how to post to the community	11.7%	29
I'm worried I may get aggressive or hostile	3.6%	9
It's of no value to me	2.4%	6
The group treats members badly	0.4%	1
I have no time to post	1.6%	4
I may post in the future, I just haven't yet	47.4%	117
Other (please specify)	9.7%	24
answered question		247
skipped question		619

Figure 19: Non-participation of users

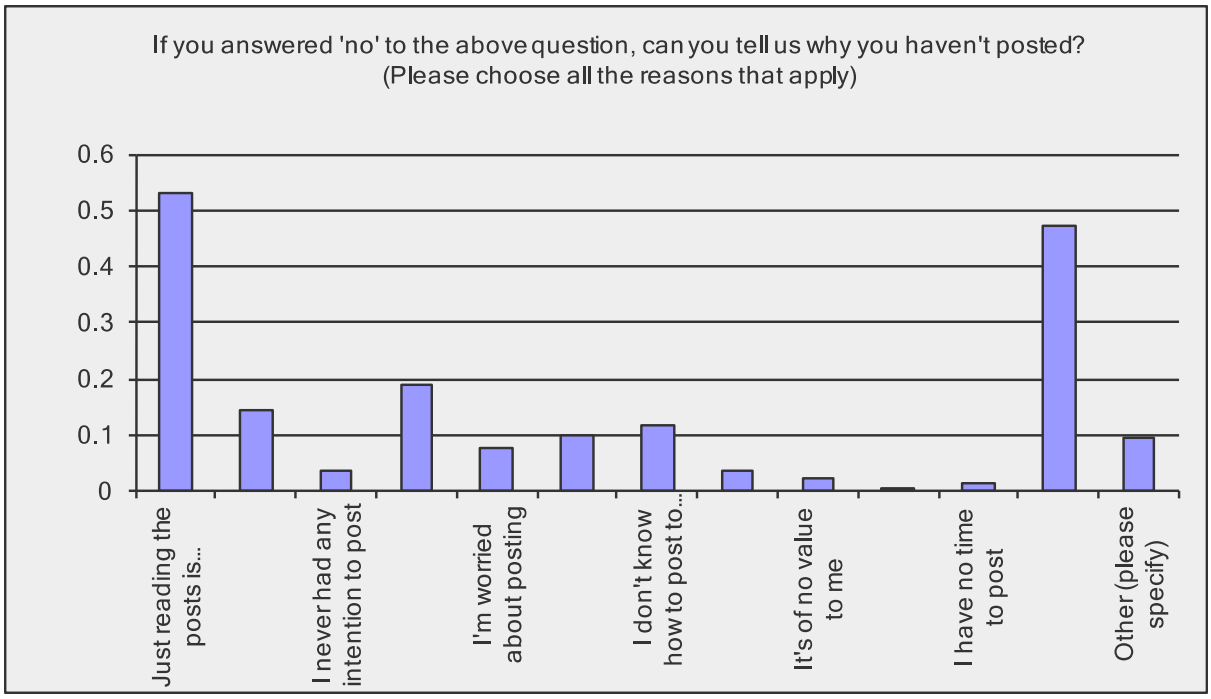

Figure 20: Why do members refuse to participate?

4.3.2 Exploratory Factor Analysis

All items used in the study to measure user participation behaviour were entered into the analysis using the data from 0nly the 866 members of the community. Using factor analysis, the study was able to approve a 6-factor solution. All variables were included in each factor if factor loadings were significant (0.40 and above). The analysis rejected variable items whose factors did not load above 0.40.

Exploratory Factor Analysis

Variable	Items	loading factor	Items	Cronbachs Alpha
IDENTIFICATION	IDF 1	0.577		
	IDF 2	0.931		
	IDF 3	0.666	7	0.979
	IDF 4	0.514		
	IDF 5	0.489		
	IDF 6	0.636		
	IDF 7	N/A		
INTERNALIZATION	INT 1	0.65		
	INT 2	0.593	4	0.835
	INT 3	0.695		
SELF EFFICACY	SELEFF	0.894		
	SELEFF1	0.735		
	SE	0.815		
	SE2	0.611		
	SE3	0.753		
	SE4	0.821	12	0.933
	SE5	0.784		
	SEFF1	0.312		
	SEFF2	0.741		
	SEFF3	0.84		
	SEFF4	0.84		
	SEFF5	0.769		
COMMUNITY	CROE 1			
RELATED OUTCOME	CROE 2	0.425		
EXPECTATIONS	CROE 3	0.672	5	0.65
	CROE 4	0.66		
	CROE 5	0.4		
PERSONAL				
OUTCOME	POE	0.312	1	
EXPECTATIONS				
TRUST	TRU 1	0.615		
	TRU 2	0.737		
	TRU 3	0.783		
	TRU 4	0.826	8	0.922
	TRU 5	0.83		
	TRU 6	0.665		
	TRU 7	0.679		
	TRU 8	0.685		

Table 2: Factor analysis showing loading factor of variables and Cronbach's alpha

Eigen values were checked, and by Keiser criterion, only factors with eigenvalues above one can be retained (Field, 2005). Two items were removed as they did not have a factor loading of 0.4 and therefore had to exclude from the study.

Six items loaded significantly onto factor 1. All six items were in line with the concept of Identification. Three items loaded onto factor 2 and were consistent with the idea of

internalization. Twelve items loaded onto factor 3 and were in line with self-efficacy, four of five items loaded onto factor 4 which was consistent with community-related outcome expectations, and eight items loaded onto factor 6 which was in line with trust. Cronbach's alphas for all factors ranged from 0.65 to 0.97 indicating a perfect internal consistency of the factors.

Table(x) shows the reliability of the variables for this study. The study adopts Cronbach's alpha to evaluate the reliability of the variables. Per Tabachnick & Fidell (2007), the value of Cronbach's alpha should be greater or equal to 0.65; therefore, all research variables can be considered reliable by the values of their Cronbach's alphas.

Furthermore, to determine the adequacy of the extraction method in the exploratory factor analysis, the researcher employed the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy along with Bartlett's test of sphericity. Tabachnick and Fidell (2007) explained that the factor analysis extraction method is acceptable if KMO is above 0.60 and Bartlett's test of sphericity is significant at ($p < 0.001$). These conditions are applied in this study as KMO value is 0.848 and the test for sphericity is significant $p<0.001$. The factor analysis of this study is therefore considered appropriate.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.848
Bartlett's Test of Sphericity	Approx. Chi-Square	11790.442
	df	666
	Sig.	.000

Table 3: Kaiser-Meyer-Olkin (KMO) test

TABLE below is the cumulated results of a bivariate Pearson correlation test. Indicated therein are the degrees of association among the elements of social cognition - trust, outcome expectations (personal and community-related outcome expectations), self-efficacy – and the elements of social influence - Identification and internalization.

From the table, the relevant hypothesis will be expected except for some elements of identification and self-efficacy.

	1	2	3	4	5	6	7	8	9	10	11
TRUST	1										
CROE	.346**	1									
S/EFF	.208**	0.017	1								
SELF EFFICACY	.437**	.247**	.520**	1							
SELEFF	.275**	0.001	.188**	.191**	1						
INT	.550**	.131**	.119**	.248**	.315**	1					
IDF	0.004	.075*	0.001	0.024	.249**	0.014	1				
IDF 4	0.007	0.064	0.009	0.076	.115**	0.002	.342**	1			
IDF 3	0.025	0.013	0.02	.O18	.105**	.082*	.401**	0.053	1		
POE	.466**	.448**	0.053	.299**	.084*	.243**	0.027	0.07	0.026	1	
KSP	.181**	.223**	0.026	0.263	0.019	0.009	0.059	0.003	0.024	.213**	1

Table 4: Pearson's correlation showing correlation association among all variables

4.3.3 Hierarchical multiple regressions:

Assessing relationships between the environment and user behaviour:

Regression in statistics is a method that allows the researcher to fit a model into the data to help predict how any change in the predictor variable will affect the change in the outcome variable. The current study is aimed at assessing the extent to which if, at all, the users' environment and behaviour can influence the users' need to participate and share information with an online community.

Hierarchical regression was deemed appropriate for this because it allows the entry of predictors into a model in a step-by-step manner, entering known predictors in the first step and more predictors subsequently. Using this method, the researcher can assess what proportion of variance in outcome is explained by predictors entered first and if new predictors can explain a greater proportion of the outcome variable over initial predictors.

Hierarchical regression in this study involved, firstly, entering the variables of the social cognitive theory in the first step followed by the variables of social influence and note the effect on the model.

4.3.4 Assumptions of the hierarchical multiple regression

A major assumption of multiple regression is the lack of multicollinearity within the data. If multicollinearity exists, i.e. if two or more predictors turn out to be highly correlated, it can result in model impairment, for example, by limiting the proportion of variance explained by the predictors (R2), as soon as the first predictor is entered into the model, the next highly correlated predictor will only account for very little of the variance remaining. Also, it can make it impossible to establish how important each predictor is, and cause regression coefficients to become unstable. To assess multicollinearity, firstly, ensure the correlations between predictor variables are investigated for any high coefficients (greater than 0.9).

Secondly, collinearity diagnostics should be evaluated. A high variance inflation factor (VIF>10) indicates that the predictor variables have a strong linear relationship with one another.

On the average, the VIF should be as close as possible to 1. Tolerances are related to VIF as 1/VIF; hence a tolerance below 0.2 is considered problematic (Field, 2013). The current study has no correlations among variables exceeding 0.8, VIFs are all below 10 with the average VIF at 1.5. Tolerances are high exceeding 0.2; it is, therefore, safe to say, no multicollinearity exists within the data.

Another assumption of multiple regression is the independence of errors; i.e. given any two observations, the errors should be uncorrelated. The Durbin Watson statistic helps to test for serial correlations between errors (Field, 2013), and the value ranges from 0 to 4 with a value of 2 meaning the residuals are uncorrelated. Though the size of the value is usually dependent on the number of predictors in the model and the number of observations. In the current study, the value ranged from .27 to .29, this could be as a result of the non-natural ordering of the data, as the Durbin-Watson statistics requires data to have a natural ordering.

It is of importance to assess if the model fits the data and not overly affected by few highly important cases so that it can be generalized into other samples. To establish the existence of cases that could exert undue influence on the model, we should endeavor to check for cases with relatively large standardized residuals. In an ordinary sample, it is safe to expect 95% of cases having standardized residuals within +2 and -2, and 99% that lie outside these limits, i.e. going slightly higher at -3 and +3. Using the Case wise diagnostics, a list of all cases with values that fall outside this range are produced. In this study, the case wise diagnostics were set to generate a list of cases with standardized residuals of 2, ignoring the positive or negative sign in the output. In the complete regression analysis conducted, there was slightly over the 5% mark of cases that fell outside the ±2 range. Of the 866 respondents, 53 values went above the mark. The numbers exceeding ±3 were 17, which is about 2% of the population being tested.

In assessing the model to test its generalizability into different samples (cross-validation), it is imminent to examine the observed R2 and how it differs from the adjusted R2. The adjusted R2 is an indication of how much variance in the outcome variable would be explained by the predictor variables, only if the model was derived from the population from which the sample was drawn. The current study saw the differences between R2 and

Adjusted R2 ranging from .007 to .009 which indicated that the cross validity of the model is good.

4.3.5 Relationship between processes and outcomes

Hierarchical multiple regression using the Enter method was employed for the study to investigate the extent to which the facets of our theories (processes and predictors) could explain the outcome, over and above the background variables. As a first step, Pearson's correlation coefficients were calculated to identify which background variables and what processes correlate with each of the outcomes and can, therefore, be included in the model.

The R2 value for the first model in the regression analysis showed that the six variables of social cognitive theory explained 15.6% of the total variability in the model and as for the second model, after including the variables of identification and internalization from the social influence model, explained 15.7% of the total variability of the predictors to the outcome, participation.

The F values indicate there are highly significant relationships between the variables of social cognitive theory and the variables of social influence theory. Both models presented significant relationships in the ANOVA table showing the F change as: First model, $F(7, 714) = 20.107$, $p < 0.001$, second model, $F(10, 711) = 14.469$, $p<0.001$

No.	Hypothesis	Adj. R2	ß	t-value	p-value	Result
H1a	Trust---> Part	0.156	0.106	2.307	0.02	Supported
H1b	SE1---> Part		0.241	5.936	0.000	Supported
H1c	SE2---> Part		0.346	7.747	0.000	Supported
H1d	SE3---> Part		0.055	1.493	0.136	Not Supported
H1e	POE---> Part		0.117	2.899	0.004	Supported
H1f	CROE---> Part		0.055	1.346	0.179	Not Supported
H2a	IDF---> Part	0.157	0.030	0.875	0.382	Not Supported
H2b	INT---> Part		0.123	2.807	0.005	Supported

Table 5: Results from regression analysis showing the relationships between predictors and outcome. ($p < 0.01$, $p < 0.05$).

The main hypothesis was formulated along with sub-hypothesis to test the impact of personal factors and the environment on user behaviour. The first step of the analysis involved regressing the variables of personal factors and environment on the outcome behaviour, participation. The initial regression indicated that trust is a significant predictor of increased

participation within the community. So are, self-efficacy, outcome expectations, internalization. Throughout the analysis, trust was a significant predictor of all outcomes it was regressed against ($p<0.001$ to $p<0.01$). Self-efficacy as discussed in previous chapters involved: mastery experience, vicarious learning, physiological reactions, the effects of self-efficacy on user participation seemed to vary from one study to another. Bandura (1982) insisted on the importance of self-efficacy, as a useful hypothetical construct for predicting behaviour, other studies including Hawkins (1992) have stated that self-efficacy may be a predictor of behaviour but has no claim to being the cause of behaviour. Physiological self-efficacy was not a significant predictor in all analysis where it was used as an independent variable.

Being a hierarchical regression, all predictor variables were not entered simultaneously, hence the need to include variables measuring identification (cognitive, emotional and evaluative social identity) and internalization (group norm) into the model to witness the effect these variables have on the entire model and the dependent variable. Internalization is a significant predictor of user participation ($p<0.01$).

4.3.5.1 Relationship between Self-efficacy and Outcome expectations

Personal Outcome Expectations

No	Hypothesis	Adj. R2	ß	t-value	p-value	Result
H3a	SE1---> POE	0.101	0.138	3.399	0.001	Supported
H3b	SE2---> POE		0.243	5.979	0.000	Supported
H3c	SE3---> POE		0.060	1.702	0.089	Not Supported

Table 6: Self-efficacy on personal outcome expectations. ($p < 0.01$)

Self-efficacy had little variance on the overall variation of the outcome expectations, accounting for only 10% of the variance. Mastery experience and vicarious learning have significant relationships on the users' perception of the possibility of getting favourable personal outcomes (after carrying out behaviours) $p < 0.01$ and $p< 0.001$. Physiological Self-efficacy had no significant relationship, with personal outcome expectations, revealing that users who feel they have a good sense of their conditions or understand their conditions and needs do not necessarily feel the need to make friends and find more support within the community. On the other hand, users who believe in their skill sets (mastery experience) and the belief of being able to accomplish tasks based on the ability of other users to accomplish

similar tasks (vicarious experiences) are more open to making friends and engaging more with other members of the community.

4.3.5.2 Relationship between Self-efficacy on Community Related Outcome Expectations

No	Hypothesis	Adj. R2	ß	t-value	p-value	Result
H4a	SE1---> CROE	0.08	0.102	2.570	0.01	Supported
H4b	SE2---> CROE		0.346	8.750	0.000	Supported
H4c	SE3---> CROE		0.04	0.165	0.869	Not Supported

Table 7: Self-Efficacy on community-related outcome expectations ($p < 0.01$)

Self-efficacy has little variance on the overall variation of community-related outcome expectations. Similarly, mastery experience and vicarious learning have significant relationships with the perception of the user to contribute actively to the community, enriching community knowledge base and maintaining community operation, $p< 0.01$ and $p< 0.001$. On the other hand, users who believe they have a good sense of their conditions and feel they understand their condition and needs also don't feel the need to engage in active content contribution or increasing community knowledge. Members of the community who have confidence in their abilities to carry out tasks and users who feel more confident about their abilities because their peers can complete similar tasks are more open to increasing and enriching community knowledge, maintaining community operations, etc.

4.3.5.3 Effect of Self-efficacy on Trust

No.	Hypothesis	Adj. R2	ß	t-value	p-value	Result
H5a	SE1---> Trust	0.23	0.035	0.915	0.36	Not Supported
H5b	SE2---> Trust		0.422	11.097	0.000	Supported
H5c	SE3---> Trust		0.198	5.924	0.000	Supported
H5d	Trust---> SE1	0.042	0.208	5.85	0.000	Supported
H5e	Trust---> SE2	0.19	0.437	13.399	0.000	Supported
H5f	Trust---> SE3	0.074	0.275	7.708	0.000	Supported

Table 8: Self-efficacy on trust and trust on Self-efficacy ($p < 0.01$).

The hypotheses H5a – c, indicates the outcome when the components of self-efficacy are regressed against trust as the dependent variable. Mastery experience, vicarious learning and

physiological self-efficacy were all regressed against the environment – represented by trust. From the outcome of the regression analysis, users who are confident about posting to the community have no need to develop any trust for the other members of the community or the environment. Vicarious learning and physiological experiences as forms of self-efficacy have significant relationships with trust. Users who are confident about surfing the internet but do not necessarily post information may require more trust and some form of connection with other members of the community. Similarly, users who are more aware of their condition and users who feel they have a good understanding of their condition or needs also have a significant relationship with the trust. Hence this category of users feels the need to express their feelings and support and hope to get it back from members of the community. Likewise, Hypothesis H5d – f, shows the results of the relationships between trust as an independent variable and self-efficacy as the dependent variable. Trust has a significant relationship with all forms of self-efficacy ($p<0.001$), the effect of the environment on the user is indicative of all outcomes derived from the study; indeed, studies show that environmental factors influence personal cognition (Zhou, 2008).

4.3.5.4 Effect of Trust on Internalization

No.	Hypothesis	Adj. R2	ß	t-value	p-value	Result
H6	Trust---> INT	0.301	0.55	18.163	0.000	Supported
H7	INT---> Trust	0.304	0.555	18.314	0.000	Supported
H7a	IDF1---> Trust		0.023	0.658	0.511	Not supported
H7b	IDF2---> Trust		0.021	0.643	0.521	Not supported
H7c	IDF---> Trust		0.075	2.255	0.024	Supported

Table 9: Internalization and identification on trust P<0.001

Trust has a significant relationship on the internalization. Users who have trust and feel support from the members of the community can more easily integrate their norms and values with the values of other members of the community. The environment, represented by trust, accounts for 30% of the total variance of internalization and is significant at $p<0.001$. Hypothesis 7 - 7c represents the relationships between the variables of the social influence theory and trust. Internalization and emotional, social identity both had significant relationships with trust with $p<0.001$ and $p<0.05$. Members of the community who are willing to share their values with other members, in the form of accepting the norms and values of the community will develop or increase their trust in the environment, and hence

with other members of the community. Users who identify as undergoing treatment or have recently undergone treatment, are willing to integrate with other similar users, they want to identify with similar others and share experiences with them, develop an emotional involvement, hear about their experiences, develop a sense of belonging and attachment with these users. This emotional connection fosters trust among members and can lead members to cultivate loyalty towards the community (Lin, 2008; Zhou, 2011), as evident in the Macmillan community, where some users have decided to become volunteers, after caring for other members. In a cognitive sense, users form categories with the existing members and see where they fit, a phase where the individuals form a self-awareness of virtual community membership (Dholakia et al., 2004; Turner, 1985). The results show no significant relationship between cognitive/evaluative identity on trust. Evaluative social identity explains the user's perceived value, importance and evaluation of self-worth to the community. This category is represented by users who have been carers in the past, and have lost a friend or family to cancer. This group even though they develop a social identity with others in their circle, they do not seem to connect with the environment i.e. the trust factor, is restricted to a small circle.

4.3.6 Frame work showing the supported and non-supported relationships derived from the analysis.

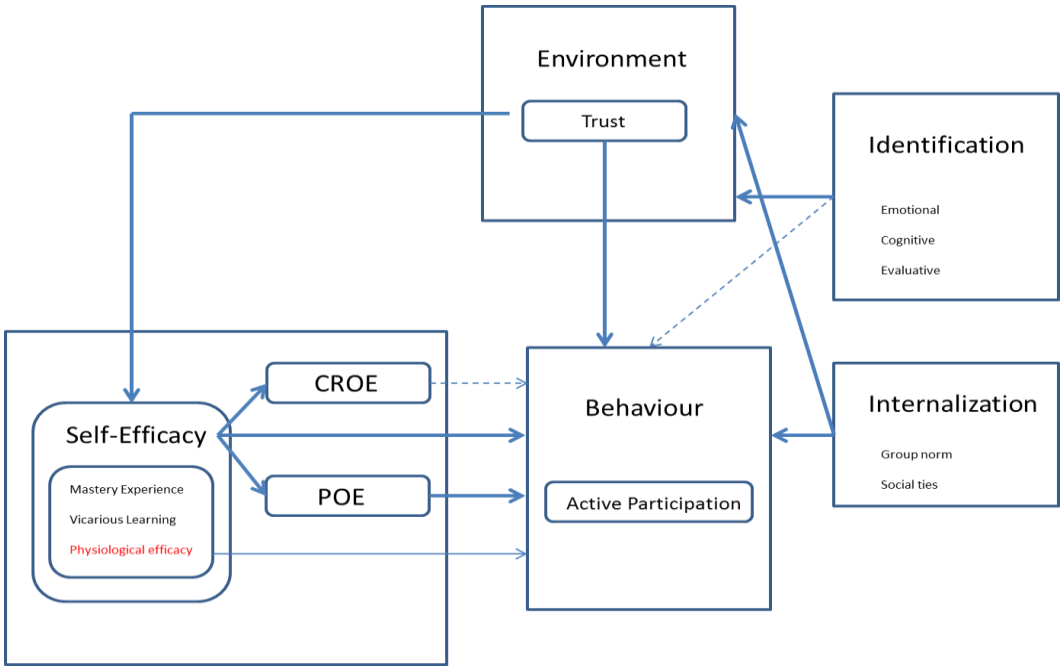

Figure 21: conceptual framework showing the relationships between the predictors and outcome.

The framework illustrates the effect of both social cognitive theory and social influence on user behaviour. The study proposed that these factors influence active user participation, i.e. user behaviour and intention to share knowledge is affected by the factors of both theories shown in the proposed model above. Self-efficacy, trust, internalization and identification are measures used to determine the willingness of users to participate, i.e. behaviour of the user. The results from the analysis as shown in the framework indicate that Self-efficacy, personal outcome expectations, trust and internalization are all factors that lead users to participate actively in the community. Community-related outcome expectations and identification had no causal relationships on user participation. Fig 4x shows the relationships as broken lines indicating no significant relationships and the bold lines indicating significant relationships.

Self-efficacy has three facets as discussed earlier, Mastery experience, vicarious learning, physiological self-efficacy. The study showed that only mastery experience and vicarious learning had relationships with active user participation. Physiological self-efficacy had no relationship with neither Personal outcome (POE) and community-related outcome (CROE) nor did it have any relationship with behaviour of the user. POE also has a significant relationship with active participation, but on the other hand, CROE had no relationship with the active involvement. Trust according to the present study, seemed to be the most important factor as it had a significant relationship with every other factor it was measured against. Trust will lead to active participation, increased self-efficacy, and outcome expectations. Contrary to other studies, identification did not show a significant relationship with the active involvement, in fact, it only showed a significant relationship with trust in the entirety of the study. Internalization had a significant relationship with trust and active participation.

4.4 Summary

The results derived from the quantitative phase of this study expands the general understanding of user behaviour and values in a health related online community, and hence the study extends knowledge into cancer patients and their families and friends. Trust is a key element as it predicted significant proportions of variance, compared to other variables, in all behavioral outcomes, indicating that users trust or the feeling of comfort with the community and other members of the community may lead to increased participation from all members or most members of the community, thereby leading to a sense of empowerment in patients and relatives and even close friends. Information exchange is a strong empowering factor, and participation leads to increased knowledge about the disease or condition of the patients,

and this, in turn, can lead to empowering processes for members of the community. Increasing participation is a vital part of any community, as long as users interact with one another, knowledge and growth of the community will only increase, not for the community members alone or for the community itself, but also for the members who do not feel the need to participate at all, though this percentage of users must be reduced, we must bear in mind that they do derive some values and comfort from the community, an active form of participation that's constantly being ignored in online community studies, Listening, Not Lurking.

5 QUALITATIVE ANALYSIS

5.1 Background

In this section, the overall qualitative research findings from the managers of the MacMillan community will be discussed with respect to the antecedents and consequences of online health community participation. Findings from this phase of the study will be merged with the results derived from the quantitative study to give a sounder explanation of users' motivations to participate and hence, Macmillan increasing user participation within the community.

5.1.1 Data Collection

A total of three in-depth interviews were conducted with the managers of the community to

- Understand their experiences and how they view the behaviours of members of the community.
- Explore the methods used by community managers to foster participation

The qualitative analysis was somewhat exploratory, in nature. The interview was conducted at the premises of the organization (Macmillan), as face to face interviews with open ended questions. Each interview in its entirety lasted about 50 minutes and was recorded and transcribed for further analysis.

5.1.2 Interview protocol and consent form

Before commencement of the study, a consent form was sent to the interviewees, and a protocol form was developed for the research which includes a brief description of the research and a clear set of instructions for collection of comparable qualitative data (Ritchie et al., 2013). The protocol form also includes interviewee background and can be found in Appendix (2)

5.1.3 Profile of the Interviewees

This section describes the profiles of the three participants of the in-depth interviews, to reveal a clear outline of their background which will aid in making more sense of the ensuing discourse. As part of the agreement before commencement of the study, no real names will be used throughout the study.

Three community managers were interviewed for the study, and they include two females and one male. All three are British nationalities, with over five years' experience in online community management.

5.2 Methods

5.2.1 Qualitative Analysis

Data analysis in qualitative research is recursive and dynamic (Merriam, 2007). It is a process that involves arranging and reviewing transcripts of interviews systematically to build up the researcher's understanding of the phenomena under research (Ritchie et al., 2013). The challenge here is "to make sense of massive amounts of data, reduce the volume of information, identify significant patterns, and to construct a framework for communicating the essence of what the data reveal" (Patton, 1990).

Analyzing qualitative data is seen by most as arduous, and the reason being that, it is not a fundamentally mechanical or technical exercise; it is rather a dynamic, intuitive and creative process of inductive reasoning, thinking and theorizing (Basit, 2003). Per Ely et al. (1991), we approach qualitative studies with a different understanding of analysis from previously conducted work, the conventions of our disciplines and professions, and models we have accepted from whatever we have read.

All through the analysis, the researcher attempted to gain a deeper understanding of the study and to continue to refine the interpretations. In qualitative research, researchers draw on their firsthand experience with settings, informants or documents to interpret their data (Taylor & Bogdan, 1998; Basit, 2003). The object of analyzing the interview data from the managers of the MacMillan community was to determine the categories, relationships and assumptions informing their views as managers and lead moderators and of the topic of participation/increasing participation (McCracken, 1988).

LeCompte & Schensul, (1999); LeCompte (2010) explain that for data to be useful in improving programs, solving problems or explaining scenarios, it must be first be turned into results. This process is called analysis. Piles of data are transformed into succinct statements that describe, explain or predict something about what the researcher has studied.

5.2.2 Thematic Analysis

To analyze qualitative data, a broad range of analytic methods can be adopted (e.g. IPA, discourse analysis, grounded theory, thematic analysis). The current study selected the

thematic approach to analyze the responses from the open-ended interview questions. In a thematic analysis, the aim is to identify, analyze and report patterns within data (Braun & Clarke, 2006). As with any other qualitative analysis technique, thematic analysis seeks to provide a rich, detailed and complex account of any given data set. With this, the researcher can gain a deeper analyze understanding of the phenomenon under study. This approach was appropriate to analyze the ongoing investigation into the roles and perception of the managers of the community for both practical and theoretical reasons. In contrast to previously stated qualitative approaches to data analysis, thematic analysis is seen a theoretically flexible approach. Braun & Clarke (2006) recommended a set of guidelines to be considered while carrying out thematic analysis as good practice to explicitly describe how themes would be identified and classified, therefore the actual analysis was conducted through a series of interrelated stages which are familiarization with data set, generation of initial codes, searching for themes, reviewing identified themes, defining and naming themes. The authors explained that before any patterns of meaning can be drawn from a dataset, it is imperative that the researcher is conscious of the entirety of the data, and this will be achieved by reading the data repeatedly. This method of analysis provides flexibility as a research tool, which in the end can provide a rich, detailed but complex account of the dataset. Considering themes as simply emerging or being discovered alone is a passive account of the process of analysis, it denies the active role of the researcher in identifying the patterns or themes, picking those of interest and reporting them to readers (Taylor & Ussher, 2001). Because of the misinterpretations as to what the theme is and how it exists, the researcher's judgement is necessary to determine what the theme is, hence the need to retain flexibility; rigid rules will not work. The strength of a theme is not so much about quantifiable measures, but rather, on whether it captures something important concerning the overall research question (Braun & Clarke, 2006).

5.2.3 Theoretical thematic analysis:

Themes and patterns are usually extracted from within the data in one of two ways in a thematic analysis, An Inductive approach or a deductive/theoretical approach. In an inductive approach, identified themes are strongly linked to the data themselves (Patton, 1990), however in cases where the data was collected solely for the research, the themes identified may bear little relation to the questions asked of the participants, neither will they be driven by the researcher's theoretical interest, this method is a process of coding the data but without trying to fit it directly into any existing coding frame, this form of thematic analysis is data

driven. In contrast, a theoretical thematic analysis can be driven by the researcher's theoretical or analytic relevance in an area, a form of thematic analysis where there is less description of the entire dataset and more detailed analysis of facet of data, with the coding directed to a specific research question(s). This blends into the theoretical approach and not having the research question evolving all through the coding phase.

A crucial decision revolves around the level at which the themes are to be identified, a semantic/explicit level, or at a latent/interpretative level (Boyatzis, 1998; Braun & Clarke, 2006). In the current study, the latent level was adopted because it goes beyond themes that are identified within the surface meanings of data. A thematic analysis at latent level extends beyond the semantic content of the data and starts to identify or examine underlying ideas, assumptions and conceptualizations, and ideologies that are theorized as developing or informing the semantic content of the data.

5.2.4 Coding the data

Raw data can be interesting to look at, yet they will not give the reader a better understanding of social world under scrutiny, and the views of the participants towards it, unless the given data has been systematically analyzed to elucidate an existent situation. Coding or categorizing data is an integral part of analysis. It involves subdividing the data as well as assigning categories (Dev, 1993; Basit, 2003), codes or categories are tags or labels used to allocate units of meaning to the descriptive or inferential information compiled during a study. Usually, codes are attached to chunks of several words, phrases, sentences or even whole paragraphs, either connected or unconnected to a given setting.

Eidel & Kelle (1995) explain in their view that the role of coding involves noticing related phenomena, collecting examples of the phenomena, and then analyzing the phenomena to find any commonalities, differences, patterns and structures (Basit, 2003). By creating categories, the construction of a conceptual scheme is created which in turn is suitable for the data. The scheme aids the researcher to ask questions, to compare across data, to change or drop categories and to make a hierarchical order of them. Some studies have shown that it may be useful to identify two distinct, yet connected phases to data coding, where one focuses on the meanings inside the research context and the other concerned with what may be meaningful to other outside audiences (Gough & Scott, 2000; Basit, 2003).

Coding and analysis of data are not synonymous; the former is a crucial part of the analysis, Qualitative data analysis should not be viewed as a discrete procedure carried out at the final stage of a research study, it is indeed, an activity that continues throughout the project. In

some cases, the researcher may not be involved in a formal analysis of the data at the initial stage of the study, he/she must nonetheless think about how to make sense of the data, what codes categories or themes could be used to explain the phenomena.

Coding with Nvivo is flexible and rather straightforward. The researcher could code and uncode information or text at any point in time, remove a code from a node in the node listing, rename a node or move from one tree to another and in some cases become the child node of another node, etc. The researcher approached the node creation deductively, where some categories had to be predetermined, hence some of the nodes had been created and then the documents were coded directly in Nvivo, this method can be used in cases where the researcher wants to eliminate the need for prior thorough perusal of transcripts (Basit, 2003).

Qualitative data are textual, non-numerical and unstructured, the role of coding in the analysis is crucial, to organize and make sense of them. Studies have described the idea of coding in the context of data reduction, condensation, distillation, grouping and classification. The role of coding, above all, is to enable the researcher to communicate and connect with the complete data collected, to facilitate the comprehension of the emerging phenomena and in some cases, generate theory grounded in the data (Basit, 2003).

The first stages of the initial categorization were slow, despite having to code data from just three participants, because of the length of the interviews and the amount of information acquired from all three managers, Dey (1993) also explained that the first stages are rather slow and tentative. As the researcher progressed with categorizing the data into nodes, decisions gradually became more confident and more consistent with the clarification of each of the categories; ambiguities were getting resolved and thereby reducing surprises and anomalies within the data. Using Nvivo considerably improves the speed and efficiency with which the data can be categorized. Even for a few interviews, the use of this software gives researchers the opportunity to play around with data and get very familiar with the package sufficiently to code confidently. Categories that emerged were revised and placed in same seed concepts of the framework considered for the study.

5.3 Results from Qualitative phase

Findings from the interview data collected were integrated and will be used as a basis to account for the role of the managers on the community and existing methods in place to foster participation. All statements and phrases were quoted verbatim to keep the expressions of the responses, to give richer meaning to the topics of discussion (Silverman, 2013).

5.3.1 Examining user behaviour through the lens of the managers:

Pre-determined nodes: Based on the framework used in the first phase of the study, the following nodes were created to be used to explain the managers' perception of the community.

5.3.1.1 Outcome Expectations:

This is the possibility of getting favorable outcomes because of carrying out behaviours (Zhou, 2008). Two facets are aligned with outcome expectation: personal outcome expectations and community-related outcome expectations. The former is associated with more personal benefits such as sense of achievement, acquiring recognition, etc. while the latter is more inclined to benefits for the community such as increasing community knowledge by participating more, helping the community to achieve its goals, etc.

Based on the managers' views of the community, a lot of the members are out to socialize and make friends with others. The managers explained that when they asked members of the community what they will get the most value out of, they mainly wanted to socialize with similar others, the want to meet people like them, people like the managers, etc. they want to meet up and chat with each other.

This reflects on the social aspect of users, trying to make friends with similar others to find some comfort and joy and shield themselves from loneliness, hence its part of the user-behaviour to expect some personal reward and fulfilment and this can further lead to participation within the community. The managers also recognize the effects of community expectations on a few of the users who according to Manager 2, have started to give back to the community. In this sense, a few members of the community feel they have received much support whether peer or emotional, and instead of taking more, they have decided to give back to the community, it's a behaviour every community manager will want to encourage, but there is little need to facilitate it here because it happens in the community already. According to the managers, this results in empowerment and more information for other users and the community in general. Trying to improve the community by helping others and giving back to the community will increase participation, enrich the community, encourage and support other users or members of the community. Users who choose not to participate can derive some value in the exchange occurring between user or between users and managers.

5.3.1.2 Peer Support

This is a form of social support that users and members of the community exchange among one another. It comes as emotional support, esteem support, network support, etc. in the view of the managers, users exchange messages that show emotion, expressed empathy or show similarity of users among themselves. In the opinion of the managers, a primary benefit of participation is that individuals do not feel alone, they should not face cancer alone. Some members of the community often participate hence, finding someone else that gets the experience first-hand and understands what one they are going through. This way they give each other encouragement and reassurance, they give each other emotional support to get through the process of treatment or the future.

5.3.1.3 Emotional support

There are cases where users' needs must not be mistaken, for example, the case of emotional support and information support. The former will not usually include rational or specific questions, rather a user in need of emotional support will display the emotional or psychological weakness and the urgent need for support, empathy and comfort. One of the managers interviewed revealed that in cases where they see someone (member) is struggling or having a difficult time, they try to contact them, in a private e-mail mostly, to see how the situation can be helped or managed.

Manager 3:

"if there is somebody who is scared, or they seem like they need some additional support beyond the kind of peer support then we can encourage them to call our support line, talk to a nurse, talk to our experts. Moreover, they might be able to give them some more information or emotional support to encourage them to have their treatment."

5.3.1.4 Self-Efficacy:

There are four principal sources of self-efficacy which are, enactive mastery, vicarious experiences, verbal persuasions, physiological states.

Mastery experience is an important part of efficacy because it gives the most authentic evidence about whether anyone can muster the courage to carry out a task or decline because of past failures. A manager at the community revealed in his view the importance of enactive mastery, he explains that is about ownership and permission to be involved and to express personal opinions, members of the group are quick to sort this out among themselves, making the entire community very well behaved with sufficient and useful information. "A lot of

them do not think of themselves as very good with computers or the internet or anything. A lot of them have not been a member of a forum before, so in that respect, it is often kind of surprising for them to find themselves getting support in this way."

Vicarious learning is another form of self-efficacy that is evident to managers of the community as one of the major factors that can increase participation among the members. Users often appraise their capabilities based on the attainment of others. Hence why some people feel comfortable to participate when they see others participating, a form of social comparison to similar others. Per Manager 2, "I think it is about setting a culture as well, and people are more likely to participate when they see other people participating."

Verbal persuasions are a means to give and receive feedback from similar others, who either have more experience about a given subject or have more knowledge they are willing to share about a given subject. A big part of persuasory efficacy is who the persuader is and how much knowledge and credibility he or she has. This form of efficacy can help more vulnerable users to exert more effort, persistence and tenacity that is required to prosper, resulting in more participation and continued improvement of personal efficacy. The managers of the community observe the importance of social, verbal persuasions as users exchange practical tips and experiences that help, for example, members who are about to start chemo are worried and scared about the massive lists of side effects, can receive some persuasion and comfort from others. This information offers members a range of experiences and practical tips of how other people coped.

5.3.1.5 Environment:

With environmental factors, due to anonymity, virtuality and lack of effective mechanisms to measure assurance, knowledge sharing and knowledge acquisition have potential risks (Zhou, 2008). Trust represents the role of environment in the triadic relationship of cognition. Trust can increase a user's belief in other members' ability, integrity and benevolence (Zhou, 2008). Users of the community have embedded themselves into a circle of trust within the community, where they hold the opinions of similar others with high regards because of the strength amongst themselves. One manager described the environment and trust as "a big thing", anecdotally people come on the forum and ask important and potentially personal subjects, according to the manager, things like alternative therapies and complementary therapies "Hey what do you think about this alternative therapy, it looks a bit suspicious but I want to give it a try", and you got people coming and saying, "that looks rubbish, it looks like a con don't do it, and they reply thanks, I'm very vulnerable".

5.3.1.6 Identification:

A social identity helps individuals to view themselves as part of a group or community. Users start to see themselves as belonging to the community, a sense of community.

This goes back to the mission statement of the community which is about talking to similar others. The slogan engines a strong sense of belonging as explained by a manager at the community. What members of the community have in common is the type of cancer, and they are quick to establish this commonality as most users want someone who is going through the same thing as them, not necessarily about geographical location. This connection creates a kind of understanding and empathy. As stated by Manager 1: "I think for Macmillan one of our favorite slogans is no one should face cancer alone, and that's kind of what embodies the community that you're not in on your own, you've got groups with people like you and you can share and you can feel less alone less like you're the only one going through it".

Identifying with other members is a very particular part of any social gathering. Being able to identify with similar others helps individuals to fit in comfortably and express themselves. Social identity is an essential factor that can foster interaction among peers and increase participation. The managers of the community recognize the effect of a social identity, and its impact on developing a sense a community, hence the need to encourage users to join groups within the community (sub-communities) to engage more with users who have similar interests and shared values. Manager 2 also stated that the kind of shared experiences and emotional connection makes the community a safe space to grant their emotions and interact with people who understand each other. Certainly, in the community the most active users strongly identify, according to manager 3, they feel they have relationships and connections with other users, and they feel they like they are a part of the community or part of their group within the community (sub-community). "Sometimes, somebody joins the breast cancer group, that's the most active group there's loads of content in the breast cancer group, they might not ever feel the need to go outside, if they have breast cancer and there are loads of other people with breast cancer giving them all the information and all the responses they need, they might not read the rest of the community or any other groups, so they might feel a sense of community in their sub section of the community but yeah there are strong SOC".

5.3.1.7 Internalization:

This concept is explained as the congruence of the user's values with the values of other members of the community, sometimes referred to as group norms. One of it several forms occurs upon joining the community, new users tend to seek out the group's goals, rules, values and conventions. In other cases, the user comes to understand and accept the community's norms through socialization and repeated participation therein, over a period (Dholakia et al., 2004). Some people see the support in the community and sometimes they feel they want to stay around and observe for a while what the community is like, what the norms and values are, so they can pick up on how it works and what the kind of conventions are, and what sort of thing people say, to be able to fit in. So, in general, it is about encouraging a culture among members. The managers perceive the need to set up a culture within the community so new members can develop social ties, and be encouraged by the norm of reciprocity in community interaction. The norm of reciprocity is a set of socially accepted rules in relation to a transaction whereby a party extends a resource to another party obligates the latter to want to return the favor (M.J. Lin et al., 2009; Wu et al., 2006). A basic reciprocity norm entails a sense of mutual indebtedness, such that individuals reciprocate all forms of benefit they receive from others, hence ensuring ongoing supportive exchanges (Shumaker & Brownell, 1984).

5.3.2 Identifying the roles of the managers:

While the factors adopted from the proposed framework have explained the managers' perception of user behaviour in the community, there still is a need to examine the roles of the managers in facilitating interaction by encouraging participation and thereby, encouraging more users to participate as opposed to being bystanders. A careful approach adopted by the managers of the community has been the use of "peer moderators"- these are members who facilitate discussions on voluntary basis. These moderators are used to engender trust, encourage trust and plant the seeds of the community (Sloan, review, 2000). This study focused on the factors determining the roles of the managers only, and not the peer moderators to elicit the functions and behaviours of the both parties separately, i.e. the peer moderators are regarded as members of the community nonetheless and studied among the members of the community, and the managers, as a separate group entirely.

5.3.2.1 Moderating: motivation and appraisal, restrictions

This theme represents the attempts of the managers as lead moderators to reinforce participation etiquette and forum rules, redirect patients to relevant fora, warn patients about the credibility of information and dangers of unreliable information, motivations and appraisals to the members of the community. The managers ensure that when anyone breaks a rule, he or she receives an email informing them about the rule he or she broke, they are told why they have been moderated. This act is not done openly in order not to humiliate anyone; it is all done privately, a private message with a copy and paste of the rule they broke.

Manager 2: "There are very few instances of us having to moderate where they have been misbehaving with language, or sometimes they get cross but it's quite calm."

The champs who represent the most active 1% of the community are well valued in the community. The managers take it as serious business to keep in touch with the and show how much they are cared for.

"to our champs it's really important to us to make them feel valued and to know they are valued and to let them know that they are valued, so often we send them little gifts, tiny things like Christmas cards, if it's their birthdays or a big life events going on we send them flowers, it's just about comparing these touch points and respecting and valuing them and caring about them as well"

5.4 Summary

The chapter has presented the findings from the in-depth interviews with the three managers of the Macmillan community. The study reveals the perception of the community through the lens of the managers followed by the roles of the managers in increasing participation and encouraging more users to interact with one another. The interview data was analyzed using Nvivo, to identify key themes and methods used by the managers to understand the motives, perceptions and experiences of the users of the community.

Nvivo thematic analysis conducted on the qualitative data has given better insight of the themes embedded within the data collected. The first part of the qualitative analysis depended on predetermined themes from the framework while the second part attempted to elicit the roles of the managers based on their behaviour and level of interaction with the users.

6 DISCUSSION

6.1 Introduction

This chapter draws together results from the quantitative and qualitative studies and examines the findings in relation to the wider literature on online support. The chapter also delivers an overview of the significance of this research, it is main contributions and how it relates to what existing studies have proven in online community studies in the context of the Social cognitive theory. Furthermore, the chapter discusses the results derived from both phases of the study, along with implications and suggestions for practitioners as it relates to online support and the demography of participants. The main findings will be reviewed in relation to the original research questions. The chapter also highlights the implications of the findings for future research in online health support communities.

The reviewed literature in chapter 2 suggests that users of online support communities experience psychosocial setbacks upon diagnosis, along with the challenges of treatment and recovery. Though the said challenges can be improved through support from other people, there are barriers especially in face to face support groups that are more controlled in online support. Online communities can offer valuable alternative sources of informational and social support; indeed, studies have shown the empowering potential of participation in these virtual communities (Van Uden-Kraan et al., 2008c, 2009), which could be important and relevant in improving the conditions of individuals affected by cancer. The triangulated research conducted offered more insight into user experience within the community, as well as the effective roles of the managers of the community.

Finally, this chapter will address issues and challenges associated with data collection methods adopted for the entire thesis.

6.2 Overview of Quantitative and Qualitative analysis

The previous chapter reported detailed results of hypothesis testing of the models of measurement for user behaviour in the community regarding participation and the influence of the managers on community behaviour. This chapter extends the results with theoretical underpinnings and relates them to the research questions set out, to understand the existing reasons for participation as this will aid onboarding, and examine ways in which the

managers can improve on and increase the social processes that could lead to more participation.

As discussed in earlier chapters (Chapters 2 and 3), a major challenge faced by owners and managers of virtual community is supplying knowledge, i.e. member willingness to share knowledge and information with one another. Extant research has tried to address this problem with very little success in the way of increasing user participation. Nielsen's 90-9-1 rule still seems to stand in most communities today as only a mere 1% seek to contribute most of the information shared. For a virtual community to thrive, there must be a rich exchange of knowledge among all actors. The significance of member generated content cannot be overlooked - though a tough one to stimulate, this characteristic more than any other defines the success of a virtual community. The present study has integrated the social cognitive theory with the social influence theory to construct a model for investigating user motivations as it concerns knowledge sharing in these communities. The present study, therefore, has elected to understand the underlying motivations to participate among existing users as a first step to the problem of participation. Further to this, the study will examine the perception of the managers towards users' behaviour and participation, and finally examine the roles of the managers in improving and increasing participation in the form of knowledge sharing.

The quantitative phase showed that contrary to studies about online user behaviour, identification - developing a social identity - had no significant relationship with participation and knowledge sharing as the dependent variable, neither did physiological self-efficacy and community-related outcome expectations. All other variables from the model supported the outcome/dependent variable – participation. On the other hand, the qualitative study explained the views of the managers on how users behave and ways in which their behaviour could help foster more participation. In their perspective, Outcome expectations, self-efficacy, environment, identification, internalization, peer support are all existing behaviours in the community that leads to increased participation.

Reciprocity and increased socialization (social interaction ties) were discovered to be the main forms of contribution of the managers to the community. This research emphasizes the value of embedded social processes in determining user participation behaviour. It examines identification and internalization as processes underlying users' continuous willingness to be a part of a group and contribute to its success. This attention is deemed pertinent as previous

studies paid more attention to technology related approaches and paying less attention to related social influences and how it affects the user.

6.2.1 Summary of Findings

Macmillan Community Members

Previous studies have showcased very little information about user characteristics of online support groups. As discussed in the literature review, the majority of studies focus on user experiences within the community, few studies have tried to examine the influence of the community as a group of the individual user. It begs the question, who are the members of the community? Extant research show, in the most of online support, cancer patients are most frequent, followed by female members of the family (Ginossan, 2008; Nolan et al, 2006), studies also show that close female family members who care for the users affected by cancer have a high level of information and social support that may not be sufficiently met by healthcare professionals (Mason, 2005; 2008).

Macmillan has considerably, a much greater female population than the men 78% to 22% respectively, three times the total male population of members. These findings may lend support to the idea of cancer being a couple's disease (Bottoroff et al., 2008), as a good number of the female respondents in the study were either partners, sisters or were spouses of patients, who opt to fulfil that role of a caregiver to the patient. The under-representation of men in cancer support groups is no indication of them needing less support (Klemm P. et al., 2003), only that females are more likely to engage actively in treatment decision making and information seeking (Mason, 2005; 2008).

The highest population of members in the community fall in members who have just undergone a series of treatment (46%), members who are currently undergoing treatment (28%), and finally members whose friend or family died of cancer (26%) or friend/family affected by cancer (18%). These groups will probably have more information to share if they choose to, a result of the direct experience they have had with the illness. Users who have undergone treatment have a lot of information and tips as described in the previous chapter, these users can prepare other users for what lies ahead, and they can also serve as encouragement and motivation to their peers. Users who have cared will meet informational needs and support needs of other users if they elect to share and post information on the community.

6.2.2 Reasons for participation in Online support communities

Online support communities offer support to individuals by providing access to valued resources that members can share among one another (Butler, 2001; Johnston, A. C., et al, 2013). Contrary to other lean sources of information such as Wikipedia and health information sites, these communities provide users with valuable information e.g. personal health experiences, personal success stories that can serve as a confidence boost and increased knowledge for its members. The information offered is inherently social and can only be made available if there is constant interaction among users, as it (information) is only a by-product of the communication activity of the community (Johnston, A. C., et al, 2013). Secondly, online support communities offer intangible benefits to its members through emotional support and self-development. Family and friends can serve as support structures under normal circumstances, yet some users are still uncomfortable with information shared, unable to express their feelings to one who has no direct experience with cancer. Online health communities serve as a renewable source of support due to shared affiliation and a sense of belonging and attachment, gained from struggling together, through their medical issues.

In both phases of the study, information sharing was a very vital part of user needs. 76% of the members of the community claim they use the website to get information, 60% are there to get support. The managers of the community have realized this fact and are working hard to ensure adequate information and support is offered to members, for example, they constantly try to find tips from the community and put them in the blog. As for members of Macmillan who are affected by cancer, the community is a convenient medium to communicate with other members who are dealing with the similar issues directly or indirectly. They are free to express themselves showing and receiving care and concern from and to one another, they exchange positive statements among each other and the group and broaden their network by doing this so as not to feel alone.

Support among members of the community was very evident as the messages exchanged among members provides an understanding of the condition, express sorrow, and provides hope and confidence. The managers of Macmillan observe that the members are talking about what they have been through to people that understand and that is the main thing, that they realize very quickly that the people they are talking to understand exactly what they are talking about almost always, so mainly there is peer support.

Research shed light on online disinhibition effect of users, a situation where people say and do things in cyberspace that normally they would not be pushed to do in the face-to-face world. Users of the community tend to feel more uninhibited, they loosen up and express themselves more openly (Suler, 2004a; Barak et al., 2008), for example when users were asked about the use of the community, a user responded saying "to discuss dating with cancer". The anonymity on the platform allows members to discuss issues that could be potentially embarrassing or difficult to discuss, thereby increasing self-disclosure and encouraging honesty and intimacy (Ferguson, 1997; Barak et al., 2008).

However, the ultimate challenge lies in increasing member generated content; studies show that greater participation can lead to increased psychosocial outcomes and patient empowerment (Johnston, A. C., et al, 2013). The importance of information and support in the present study reflect the findings from the literature on online support groups.

6.2.3 The Value of Knowledge and Information sharing: Expertise, Information credibility, Accessibility, restrictions, signposting

Information is one of the major factors that keeps an online community thriving, without rich knowledge participation would be low as so many users are only around to acquire more information. Member generated content is of great value, though difficult to stimulate, it is this characteristic more than any other that defines a virtual community (Chiu et al., 2006). In many cases, users elect to participate or not when they have a choice, but the study has attempted to elicit the roles of the managers of the community in increasing user participation and contribution to information. One of the ways they have addressed this is by constantly feeding off information to users, firstly, to cater for the needs of the users who have asked about a certain information, and secondly for the users who prefer just to read posts, and derive some value from reading. In areas that do not benefit from greater expertise, there are question and answer sessions or web chats, nurse experts that join the community to respond to the questions two times a week. More hands would help to keep up with these daily, i.e. constantly meeting information needs. In some cases, members are encouraged to leave questions, and experts answer them subsequently – a section in the community called "ask the experts". The intention of the management of the community is to get the section staffed by nurses for the support line to answer more medical questions.

Another method used by the managers to diffuse information into the community is by identifying and picking up relevant tips from the community and put them in the blog, for example, advice about hair loss and how to manage it, the use of scarfs or even grabbing a

magazine and this information are stored in one place for the members, etc. So, if other potential members or just internet surfers want to find information online, it will be found on Macmillan community, this will aid onboarding as it is a means to direct more individuals to the community. A common problem is the volume of information that is all spread out; the managers try to bring this information together so the user can see in a more user-friendly way.

The managers try to ensure there is adequate information to meet the needs of as many users as possible. Questions posed by other members are posted on the featured contents, a section Of the platform that displays useful information and essential tips. They ensure that there is a constant flow of information without crossing the lines, there are rules about the kind of information and quality of information given out to members because many of the members are vulnerable and will go with anything at all that gives value.

6.2.4 Information credibility

The credibility of the information posted on the forums is regularly scrutinized. Though at the moment, the managers agree they cannot look through all daily threads, they try to look through as many as they can to ensure no one is getting unchecked or unconfirmed information from peers. Most members of the community as stated earlier tend to be needy and vulnerable, their physical and mental states often lead to the feeling of wanting more support whether information or social support, however - how reliable is the information they consume? The guidelines of the community strictly note the zero tolerance approach the community has, to false information and the managers and peer moderators understand they only offer support and not any form of medical advice. The community signposts users to the health line or support line for queries that need medical advice.

6.3 Active participation vs non-active participation

Participation ranges from the frequency of communication to the intensity with which an individual engages within the community (Ellison et al., 2007; Allen C. et al., 2103). Platforms through which users communicate with others helps them to form ties with community members, which leads to increased benefits - in relation to both scope and depth as the intensity of the relationship increases (Putnam, 2000). Active participation, a process of contributing content, is an evident trend among some of the members of the community, though the study did not consider the quality of information shared among these active members, more than half of the respondents of the study claimed to have participated at one

point or another 67%. Where only 26% have admitted to not participating or sharing any information whatsoever. Per Allen C. et al. (2013) active participation is a gateway to both information and social support. However, it is a known fact in community behaviour that some individuals participate by engaging in passive surveillance of information, termed as Lurking.

Lurking can be viewed as significantly less optimistic than active participation, yet it must not be construed as a negative behaviour. Nonneke et al. (2006) explained from their study of lurkers that users lurk for valid reasons. The present study showed 54 % of users are satisfied with just reading posts, in line with previous studies on the behaviour of lurkers in online communities, however, the values derived alone with their experiences remain less satisfying and less engaging.

Answer Options	Response Percent	Response Count
To get information	76.2%	649
To get support	59.5%	507
To make friends with others like me	23.0%	196
To support others	37.6%	320
To generate discussions on topics that interest me	11.7%	100
Other (please specify)	3.3%	28
	answered question	852
	skipped question	14

Figure 22: Reasons for participating in the community.

Whether this remains a permanent behaviour, or an adaptive temporary behaviour remains uncertain. In the current study, 19% of lurkers in the community are shy about posting, and 15% would rather keep their anonymity, 47% claim they might post in the future and just have not yet. From the results obtained in the present study, it is indicative that lurkers cannot be assumed to be introverts, neither can it be inferred that lurking behaviour causes discontent or passiveness or whether the community along with member interactions result in dissatisfaction. The managers of the community are aware of the number of non-active users and have strong intentions to improve on this figure, without imposing participation on users. A manager at Macmillan community stated

“I do not think it is necessarily our end goal that every single person should be participating.

If someone is reading it and he or she are still feeling supported, or they are feeling that they are getting the information they need. Then if we are meeting their needs without them posting, then we are still doing our job. So, I do not think everyone has to participate".

6.4 Factors leading to active participation in the community

The quantitative phase of the present study examined the existing factors that resulted in participation. Components of the social cognitive theory along with the social influence theory were merged into a conceptual model to study the reasons why some users participate while others choose to stay passive. The results showed that trust, mastery experience, vicarious learning, community-related outcome expectations, and internalization all had significant relationships with active participation. Contrary to studies of online communities, developing a social identity – conception of self-regarding individual relationship to other persons or a group - did not have any predictor power over active participation. Three forms of social identity were considered for the study evaluative, cognitive and emotional/affective social identity (Zhou, 2008) neither of these forms had a significant relationship with active participation. Also, per the present study, personal outcome expectations did not have a significant relationship with active participation.

6.4.1 Trust

Members of communities are almost always strangers to one another, and the nature of member interaction online requires trust for users to communicate successfully among one another or on the other hand, may hinder trust development (C.M. Ridings et al., 2002). Trust among virtual community users can be understood as interpersonal trust i.e. trust among individuals, the difference exists in the fact that in virtual communities, members interact with more than a few people and because one is posting to a general audience, trust exists at the generalized, collective level. The present study examined trust as a multidimensional construct consisting of three distinct beliefs, ability, benevolence and integrity (C.M. Ridings et al., 2002; Blau, 1964; Butler, 1991) and all dimensions have been shown to be relevant in online community studies (Jarvenpaa et al., 1998). Ability denotes the skills and competencies enabling the user to have an influence in the community, benevolence is the expectation a user will have about others having a positive orientation or desire to be good, and integrity is the hope that other members of the community will act per socially accepted standards of principles accepted by the trustor (C.M. Ridings et al., 2002). From the studies carried out, the quantitative phase demonstrates the value of trust in this community. Trust

seems to have established some credibility in the community, thereby reducing user perceived risk of sharing or acquiring information and increase in belief in the ability, benevolence and integrity of the other members around. Trust was significant to active participation, though the model had a relatively low beta, 15.3%, which was because of the other predictor variables which had no relationship or effect on user participation. This shows that among the users that actively participate in one way or the other, trust is one of the factors that motivates them to share knowledge and interact with other members, thereby allowing some users to be vulnerable to the ideas and actions of other members of the community based on the assumption that the members will perform actions important to the user irrespective of any ability to monitor or control community members (Hsu et al., 2007). Some users from the survey revealed their shyness to post information or the fear of criticism, this unwillingness of members of this community to share knowledge with others in the community is a concern, and trust in the community can help the users overcome their reservations and interact freely. Studies have identified trust as a key ingredient in fostering participation level and knowledge sharing in online communities (D. Andres et al., 2002; Ridings et al., 2002; Chiu et al., 2006).

The study also showed that trust has a significant effect on self-efficacy. Trust was regressed against all three forms of self-efficacy adopted by the study, the fig (x) below is an indication of the relationship between both variables when tested together. Trust in a community will increase user perceived control and improve user cognition on the ability to seek and distribute information (Zhou, 2008).

Another relevant finding is the significant relationship between trust and internalization. Users tend to form a congruence of their values with those of other community members, for this to happen the community must state out its values and norms so users can see what they should adhere to and which norms and values can be merged with theirs. Trust plays a significant role here, as users will only merge their standards and values with those of other members of the community only if they feel they can trust the members.

6.4.2 Self-efficacy

Per Albert Bandura in 1986, at the time he first brought forth the Social cognitive theory, self-efficacy beliefs stand at the core of human motivation and self-accomplishment. Only when individuals believe in their actions can they produce desirable outcomes, otherwise there will be little incentive to carry out an act in the face of adversities. Standing at the core of the social cognitive theory are self-efficacy and outcome expectations, and these two

constructs should not be confused together. Self-efficacy represents an individual's belief in his abilities to undergo or carry out a given task whereas, the outcome expectations are judgements of the possible consequences that the said behaviour will produce, in essence; self-efficacy helps to foster an individual's perceived outcome. Studies have shown that people who are confident in their abilities to carry out a task anticipate more desirable outcomes. The present study revealed that user self-efficacy is a determinant of behaviour in the Macmillan community, in line with existing studies on the effect of self-efficacy on user knowledge sharing abilities. Three forms of self-efficacy were considered for the present study; mastery experience, vicarious learning and physiological reactions. Both mastery experience and vicarious experiences had significant relationships with knowledge sharing. Physiological reactions had no relationship with active participation or knowledge sharing.

Mastery experience: Studies have shown that the ability to succeed at a given task is a strong indication of self-efficacy beliefs (Stajkovic & Luthans, 2002). Enactive mastery provides direct performance information in relation to firm and accurate efficacy beliefs. Users of the community that are confident in posting information and messages in the form of knowledge or support tend to do this repeatedly, as a kind of self-fulfillment and probably altruism. This does not mean Changes in self-efficacy occurs as a direct result of accomplishing a task. Rather improved self-efficacy (enactive mastery) formation depends on how an individual or member psychologically processes the information generated from previously accomplishing a task. Therefore, users who continually post information and are confident about their abilities to post and share information are very likely to keep up with the act because it is not the performance per se that causes changes in self-efficacy, rather it is what the user makes of diagnostic information that results from that performance (Stajkovic & Luthans, 2002).

Vicarious Experience: Individuals form their beliefs in the vicarious experience of monitoring others performing similar tasks. Observing the activities of other similar members of the community perceived by a user as similar in capability increases one's own belief in his capabilities. As evident from the community online community studies, users who are uncertain about abilities and users who have limited experience in technical matters become sensitive to it and in some cases, withdraw. Vicarious experiences involve the social comparisons users make with one another or with the entire community as a group. Some users who have minimal technical ability claim to be picking up on how it works now, either because they want to get more information, and the only way to go about it is to reply to messages and get involved in conversations, or they challenge themselves because other users

are doing it (i.e. if they can do it, so can I!!). According to a manager at Macmillan, "a lot of them do not think of themselves as very good with computers or the internet or anything. A lot of them have not been a member of a forum before, so in that respect, it is often kind of surprising for them to find themselves getting support in this way." Some users confirmed their lack of skill knowledge in their technical abilities "I'm not very at home using the computer - which is why I find the website a bit confusing" but they still try to participate and get involved in the conversations and the survey, it is possible that this happens because of vicarious experiences.

6.4.3 Personal outcome expectations

Per Bandura (1997; Hsu et al., 2007) outcome expectations represent the expected consequence of a person's behaviour. Positive expectations can be viewed as incentives that can regulate human behaviour. The present study approached outcome expectations as either personal expectations (self) and community-related outcome expectations (community). The study showed the users' personal outcome expectations has a significant relationship with active participation and knowledge sharing, 11.7% across the entire model in the quantitative analysis. Members of the community who focus on gaining recognition, making friends, getting support tend to participate a lot more in the community. These members have a purpose, and that is fulfilling their personal needs. The study shows that this factor plays a huge role in motivating members and users of the community to participate actively. Also, in the context of participation and knowledge contribution, users will focus on their personal benefits before considering community benefits (Zhou, 2008), perhaps this is a result of the shallow immersion of some users into the general community. A manager of the community stated Sometimes, somebody joins the breast cancer group, that is the most active group there's loads of content in the breast cancer group, they might not ever feel the need to go outside. This is an indication of users participating only for personal benefits. Because there are sub-groups, it becomes a norm for some users to only participate in a sub-group, among very similar users, thereby, considering knowledge sharing only from the perspective of their benefits. Another manager states "we asked them what they will get the most value out of, mainly they want to socialize, they want to meet us and they want to meet each other and just chat".

Community-related outcome expectations, on the other hand, showed no significant relationship with knowledge sharing with a Beta value of 0.055 about 5% of the total variance of all factors on active participation and knowledge sharing.

6.4.4 Internalization

This factor becomes known to members in different ways (Dholakia et al., 2004). Either upon joining the community, where new members try to seek out community goals, values and conventions OR, members who accede to the community newly - start to learn about the community's norms by socialization (social interaction ties) and reciprocity. A third possibility is when the individual already has an idea of the community norms and then decides to join because of an overlap of user (personal) values and the community norms. The present study showed that the members who understand the community and show commitment to the goals, values, conventions and beliefs shared with others in the community tend to participate actively. This is evident in the quantitative phase where internalization explains 12.3% across the entire model and is significant to active participation. M. Perugini et al. (2003) described reciprocity as a form of internalization, an internalized social norm. Individuals who hold on to this norm are likely to agree with the dictates of the existing rules whether or not they (individuals) are observed or externally sanctioned.

6.4.4.1 Reciprocity

This refers to knowledge exchanges that are mutual and considered by all parties involved as fair (Chiu et al., 2006). Blau (1964) explained that reciprocity implies actions that are dependent on rewarding reactions from others and that cease when these expected reactions are not forthcoming. Studies have shown that participants of online communities expect mutual reciprocity as it is a form of justification in comparison to the time and effort expended in sharing their knowledge. Also, knowledge sharing in electronic networks is facilitated by a strong sense of reciprocity (Wasko & Faraj, 2005). Davenport and Prusak (1998) applied the idea of reciprocity to knowledge market and inferred that it is one of the factors that drive knowledge sharing. The managers of the community ensure there is reciprocity in communication by making sure that most posts get replies. Posts with no replies are posted on the home page of the community, and a moderator or the nurses reach out to the members with the questions. The more users receive replies from reliable sources, the easier it is to feel like a part of the community, and this encourages the user to participate. On the technical side, message threads are designed in such a way that users receive badges or are notified when they receive a reply to their posts.

The managers aim to ensure there are no posts without replies. Though this is a hard task to keep up with especially with the shortage of hands, new users to the site are contacted as soon as possible to make sure they are directed to the right place and make them feel safe and welcome. Per Wasko and Faraj (2000) people who share and contribute to knowledge in online communities believe in reciprocity.

6.4.4.2 Social interaction ties:

These are channels for resource and information flows. Social interaction ties are a combination of time spent, emotional intensity and intimacy and the reciprocal services that characterize the tie (Granovetter, 1973; Chiu et al., 2006). The strengths of the relationships and the amount of time, communication frequency among members and between the managers and the members, all represent the tie strength within the community. Network ties allow for access to resources. The managers of the community realize that the more social interactions undertaken and exchanged by the community members, the greater the intensity, frequency and breadth of information exchanged. Though several methods have been put in place to ensure knowledge is constantly shared, it is noteworthy to say that knowledge is costly to obtain, social interaction ties among members provide a cost-effective way of accessing a wider range of knowledge sources. An example in the breast cancer group, members of this group started something called the chemo club, which began in April according to one manager. A chemo club is a place where they all come and tell each other what they have been experiencing recently.

6.5 Relationships between variables of the framework

6.5.1 Self-Efficacy on outcome expectations:

The results from the quantitative phase of the study showed that user self-efficacy, specifically mastery experience and vicarious learning had significant relationships with personal outcome expectations. Users who believe in their abilities to use technology are more likely to participate and make friends in the community. If users think they lack enough ability especially with a computer and network skills, information seeking and distribution ability, then they will have a lower expectation for future positive outcomes (Zhou, 2008). Some members of the community used in the present study (14.5% of members) claim they do not find the site easy to use, and the majority of the users in this category have this problem because they cannot find their way around. The Macmillan community has a high

number of older adults who are not tech savvy, and this can be a setback for many users who in the long run will shy away from community activities only because they lack proper skills to navigate the website. One of the users exclaimed, "I FOUND THE ONLINE COMMUNITY DIFFICULT TO GET TO GRIPS WITH, DIDN'T KNOW HOW TO PARTICIPATE". The managers of the community are in tune with the issues some users have with the website and community in general, according to a manager, most users are 45 and above so they are not a very technologically savvy age group, they find technology difficult manager 1 also explained that they understand the older the users are, the harder it is to use these technologies. They believe the problems lie in the terminology, such as threads, blogs and it is hard to differentiate among all these IT community jargons. The community managers hope there will be a change in the way things are done; they believe it can be made easier; it already is. Indeed, studies show that self-efficacy in online communities exerts a significant positive influence on performance-related and personal outcome expectations (Compeau & Higgins, 1999; Hsu et al., 2007).

6.5.2 Trust on Self-Efficacy

The current study showed that trust has a positive effect on all forms of self-efficacy. Before members of the community select their choices of what group to belong in and whether to initiate their efforts or not, they tend to evaluate and integrate information about their perceived capabilities (Stajkovic et al., 2002). Members of the community who have submerged themselves into the environment and are willing to share trust among other users, are more likely to have increased self-efficacy and self-esteem in their abilities whether to share knowledge, to acquire useful information for future use, or are in control of their condition, i.e. having a good understanding of the condition. Consistent with previous findings, trust increases the user has perceived control and improve their cognition on the ability to distribute and seek information (Zhou, 2008). Among non-active members of the community, 19% say they refuse to post in the community because they are shy, 7.7 % are worried about posting, 11% do not know what to post to the community, and 4% are concerned about hostile responses. It is possible that if these users had a means to increase their trust in other members and the environment in general, there will be less pressure on them to let out their minds and share experiences. Drawing from the results of interviews with the managers, it is evident that trust increases user self-efficacy. Users have embedded themselves in a circle of trust, where they feel they can make enquiries about really personal subjects for example alternative therapy. This progresses into members seeking information

about chemotherapy, to discuss their fears and reservations with others. Verbal persuasions become very helpful if the user feel a sense of trust within the community which they belong.

6.5.3 Internalization on Trust:

The current study views the relationship between these variables as a reciprocal relationship affecting user behaviour in the community. The environment which is represented by trust in the community, either trust in members or trust in the quality of information, refers to the emotional trust that has formed among members of the community who interact frequently. Internalization, on the other hand, is the group norm, the willingness of members to immerse themselves and their values with the values of the other members of the community. The study shows a model fit of 55% for the effect of trust on internalization and a model fit of 56% for the effect of internalization on trust. Dholakia et al. (2004) explained that internalization is a form of understanding of, and commitment by a member of a community to a set of goals, values and beliefs shared with other members of a group. Trust is a feeling of connectedness with other members, and trust in members is emotional and is formed through frequent interaction in a community, resulting in care and friendliness. The present study shows that users who are committed to adopting the values and norms of the community will learn more about to community by participating in the forums and hence develop trust for other members. Participation in this instance can be active or internalization (lurking). This way the user can get an idea of how things work in the community, what the conventions are and who the other members are.

As discussed in the previous chapter, some of the users, based on the managers' perspectives – want to stay around and observe the community for a while to understand what it's like, what the norms and values are, so they can pick up on how it works, what the conventions are and the nature of communication in order to fit in well. This way, they are able to understand and merge their values with others similar to them in the community, thereby building and enhancing trust with other members.

6.5.4 Identification on trust

Studies have shown the impact these two factors have on user behaviour in an online community. Empathy and a sense of belonging are major outcomes of these factors (identification and trust) on user behaviour per Zhao et al. (2103), as social identity and trust affect user behaviour through the effect of empathy.

The present study examined the effect of identification on the development of trust among users. Identification was measured using three constructs, emotional, cognitive and evaluative social identity. The study shows that only emotional social identity positively influenced the trust development of users in the community. The emotional identity reflects the sense of membership users feel towards other members; it helps users to develop a sense of community and attachment to the community (Zhou, 2011). This category of users re undergoing treatment for cancer or have recently undergone treatment. The results of the study explain that affective social identity leads users to interact more in the community, either by sharing information about their experiences so far or are desperate to get information about their present situation. Emotional/affective social identity leads users to interact more often, thereby leading to trust for other members in the community. As members interact more to share or acquire information it leads them to develop some connection and perception that the other members of the community are dependable and their behaviours are characterized by integrity (Mayer et al., 1995). The managers of the community explain that members of the community strongly identify, they feel they have a connection and relationship with other members "they feel like part of the community or part of their group within the community". The community is sub-grouped depending on what group a user will like to join, or if a user will prefer to be a part of the general forum. In some cases users prefer to stick to one group and remain only among the group where he or she belongs, this will make some users withdrawn from the entirety of the community, "sometimes, somebody joins the breast cancer group, that's the most active group there's loads of content in the breast cancer group, they might not ever feel the need to go outside, if they have breast cancer and there are loads of other people with breast cancer giving them all the information and all the responses they need, they might not read the rest of the community or any other groups, so they might feel a sense of community in their sub section of the community". Identifying with a group will make users trust one another and seek opinions from one another. Many of the users are vulnerable according to Manager 2, and this means they need reassurance from other people. Therefore, the community is instrumental; it gives people the chance to read other people's posts and to learn from mistakes.

6.5.5 The Value of trust in the community

In studying virtual communities, extant research has looked at and examined the relevance of social influences and assets that are deeply rooted in networks of relationships e.g. Trust

(Chiu et al., 2006). Studies have identified trust as a major factor in increasing participation and knowledge sharing in online communities (Andres et al., 2002; Ridings et al., 2002). The present study shows the influence of trust on community participation as it was the only variable that had a significant relationship and Pearson's correlation with all variables except for identification. From the perspective of Macmillan community, member willingness to share information is a major concern like in most communities, but the present study shows that trust is a valuable means to enhance information and knowledge sharing. Four antecedents of trust (Ridings et al., 2002) were considered in the present study, and they were all consistent in significance to active participation

Perceived responsiveness: a result of repeated interactions among members, over time. Several studies show that when there is reciprocity in exchange relationships, it builds trust (Kramer, 1999). Users who post messages on the community often expects a response, in cases where there are no responses, the trust will not develop.

Confiding Personal Information: this is the degree to which members of the community are willing to confide personal information to one another. Due to the online disinhibition effect, members are more likely disclose personal information via computer interaction (Sproull & Kiesler, 1991, Ridings et al., 2002). Users are more willing to trust when they see personal posts about others, they appear more than just strangers, and are showing they can trust other members with sensitive information.

The desire to exchange information: in an environment where trust exists, individuals are willing to help others and request for help from others. Trust between people means they are inclined to participate in shared activity (Nahapiet & Ghosal, 1998; Ridings, 2002). In an online community, such as Macmillan, the shared activity involves cooperative information exchange.

Disposition to trust: this is the general willingness to depend on other members based on the level of socialization. This antecedent may be very effective in an environment where the parties are unfamiliar with one another as may be the case in an online community such as Macmillan, where anyone at all can post a reply or comment to an ongoing conversation.

Contribution to IS literature

Contrary to previous findings in the literature, the concept of lurking within the present study was seen as another way of acquiring social support among many other reasons. Wasko, Faraj and Johnson discusses that some users lurk because they feel other users would not

return the favor after getting help. However the current study showed that of the non-active members, the majority of them are happy to read posts, however the values derived remain less satisfying and less engaging. 19% of non-active members are shy and 47% claim they will like to post in the future. This reveals that among the non-active members of the community lurking does not result in discontent or dissatisfaction.

Also, in line with Hatzler & Pratt (2011), the moderators of the community perform administrative expertise; however, they also have clinical experts on their help lines for signposting individuals who have some very specific health related questions. This has been put in place to prevent users from getting information which is not verified by an expert and health practitioner. Also the community has experts in medical health who come online to answer health related questions but unfortunately they cannot have the medical experts on the platform every day of the week.

Chiu et al (2006) discussed that outcome expectations can only contribute to knowledge sharing to some extent; it is not a major determining factor. This is directly in line with the study of Wasko et al (2005) that knowledge sharing in an online community stems from motivations to grow and improve the community and moral obligation, and not so much of narrow self-interest. The present study thus showed that outcome expectations which can either be personal outcome expectation or community-related outcome expectations is not the strongest determinant or predictor of knowledge sharing and active participation. This is because only the personal outcome expectations are seen to have a positive effect on active participation. The present study showed no relationship between community-related outcome expectations and knowledge sharing.

Liou et al (2016) explained that community identification and privacy of information influenced trust on the website and reliance on other members concurrently, which in turn significantly influenced the desire to get and share information in the community, and this desire to share and acquire information were equally necessary for knowledge sharing. Also, For example, when members of a community can strongly identify with similar and active members they are less likely to exit the community; they may become more involved as seen in the organizational context (Van Knippenberg & Van Schie, 2000). The present study showed that identification had no positive and causal relationship with active participation. Perhaps, the fact that users of the community belong to separate groups, it might be that users who identify within a particular group in the community is an active member of that community whereas; such a user might remain passive when considering the community as a

whole. This finding from the present study is in line with Chiu et al (2006), where their study explained that in some cases, distinct and contradictory identities formed within groups can serve as significant barriers to information sharing, learning and creation of knowledge

6.6 SUMMARY

This chapter examined the results of both phases of the study – quantitative and qualitative - with an aim to make sense of user participation in the view of the members of the community and the mangers likewise. As seen in several studies, the qualitative data aids in understanding more of the findings from the quantitative stage of the study, however it is not rare to find some dissimilarities in the results and findings, as might be the case when there is a limited sample in qualitative collection process, hence findings might not be sufficient to generalize. The results and findings however have helped to explain the major factors leading to active participation in the community and the value of trust among members of the community. This implies that the environment is essential for a successful and thriving health community.

The study showed that identification, contrary to findings from other studies, had no positive influence, hence not significant to active participation among members of Macmillan community.

The next chapter will relate all findings together by comparing the findings from this study to existing research, thereby shedding light on implications of the study, the main contributions of this research, the limitations of the present study and lastly such suggestions for future implications.

7 CONCLUSION

7.1 OVERVIEW

The present chapter shows the results of the entire research that was conducted for the purpose of fulfilling the aims and objectives aforementioned in the first chapter. The researcher attempted to develop a theoretical framework to understand and explain user behaviour in online health communities, with a major focus on participation behaviour. A summary of the structure and conduct of the study will be discussed in this chapter by reviewing all previous chapters from the entire thesis.

Chapter one introduced the field of interest and the area of research covered in this study. It explained what online communities are and why many individuals are increasingly becoming registered users of these communities. Individuals are frequently turning to the internet for information and guidance on health matters and how they are dealing with it. However, most users are only out to source for information and support with little or no intent at all to share knowledge or share information with other similar users. The chapter further to this signifies the motivations of the study and then develops the research questions to guide the focus of the study, outlines the objectives, methodology to be used to test the framework and a brief overview of contributions of the research.

Chapter two begins with clear cut definitions of online communities and online health communities to adequately distinguish both terms. Several researchers have approached the meanings of online communities differently based on their understanding and context of their research; hence, several definitions have been used to explain the concept. The chapter discusses the roles of the community moderators, who in many cases are experts that supply valuable knowledge and control information quality shared among members. Further to this, the chapter introduces the theoretical rationale of the entire study by reviewing existing theories in studies of user behaviour in online communities. Social cognitive theory was deemed appropriate as the building theory for the framework of this research, with justifications for adopting the theory specifically as the foundation for the developed framework. The study then introduces the social influence model to account for the effects of social influences in online and social environments. After that, hypotheses are developed based on the framework, showing the relationship among factors of the theories and user

behaviour. All constructs forming the hypotheses are discussed in detail along with their elements, detailing what has been included and excluded and for what reasons.

Chapter three starts with a description of the complex nature of information systems research, which makes it slightly difficult to select an appropriate method of carrying out research. The question of what method is most appropriate for research in IS field has been a topic of discussion for a long time. The author discussed the concept of diversity in IS research, indicating the need and value for methodological pluralism due to the diverse nature of information systems research. Next, the research approach is highlighted, which are the plans and procedures that were adopted to carry out the research, this aspect is essential in carrying out a study and is based on the nature of the research problem and the issue that needs to be addressed. The chapter then moves on to address the research design as it applies to both phases of the study, i.e. the users and the moderators. The author classifies the research paradigms and philosophical views to determine which is best suited for the study, hence justifying the need to use a more dynamic approach which led to the choice of the pragmatic view (pluralistic approach to derive knowledge about a problem). Next, the chapter discusses the triangulation of research methods and how it concerns the present study, the mixed method approach to data collection discussed in detail and the pros and cons of the methods.

Chapter 4 presents the quantitative data collection phase for testing the hypothesis proposed in the second chapter. To begin, the author introduced the demographic profile of respondents, most of whom were either members of the community or visitors to the community. The chapter is concerned with exploring whether variables from both theories considered for the study are in any way related positively to an increased level of activity which could lead to an extended stay or improved psychosocial outcomes. The chapter discusses the detailed steps taken towards carrying out the quantitative analysis starting with acquiring an ethical approval for the study, data screening, detection of outliers and multicollinearity. Furthermore, a brief outline of the characteristics of community members is presented graphically showing age distribution of members, duration of membership at Macmillan, members perception of ease of use and member satisfaction level. Further sections within this chapter displayed the results derived from the regression analysis.

Chapter five gives an overview of the qualitative data analysis talking about the interviews conducted with the managers of the community. The chapter discusses the process of data collection, the timing, the place and the nature of participants. Theoretical thematic analysis at a latent level was adopted as the method of analysis to identify and investigate underlying

ideas, assumptions and conceptualizations that are theorized as shaping or informing the semantic content of data. Similar to the quantitative phase, coding the data is an essential phase of the qualitative analysis; it involves subdividing the data into smaller categories to assign meanings to the information collected from the study. The final section of the chapter discussed the results generated from this phase of analysis. Results were grouped in two, firstly, the results derived based on the predetermined nodes and secondly, results based on the roles of the managers.

Chapter six presents a detailed and in-depth discussion of results and outcomes of both phases of the study. The results are a combination of how the qualitative and quantitative findings relate with each other and with the literature foundation of the topic in general.

The present chapter is aimed at discussing the summary findings from both qualitative and quantitative research. Going beyond the summary, the contributions of the study will be discussed in the form of its contribution to theory, contributions to methodology and contributions to practice. Limitations encountered throughout the study will also be outlined in this chapter. Finally, the directions for future studies to continually improve the present area for further development will be discussed.

7.2 FINDINGS

The findings from the study revealed that there are more female members in the community than men, a much higher percentage of women than there are men with the largest number of users aged between 45 and 74. This shows that the more affected population are users between these ages, though the results from the survey showed a few users below the age of 35 about 14%, and less than one percent of the users aged between 16 to 24. Not all members of the community are affected by any illness as some users are there to support family and friends. Trust, self-efficacy, personal outcome expectations and internalization are the factors from the study that showed significant relationships with our outcome (active participation), other factors such as identification and community-related outcome expectations shows no relationships. Trust ranked the highest in its relationship with participation, indicating the value of trust in the community. Internalization plays a huge role in encouraging users to engage more actively but not as effective as the trust a user develops for other community members. In accessing the effect of social influence on user behaviour, this study has not considered the effect of subjective norm on user behaviour, as studies have shown that in social environments especially in the online context, users do not feel the need to comply

with others, for example, there is no perceived pressure from other users on the user. Studies have revealed that user participation is mainly motivated by information and support. Most users are online just to receive support and share information or vice versa, and also to be able to be among similar users. However, some users are more altruistic in nature and would rather share expertise to offer help. Studies add that information shared in the community is valuable both to the active and non-active users, regardless of participant type, the value of the information received is based on the utility of interactions towards managing personal health issues. The more an individual relates with community members by intensifying their level of participation, the more they start to understand the relevance of the information to personal self; also, this can lead to the feeling of belonging, gained from struggling through the difficulties together. Experts in community studies, therefore, describe information and social support as a source of personal empowerment to the users.

Also, many of the users in the community are trying to come to grips with the technology and its ever-changing features. Some users feel they would participate more if the community were easier to use, or if there was any form of guide on how to navigate the community. The Macmillan managers are constantly working on this to improve the ease of use of the site and make it, even more, user friendly. Members claim they will want to be able to interact more with experts, though the community has a feature in place, however, called asked the experts, but due to the ever-growing number of community members, only a few can benefit from this feature. However, some users are directed to helplines via signposting, where they can discuss with an assigned nurse.

Correlation between the variables of the study showed the relationship between the variables, where some had strong relationship, and others had a weaker relationship. There is a positive relationship between self-efficacy and outcome expectations, as users who expect more favorable outcomes must first feel confident in their abilities. Trust has a positive relationship with every variable in the study, indicating the value of trust in the community. Users will be more willing to engage in conversations and participate if they feel they have a strong sense of trust for other members.

7.3 CONTRIBUTIONS OF THE STUDY

The present study makes diverse contributions covering theoretical, methodological and practical facets and therefore adds value to research and practice for communities targeted towards individuals with health challenges or other similar communities intending to offer

support to its members. The study also developed a consistent theoretical framework extending the existing research in the area and taking a further step towards explaining the motivations behind increasing participation in online health communities. The study attempted to achieve this by developing a theoretical framework to investigate the effects of social influences on human behaviour, by merging the components of the social influence theory on the social cognitive theory, and as a result leading to an understanding of the major factors that encourage active participation among users of the community.

7.3.1 Contribution to Theory

From a theoretical perspective, the present research tests the social cognitive theory within the context of user participation behaviour in online health communities, taking into the account the relationship between the social environment and personal cognition. Extant studies have applied different theories including TAM, commitment theory, social cognitive theory, social capital theory, social network theory to explore user behaviour in online communities; however, the influence of the group on the user behaviour has infrequently been considered. Therefore, the present research augments previous research by merging the social influence model (excluding one of its components – compliance) with the social cognitive theory to examine the effects of social processes on community participation. This serves as an advancement in studies of online health community user behaviour as previous studies have mainly focused only on the motivations that lead to user participation, without considering the effects of social processes embedded within the social network. However, the present study showed that identification as a social process had no significant relationship with knowledge sharing, even though previous studies have been able to demonstrate the value of identification in a social environment.

7.3.2 Contribution to Methodology

The present study also contributed to methodology judging by the method of analysis that has been adapted in the research approach. The study was conducted in Macmillan, an online cancer community aimed at supporting individuals who have been directly or indirectly affected by cancer. There is a lack of research in this area of research that applies a mixed method in parallel. Moreover, studies have not considered the application of this method to study all actors involved in an online community, most studies focus on the members of the community, and a few studies have tried to examine the role of the administrators. However, considering both phases in one study might be a step in the right direction to explore

community activities and user behaviour online. The present study has attempted to combine both methods to accommodate all actors involved in the study, i.e. by examining the behaviours of the members of the community in the quantitative study and also investigating the roles of the managers of the community in the qualitative phase of the study.

7.3.3 Contribution to Practice

The results of the study suggest that managers of online communities must concern themselves with the social processes that exist in their virtual environment and how they influence user behaviour. Identification and internalization were tested in the study to determine their effects on the outcomes of the study; however, we were only able to show the benefits of internalization (group norm) on user behaviour.

Managers of online health communities can enhance reciprocity in communication by motivating members of the community extrinsically, for example by offering rewards, not necessarily in the form of gifts, but even by acknowledging their contributions or as it is done in Macmillan, they may post a comment from the user in a section of the community page online to serve as a reference for other users. These are some of the sources of the tips that can help members of the community.

Setting up a group of experienced individuals called champions is another method used in the community to engage more with the other members of the community. Macmillan has a set of users who are also members of the community; however, they are a very active group of the community and are regarded as community champions. Their role is to engage deeply with their peers in the community and report any unaccepted behaviour. In other cases, they report to the managers if there are any severe cases, or issues that need immediate help, however, they serve as the eyes and ears of the managers.

The result from the study also shows the value of trust in the community; trust plays a huge role in virtual community management. The quantity of knowledge shared may be a major concern in the early stages of an online community, but as time goes on, the quality of knowledge shared becomes the major concern. Therefore, managers of the communities must seek to enhance trust by increasing the norm of reciprocity and social ties among members. Managers of online health communities should improve acquaintance and likeness among members, for example, they should create a just environment using ethical guidelines and practices, boost responsiveness and disclosure of private information from other members, share quality content, increase member embeddedness and encourage interactions would build trust among members.

7.4 Limitations of the Study

Research shows that the empirical studies of user participation in online communities have focused mainly on the most active and most dominant members of online communities who in the real sense represent a tiny percentage of community members. Rather than centering on the quantity of information shared, there should be more attention on the quality of information shared. The present study attempted to investigate factors that could lead to increased participation, but has not taken into consideration the quality of information shared at the moment, but rather, the quantity of information shared by already active users of the community.

Members of the community used in this study, (Macmillan community) are vulnerable, also, geographical locations meant that the researcher could not arrange to get a hold of some members to discuss some of the issues posed in the research questions. Perhaps if the time-scale were longer, the possibility of travelling around to discuss with some members of the community in person would have been viable.

Generalizing the results of this study may only apply to similar online health communities, to the community used in this study. The present study did not consider whether the severity of the conditions of users or the health stage of the participants affects their perceptions of the level of outcomes expected from the users. Considering the sensitive nature of health information, there are chances that individual differences are likely to influence the results derived from the current research. Also, the results from the present study may not apply to communities of practice whereby a more sophisticated level of expertise can affect the perceptions of information utility, support and patient empowerment.

Limitations: Different kinds of cancers and what it means for participation.

The Macmillan community constantly works to increase on-boarding within the community and a major challenge is being able to manage all different groups that exist within the general community. The groups include, breast cancers groups, lung cancer groups, carers groups among other. The present study has not considered the relationship between the types of cancer and the effect this has on active participation. Perhaps, cancer types will influence user participation whether active or non-active (Lurking). Managers of the community have tried to conduct emotional analysis on the different groups to determine what groups are most active in order to direct new members to such communities, pending when they get

comfortable enough to navigate other aspects of the community. Manager 2 of the community stated that the kind of shared experiences and emotional connections makes the community a safe space to grant their emotions and interact with people who understand each other, the most active members of the community strongly identify, the relationship and connection with other users makes them feel they are a part of their group within the community. Also the Manager added that, some users join the breast cancer group whether they affected by that cancer or not, because it is the most active group and there's loads of content, and might not ever feel the need to go outside this group. The breast cancer group being the most active also started something called the chemo club, which began in April, where members of this group gather to discuss their experiences with one another.

Social comparisons (can either be down ward: comparing oneself with others who are doing worse and upward: comparing with other better off) is also a very interesting issue to be considered in the study, when considering the effects of cancer types on participation. Users who compare with other users who are doing worse off tend to be pessimistic and anxious not to be in the same situation one day, whereas the users who compare with better off patients might experience some optimism with the prospects of getting better in a short period to come. Studies show that the way individuals relate their personal situation to that of others can influence ones psychological well-being positively or negatively.

It goes to show that different cancer types may have an effect on the psychological and psychosocial well-being of individuals, depending on how they respond to on-going conversation or messages received from their peers. Different cancer types will probably have an effect on the nature of information posted by individuals and the effect of information received by the individual. The present study has not considered how various cancer types affect individual participation whether active or non-active or the quality of information shared (How much value, how useful, upward or downward conversations) affects the quantity and frequency of participation and interaction.

7.5 Future studies

For future studies, it will be interesting to see how the results obtained from the current study can be generalized to view its usefulness in other contexts. Future studies might want to consider using the conclusions from the present study in a different context, on a different sampling frame and a different unit of analysis and using a different research method. Improving the framework applied in this study with technological factors, especially the ease of use, accessibility, flexibility and other design characteristics will also prove very useful in online health community studies.

The present study will also probably yield different results if considered in a different geographical area, due to personal, social and situational and perhaps cultural norms. Perhaps future studies can apply in such areas, even if not within the same context, the scope can be changed to be applied to a particular group or domain, such as other health communities or other groups that require social support.

More recently, new types of online communities are being formed; there is a rising need to understand their structural differences, which can affect the methods of social interaction. An important area that must be considered, however, is the relationship between the level of participation and the success of the community; specifically, researchers need to investigate whether there are possibly other factors that contribute to the formation of thriving communities than the number of contributions. Hence researchers must consider the quality of participation and influence of such involvement on the community.

Also, the present study measured participation behaviour and its antecedents based on whether or not users have actively participated in the community, however, this only measures the concept of information quantity. Future studies must consider information sharing behaviour in online communities based on the quality of information shared by members and its relevance to online health community topics.

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INTRODUCTION LETTER.

Hello Jess,

Thank you for your reply, I was happy to receive your response and I apologize for the late reply. Please see below a brief description of the aims of the study as well as the proposed methodology

The study aims to provide insights on how and why patients diagnosed with cancer (and their relatives) seek social support using the Internet and social media. In particular, we seek to understand the motivation for joining these groups and the values derived from the community for the users both active and non-active.

The ultimate goal is to explore how the on-line sense of community may encourage more users to participate, and can attract future potential users. Recent studies have shown that lurkers or non-active users can develop a sense of community even without participating and this study will investigate how these users can be encouraged to participate more.

In terms of methodology this will involve collection of qualitative data, deriving from interviews with members of the community as well as moderators. Focus group will also be used for further understanding, and this will involve again members of the community as well as moderators. Most importantly, we intend to analyze existing threads of conversations with sentiment analysis. Sentiment Analysis which is a new methodology used widely today to analyze data coming from social media sites. It is the process of determining the emotional tone behind a series of words used to gain an understanding of the attitude, opinions and emotions expressed within an online discussion.

I will be glad to know if you find this interesting and feel free to offer any recommendations especially in relation to what you organization like to know better about its on-line community. I am only happy to meet up and discuss this further.

Best regards

Bashir

MacMillan Interviews!

Role of Moderators within the community

Online Support

- What forms of support do the members of the community exchange/receive
- How can members enactive mastery be increased to make them believe more in succeeding and more confident in the community.
- What is your view on the use of internet technologies for social support?
- Is the use of this technology consistent with patient's values, needs, experiences?
- Is this platform easy to use and navigate?

Participation

- How do you encourage participation and build rapports? What methods have been put in place to increase participation
- As a moderator, what are the benefits of participation for members of the community
- Do you think individuals learn from the experiences of other users and by observing others similar to them in the community (increasing participation)?
- As moderators, do you offer appraisals/persuasions to members of the community

Clinical Expertise(Information)

- What form of medical expertise is offered to patients and members of the community
- Are moderators capable of clarifying medical concepts and explaining current clinical practice
- Do you ever challenge the patient's health care provider's suggestions?
- Do you provide outside resources and potential solutions?
- Do you advice patients to talk to their doctors – about treatment and medication? When does this happen.

Moderating

- Do you attempt to reinforce participation etiquettes and forum rules?
- As moderators, do you redirect patients to other forums or relevant discussions
- For information credibility, would you warn patients about limitations of the Macmillan community
- Do you think there is any form of information inequality in the community? How will these matters be addressed?
- How do you manage the kind of information disseminated within the community?

SOC

- Do you believe there is a sense of belonging within the community? Why?
- As moderators, do you address any patients directly?
- Do you ask for future updates by calling out a specific patient name?
- Do you send encouragement to struggling patients?
- Do you suggest hobbies or share hobbies?

APPENDIX

SAMPLES: DESCRIPTIVE STATS;

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
I am undergoing treatment for cancer	.30	.457	598
I have undergone treatment for cancer	.50	.500	598
I am a carer for someone with cancer	.09	.284	598
I have being a carer in the past	.08	.264	598
My friend or family member has cancer	.18	.384	598
My friend or family member died of cancer	.22	.417	598
I am a volunteer for macmillan	.04	.196	598
I feel i have someone to turn to	4.01	.877	598
I feel i have people i can talk to openly about my situation	4.09	.872	598
I feel i have enough support	3.58	1.027	598
I feel isolated because of my situation	2.84	1.140	598
I understand my contion and needs	3.99	.763	598
I have a good understanding of my treatment options	3.95	.827	598
how confident do you fee doing these activities online-posting to an onloine community	3.99	1.062	598
finding information online	4.47	.671	598
sending and receiving emails	4.59	.689	598
completing online application forms	4.46	.760	598
Buying things online	4.53	.758	598
how easily can you do these activities online-posting to an online community	4.29	.808	598
finding information online	4.57	.589	598
sending and receiving emails	4.66	.584	598
completing online application forms	4.51	.706	598
Buying things online	4.57	.719	598
what is your reason for being a member_to get information	.76	.425	598
to get support	.61	.488	598
to make friends with others like me	.22	.416	598
to support others	.40	.490	598
to generate discussions on topis that interest me	.12	.320	598
Do you feel you have made friends_personal outcome expectations	.32	.467	598
when i have a problem i can discuss it with other members	3.71	.936	598
i can trust people here	3.80	.792	598
its important to me to be a member	3.66	.841	598
been a member makes me feel supported	3.68	.835	598
others in my group share the same values	3.54	.766	598
those around me are well supported	3.48	.771	598
i am treated with dignity and respect in the community	3.90	.733	598
I'm inspired to give something back	3.80	.804	598

2. DESCRIPTIVES FOR PREDICTORS AND OUTCOME OF REGRESSION ANALYSIS

Descriptive Statistics

	Mean	Std. Deviation	N
Have you ever posted on the online community	.84	.508	706
Do you feel you have made friends_personal outcome expectations	.31	.463	706
TRU_Mean	3.6957	.66916	706
CROE_Mean	.3399	.29814	706
MEAN_SEff	4.5184	.58158	706
MEAN_Selfefficacy	4.1161	.87962	706
MEAN_Seleff	3.9511	.73809	706
INT_Mean	3.6339	.60024	706
IDF_MEAN	.3881	.26272	706
IDF4_MEAN	.1643	.29641	706
IDF3_MEAN	.1324	.27124	706

REGRESSION: The model below shows the R Square value of the regression analysis. Interpreted as the effect of this model on the outcome.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.389[a]	.151	.144	.470	.151	20.790	6	699	.000
2	.407[b]	.166	.154	.468	.014	2.991	4	695	.018

a. Predictors: (Constant), MEAN_Seleff, CROE_Mean, MEAN_SEff, Do you feel you have made friends_personal outcome expectations, TRU_Mean, MEAN_Selfefficacy

b. Predictors: (Constant), MEAN_Seleff, CROE_Mean, MEAN_SEff, Do you feel you have made friends_personal outcome expectations, TRU_Mean, MEAN_Selfefficacy, IDF3_MEAN, IDF4_MEAN, IDF_MEAN, INT_Mean

APPENDIX

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.407[a]	.166	.154	.468	.166	13.813	10	695	.000

a. Predictors: (Constant), IDF3_MEAN, CROE_Mean, MEAN_SEff, IDF4_MEAN, INT_Mean, MEAN_Seleff, Do you feel you have made friends_personal outcome expectations, IDF_MEAN, MEAN_Selfefficacy, TRU_Mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.219	10	3.022	13.813	.000[b]
	Residual	152.049	695	.219		
	Total	182.268	705			

a. Dependent Variable: Have you ever posted on the online community

b. Predictors: (Constant), IDF3_MEAN, CROE_Mean, MEAN_SEff, IDF4_MEAN, INT_Mean, MEAN_Seleff, Do you feel you have made friends_personal outcome expectations, IDF_MEAN, MEAN_Selfefficacy, TRU_Mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.601	6	4.600	20.790	.000[b]
	Residual	154.667	699	.221		
	Total	182.268	705			
2	Regression	30.219	10	3.022	13.813	.000[c]
	Residual	152.049	695	.219		
	Total	182.268	705			

a. Dependent Variable: Have you ever posted on the online community

b. Predictors: (Constant), MEAN_Seleff, CROE_Mean, MEAN_SEff, Do you feel you have made friends_personal outcome expectations, TRU_Mean, MEAN_Selfefficacy

c. Predictors: (Constant), MEAN_Seleff, CROE_Mean, MEAN_SEff, Do you feel you have made friends_personal outcome expectations, TRU_Mean, MEAN_Selfefficacy, IDF3_MEAN, IDF4_MEAN, IDF_MEAN, INT_Mean

HIERARCHICAL MULTIPLE REGRESSION: predictors are all components of both theories used. Outcome is active participation.

APPENDIX

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.035	.168		6.171	.000					
	Do you feel you have made friends_personal outcome expectations	.053	.046	.048	1.142	.254	.198	.043	.040	.684	1.463
	TRU_Mean	.032	.033	.042	.960	.337	.180	.036	.033	.625	1.599
	CROE_Mean	.204	.068	.120	2.986	.003	.237	.112	.104	.755	1.324
	MEAN_SEff	-.215	.036	-.246	-6.031	.000	-.089	-.222	-.210	.728	1.374
	MEAN_Selfefficacy	.186	.026	.321	7.183	.000	.252	.262	.250	.607	1.647
	MEAN_Seleff	-.049	.025	-.071	-1.930	.054	-.044	-.073	-.067	.896	1.116
2	(Constant)	1.201	.178		6.746	.000					
	Do you feel you have made friends_personal outcome expectations	.060	.046	.055	1.296	.195	.198	.049	.045	.678	1.474
	TRU_Mean	.084	.037	.110	2.259	.024	.180	.085	.078	.503	1.989
	CROE_Mean	.190	.069	.111	2.762	.006	.237	.104	.096	.740	1.352
	MEAN_SEff	-.212	.036	-.243	-5.950	.000	-.089	-.220	-.206	.721	1.387
	MEAN_Selfefficacy	.189	.026	.327	7.303	.000	.252	.267	.253	.599	1.669
	MEAN_Seleff	-.046	.027	-.066	-1.709	.088	-.044	-.065	-.059	.803	1.246
	INT_Mean	-.107	.036	-.127	-2.971	.003	.002	-.112	-.103	.660	1.514
	IDF_MEAN	.031	.080	.016	.384	.701	.044	.015	.013	.697	1.435
	IDF4_MEAN	-.019	.064	-.011	-.300	.765	.018	-.011	-.010	.876	1.142
	IDF3_MEAN	-.113	.072	-.060	-1.576	.116	-.028	-.060	-.055	.815	1.227

a. Dependent Variable: Have you ever posted on the online community

Macmillan Online Community Survey 2015.

1.

What is your gender?		
Answer Options	**Response Percent**	**Response Count**
Female	75.6%	1115
Male	24.2%	357
Other (please specify)	0.1%	2
answered question		**1474**
skipped question		**37**

Number	Response Date	Other (please specify)	Categories
1	Aug 4, 2015 8:39 am	cis woman	
2	Aug 3, 2015 7:23 pm	?????????	

2.

What is your age group?		
Answer Options	**Response Percent**	**Response Count**
16-24	0.9%	14

25-34	3.7%	56
35-44	9.6%	143
45-54	25.2%	377
55-64	35.6%	532
65-74	20.9%	312
75+	3.5%	52
I'd rather not say	0.6%	9
answered question		**1495**
skipped question		**16**

3.

How have you been affected by cancer? (Please select all that apply)		
Answer Options	**Response Percent**	**Response Count**
I am undergoing treatment for cancer	28.0%	421
I have undergone treatment for cancer	43.3%	650
I am a carer for someone with cancer	8.4%	126
I have been a carer in the past	9.4%	141
My friend or family member has cancer	17.2%	258
My friend or family member died of cancer	25.8%	387
I am a volunteer for Macmillan	3.5%	53
Other (please specify)	4.1%	62
answered question		**1501**
skipped question		**10**

4.

Macmillan Online Community Survey 2015

Are you a member of the Macmillan Online Community?		
Answer Options	Response Percent	Response Count
Yes	93.2%	866
No	6.8%	63
	answered question	929
	skipped question	582

5.

APPENDIX

How far would you agree with the following statements?							
Answer Options	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Rating Average	Response Count
I feel I have someone to turn to	289	433	155	54	23	2.05	954
I feel I have people I can talk to openly about	325	421	126	60	17	1.97	949
I feel I have enough support	168	362	250	122	32	2.45	934
I feel isolated because of my situation	79	221	224	300	101	3.13	925
I understand my condition/needs	214	466	177	38	7	2.07	902
I have a good understanding of my treatment	221	413	188	34	9	2.07	865
						answered question	966
						skipped question	545

6.

How confident do you feel doing these activities online?							
Answer Options	Very confident	Confident	Neither confident or unconfident	Not very confident	Very unconfident	Rating Average	Response Count
Posting to an Online Community	343	346	125	129	18	2.10	961
Finding information online	489	401	45	23	1	1.59	959
Sending and receiving emails	598	294	37	25	3	1.48	957
Completing online applications and forms	520	324	74	37	5	1.63	960
Buying things online	564	278	65	35	13	1.59	955
						answered question	968
						skipped question	543

7.

How easily can you do these activities online?							
Answer Options	Yes, very easily	Yes, easily	Yes, with difficulty	No, probably not	I definitely could not do this	Rating Average	Response Count
Posting to an Online Community	422	368	108	47	7	1.62	952
Finding information online	544	359	41	8	1	1.44	953
Sending and receiving emails	641	276	26	10	2	1.34	955
Completing online applications and forms	552	308	69	22	3	1.45	954
Buying things online	588	275	51	21	14	1.43	949
						answered question	965
						skipped question	546

8.

How long (approx) have you been a member of the Community?		
Answer Options	Response Percent	Response Count
Less than a month	4.7%	42
1 - 3 Months	13.3%	120
4 - 6 Months	15.0%	135
7- 12 Months	20.4%	184
1 - 2 Years	24.6%	221
2-3 years	12.0%	108
3 years +	10.0%	90
	answered question	900
	skipped question	611

9.

Have you ever posted (contributed to a group or blog post etc.) on the Online Community?		
Answer Options	Response Percent	Response Count
I'm not sure	7.1%	64
Yes	65.5%	591
No	27.4%	247
	answered question	902
	skipped question	609

10.

If you answered 'no' to the above question, can you tell us why you haven't posted? (Please choose all the reasons that apply)		
Answer Options	Response Percent	Response Count
Just reading the posts is enough for me	52.4%	143
I prefer to keep my anonymity	14.7%	40
I never had any intention to post	3.7%	10
I'm shy about posting	18.3%	50
I'm worried about posting	7.7%	21
I have nothing to offer by posting	10.3%	28
I don't know how to post to the community	10.6%	29
I'm worried I may get aggressive or hostile responses	3.3%	9
It's of no value to me	2.2%	6
The group treats members badly	0.4%	1
I have no time to post	1.5%	4
I may post in the future, I just haven't yet	46.2%	126
Other (please specify)	9.5%	26
	answered question	273
	skipped question	1238

11.

What is your main reason for being a member of the community? (Choose all that apply)		
Answer Options	Response Percent	Response Count
To get information	76.1%	681
To get support	58.9%	527
To make friends with others like me	22.5%	201
To support others	36.4%	326
To generate discussions on topics that interest me	11.7%	105
Other (please specify)	3.2%	29
	answered question	895
	skipped question	616

12.

Do you feel you have made friends on the community?		
Answer Options	Response Percent	Response Count
Yes	29.1%	253
No	70.9%	616
	answered question	869
	skipped question	642

13.

How do you communicate with people on the Online Community? (Choose all that apply)		
Answer Options	**Response Percent**	**Response Count**
On the open forums/groups	88.0%	578
In private messages	29.7%	195
Off the site via email	9.3%	61
Off the site via Facebook	9.4%	62
Off the site via phone calls	3.3%	22
Off the site via text message/mobile	5.0%	33
	answered question	657
	skipped question	854

14.

How far do you agree with the following statements?							
Answer Options	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Rating Average	Response Count
When I have a problem, I can talk about it with	200	368	370	100	30	3.57	1068
I can trust people in this community	194	422	396	37	15	3.70	1064
It is important to me to be a member of this	160	374	427	77	23	3.54	1061
Being a community member makes me feel	153	406	383	91	26	3.54	1059
Others in my groups share the same values	115	328	520	58	13	3.46	1034
Those around me are well supported	105	312	528	52	26	3.41	1023
I am treated with dignity and respect on the	209	442	360	18	12	3.79	1041
I'm inspired to give something back	208	384	397	36	14	3.71	1039
						answered question	1076
						skipped question	435