

# Online social support: an exploratory study of breastfeeding women's use of Internet and mobile applications to obtain peer support

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by

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## Abstract

Online social support is reported to be used by a number of people to obtain social interaction and exchange communication as a way to buffer stressful situations. Breastfeeding women experience a significant change in their lives and routine which a number of women find it stressful for various reasons. Research shows that breastfeeding women use the Internet to obtain support, however little is known about how breastfeeding women use online social support and their perceptions, concerns and expectations about using it.

An interpretive approach using qualitative methods was adopted in this research to obtain and analyse the data acquired through interviews and observations. The framework proposed by the Social Cognitive theory was used to conduct this research and to provide insights into online social support in a breastfeeding peer support context.

The results in this research indicate that in spite of face-to-face interventions being favoured, online social support is perceived as a helpful alternative support with the potential to positively influence breastfeeding self-efficacy. A number of similar characteristics of face-to-face support were found to be present in online social support, such as emotional and informational support, empathy and empowerment. Online social support was perceived as offering additional features to traditional support including convenience of use, connection with peers and supporters at any time of the day, and the opportunity to express emotions and issues textually. Certain concerns were also associated to using online social support to support breastfeeding women, which need to be taken into consideration by providers of online social support. These included the need for training volunteers in this type of media, confidentiality and trustworthiness of the information available online and issues related to digital divide.

These findings are useful to further the understanding of the implications of online social support in self-efficacy and the associated outcomes. Policy makers, social scientists and breastfeeding support organisations can use the findings in this research to develop future breastfeeding promotion strategies and interventions. Ultimately, breastfeeding women benefit from the findings of this research, through the implementation of online social support interventions addressing the issues raised in this research. These women will consequently have access to more services and applications, as well as engage with volunteers or clinicians trained to fulfil their needs over an alternative channel.

## Dedication

This research is dedicated to my two sons James Michael Burman and Benjamin Jonathan Burman. They make the effort, dedication and determination that took to complete this work even more worthy.

"I see trees of green, red roses too I see them bloom,  
for me and you. And I think to myself what a  
wonderful world.

I see skies of blue, and clouds of white the bright  
blessed day, dark sacred night and I think to myself  
what a wonderful world

The colours of the rainbow, so pretty in the sky are  
also on the faces, of people going by  
I see friends shaking hands, sayin', "How do you do?"  
They're really sayin', "I love you"

I hear babies cryin', I watch them grow they'll learn  
much more, than I'll ever know and I think to myself  
what a wonderful world

Yes, I think to myself what a wonderful world"

Louis Armstrong

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## Publications

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## Chapter 1: Introduction to the Research

### 1.1. Research background

The World Health Organisation (WHO) recognises breastfeeding as the natural way to feed infants and young children (ECC, 2008). In the UK the Department of Health (DoH) recommends exclusive breastfeeding for the first 6 months of an infant's life in accordance with the guidance issued by the WHO (DoH, 2003). Babies' benefits from breastfeeding include reduced mortality in preterm infants, reduced infant morbidity from gastrointestinal, respiratory, urinary tract and middle ear infection and less atopic illness (Renfrew, 2006). Mothers also benefit from breastfeeding including reducing postpartum haemorrhage (Zinaman *et al.*, 1992) cited in (Huang *et al.*, 2007), lower risk of premenopausal breast cancer (Newcomb *et al.*, 1994) cited in (Huang *et al.*, 2007), lower risk of ovarian cancer (Schneider 2nd., 1987) cited in (Huang *et al.*, 2007) and enhancing attachment to the infant (Tarkka, Paunonen and Laippala, 1999).

However despite the benefits, according to the last Unicef Baby Friendly Initiative survey in 2005 ([www.babyfriendly.org.uk](http://www.babyfriendly.org.uk)), overall only 35 per cent of UK babies are being exclusively breastfed at one week, 21 per cent at six weeks, 7 per cent at four months and 3 per cent at five months. These numbers are deemed to be very low, in fact amongst the lowest in Europe (ECC, 2008). The biggest decrease in breastfeeding rates occurs in the first four weeks after birth with mothers reporting lack of confidence, problems with infant latching or suckling and lack of encouragement and support as the reasons for it (Tarkka, Paunonen and Laippala, 1999).

Supporting mothers while breastfeeding their babies has a positive impact in the duration and exclusivity of breastfeeding and increase the likelihood of breastfeeding (Sikorski *et al.*, 2003). In a study on factors related to successful breastfeeding Tarka, Paunonem and Laipa (1999) concluded that there is an intrinsic relationship between the aid and affirmation received and the mother's coping with breastfeeding. In this context social support is seen as a key fact in support women to breastfeed successful (Raj and Plichta, 1998)

Mothers in the United Kingdom have access to support while breastfeeding through their GP's, health visitors, midwives and volunteer peer support organisations. The work of voluntary peer support organisations is seen as key in improving breastfeeding duration and exclusivity (Thomson,

Crossland and Dykes, 2011). In the UK the DoH recognises the “extensive, efficient and crucial” role of breastfeeding support voluntary organisations in the evaluation report of breastfeeding practice projects conducted by the DoH (Department of Health, 2003).

Interventions developed by voluntary organisations support to reach and interact with women seeking support with breastfeeding include home visits, drop-in clinics and telephone support. However, the use of the Internet to offer breastfeeding support is recognised as a way forward to promote and support breastfeeding (Heinig, 2009), including social support.

Bambina (2007) defines online social support as the use of computer mediated communications technology by a diverse number of people in order to gain access to elements of traditional social support including emotional, instrumental, informational and appraisal support.

An increased number of people are reported to use Internet-based information technology to exchange social support in a bid to replicate face-to-face context (Walther and Boyd, 2002). Users of online social support are known to use it as a way to aggregate and share valuable information, experiences or empathy about a common cause, such as cancer or depression (Lin and Bhattacharjee, 2009). This can presumably be also applicable to breastfeeding women.

This research recognises the complexities and controversies associated to exchanging social support using the Internet. Evidence is available to support opposite view points related to this. In one hand research shows that intensive internet use is thought to contribute to loneliness (Kraut *et al.*, 1998), social isolation (Nie, 2001) and lack of family interaction (Sanders *et al.*, 2000). On the other hand evidence is also found on the benefits of this type of support for people suffering from cancer (Eysenbach, 2003), diabetes (Zrebiec and Jacobson, 2001) and women (Dare and Green, 2011). Interesting, the findings in Kraut *et al* (1998) associating negatives outcomes to online social support, were not supported by a three year follow up study (Kraut *et al.*, 2002). This just reinforces the need to research online social support further in order to understand its intricacies.

Peer support delivered in the cyberspace has been explored previously with results indicating it to be a successful and empowering experience to its members. This includes individuals suffering with depression (Melling and Houguet-Pincham, 2011), cancer (Im, 2011) and women (Hudson *et al.*, 2009). This research seeks to explore online social support in the context of breastfeeding peer-to-peer support. This involves to exam the underlying system of social support as conceptualised by (Cohen and McKay, 1984) from the framework provided by the social cognitive theory (SCT) (Bandura, 1986) within an Interpretive research approach. Based on the theoretical underpins of the

SCT this research explores the relationship between online self-efficacy, breastfeeding self-efficacy and outcome expectations.

This chapter provides an introduction to the research that culminates with production of this thesis. This section described the background to the research in order set out its context. The next section discusses the researcher's motivation to conduct this research and is followed by a discussion of the limitations of previous research on online social support for breastfeeding women (section 1.3) gaps and the question this research is attempting to address. Section 1.4 articulates the question to be addressed by this research and defines the research objectives. The approach adopted by the researcher to carry out this research is described in section 1.5. Section 1.6 offers the contributions made by this research. Finally section 1.7 summarises the contents of the next six chapter of this thesis.

## **1.2.Motivation for researching online social support for breastfeeding women**

Many aspects of online social support can be presumably applicable to breastfeeding women in a peer-to-peer context, such as information and knowledge exchange, empathy and social support. Nonetheless this knowledge is not yet available and therefore research is needed to uncover the common and specific aspects of online support for breastfeeding women. Breastfeeding women have peculiar characteristics and demands on their time, family arrangements and emotions. First time mothers and more experienced mothers are expected to differ in how they handle their emotions, deal with the issues around breastfeeding and their need for support, including online. The opportunity to access online resources amongst breastfeeding women are also likely to differ reflecting socio-economic status, as well-educated and richer women tend to have better access to the internet (Bowen *et al.*, 2003). All these aspects need to be investigated and new issues to be discovered.

I am very interested in the issue of breastfeeding support. I am a mother who breastfed 2 children with very positive experience of it. I am also trained as a breastfeeding helper. The combination of my background in Information Technology and my experience with breastfeeding pointed me to the question whether technology could be used more effectively to deliver breastfeeding support. I found myself in the place where my ideas, experiences and expectations had to be tested and this research gave me the ideal opportunity to do so.

## **1.3.Limitations of previous research on online social support for breastfeeding women**

Breastfeeding women are known to use the Internet to obtain information and support (Laborde *et al.*, 2007). However, only a limited number studies exploring the use of online social support for breastfeeding women have been conducted previously. Email communications between physicians and breastfeeding mothers was explored in the study conducted by Thomas and Shaikh (2007). The study found this type of communication very helpful, particularly to give the women a sense of empowerment and support to carry on breastfeeding their babies. However privacy, legal and ethics issues were responsible for some reluctance from the physicians to use this type of communications to offer support to breastfeeding mothers. The issue of reimbursement was also present, as the rules and regulations for it were not clear amongst the insurances.

A Taiwan hospital developed a web-based intervention to teach and influence breastfeeding attitudes amongst the women giving birth at the hospital (Huang *et al.*, 2007). The study found that the women who received this intervention were more knowledgeable, had a more positive attitude and consequently showed improved breastfeeding rates. Web-based breastfeeding education also showed the potential to overcome barriers of time and distance in this study. Using this type of intervention to offer support and counselling was also an outcome of the study, given the potential to reach women. However, issue with speed and availability of broadband proved to be a potential limitation for the intervention.

The feasibility and acceptance of infant feeding video support offered by the NHS after hospital discharge was explored by Roberts *et al.* (2009). The study did not make any differentiation between breastfeeding or bottle feeding, but was interested in exploring women's perception of such type of support. The majority of the women were supportive of this type of intervention. The women were supportive of having the convenience of obtaining support without having to leave the house, particularly when problems may arise from the birth or family setting make it more difficult to move. They were keen in having 24 hours or "out of hours" when support from GPs or nurses is not available. However concerns were raised about privacy, continuation of care and loss of face-to-face services.

In addition Barbara Pate (2009) carried out a review of breastfeeding intervention delivery methods, which included three interventions using some form Internet-based application. The eighteen studies included in this review relied on peer or professional support. The studies using Internet-based consisted of web-based education and online breastfeeding information and support. The results of this analysis suggested that using Internet-based methods to deliver breastfeeding support might offer an alternative to conventional breastfeeding support, particularly from a time-consuming and cost perspective. Nonetheless it is important to mention that the number of studies

included using Internet-based interventions was substantial smaller than those using provider-based interventions.

The use of a discussion forum by breastfeeding women was explored by Cowie, Hill and Robinson (2011). The study shed light on the type of support and information exchanged by breastfeeding women visiting a peer support breastfeeding organisation website. The results of the study showed that the women participating in the forum were able to obtain emotional support, share information and opinions and perceived it as a helpful resource.

The studies conducted to date to explored how breastfeeding women use of online social support have offered insights on this phenomenon. However much still to be uncovered. This includes women's perceptions and views about using online social support provided by their peers and peer support organisations. In addition the previous research lacks understanding of how social support is enabled through on the use of online support in a peer support group. The expected outcomes from using this type of support are not understood in the literature. The empowerment processes present in online breastfeeding support is unclear and how using an online support group fits in with the routine of a breastfeeding mother is unknown. The views and issues arising from peer-support organisations providing this type of support are not available in the literature. Issues of technology suitability have not been explored within a breastfeeding support context, which can help in the tailoring of services for this group.

#### **1.4. Research question and objectives**

Following up argument from the previous section, this research sets out to explore the uses and perceptions amongst women of using the Internet to obtain support and information while breastfeeding their children in a peer-to-peer context.

Breastfeeding women have peculiar characteristics and demands on their time, family arrangements and emotions. First time mothers and more experienced mothers will differ in how they handle their emotions, deal with the issues around breastfeeding and their need for support, including online. Their availability and opportunity to access online resources are likely to differ. Socio-economic status might also influence the phenomenon, as well-educated and richer women tend to have better access to the internet (Bowen *et al.*, 2003), and presumably to online support. All these aspects need to be investigated and new issues to be discovered.



With this in mind this research endeavours to bridge this gap by attempting to answer the following research question:

*What are the effects of online social support in a breastfeeding peer support context?*

This will be addressed through the following questions:

1. What is the role of online social support in a peer support breastfeeding context?
2. What are the benefits of online social support for breastfeeding mothers?
3. What are the risks of online social support for breastfeeding mothers?
4. Does online social support help breastfeeding mothers?

This study aims to provide insights on how and why breastfeeding women seek social support using the Internet. In order to achieve the aim, the following objectives are defined:

1. To conduct literature review examining existing research on online social support;
2. To depict the groups involved in voluntary breastfeeding support and explore how they use the online social support;
3. To explore any benefits or challenges of using online applications to support breastfeeding and the impact on women using it;
4. To offer recommendation to practice and contribution to theory.

### **1.5. Research approach**

This research adopts an interpretive approach. This approach “can help IS researchers to understand human thought in social and organisational context” (Klein and Myers, 1999). The close relationship of the researcher with breastfeeding support makes it very difficult to separate her from the phenomena, and therefore an interpretive approach is the most suitable approach. In addition interpretive research approach is well established within the Information Systems field and it has been used to study systems design, organizational intervention and management of IS and social implications of Information Systems (Walsham, 1995). This is expected provide deep insights into a phenomenon (Henderson, 2005).

The choice of methods of research is very important and should be based on the research question and the objective of the research (Myers and Avison, 2002). This research selected a qualitative methodology to as it enables researchers to understand people and the social and cultural contexts within which they live (Myers and Avison, 2002). A hermeneutic phenomenological approach to study this phenomenon was in line with the researcher's beliefs and adopted to carry out the field work.

In addition, researching the reasons and conditions online support of breastfeeding mothers happens can be supported by the described approach as it investigates a real-life context phenomenon healthcare related and the boundaries between context and phenomenon are not evident (Boyatzis, 1998). This research used documentation reviews, interviews and observations to acquire thick and rich data (Creswell, 2007) from the participants. The collected data was analysed using thematic analysis, in line with the phenomenological hermeneutics approach as proposed by Cohen, Kahn and Steeves (2000). The end results and the contributions of this research are discussed in the next section.

### **1.6. Research contribution**

This research firstly offers insights from a social cognitive perspective in an unexplored context: online social support for breastfeeding mothers in a volunteer peer support context. This contributes to further the understanding of how the tenets of the Social Cognitive Theory can be used to research online social support. As result, this research points to an association between online self-efficacy and breastfeeding self-efficacy. In addition the research explores the possible outcomes from this relationship.

The main methodological contribution of this research was to use ethnographic observations in the setting of breastfeeding drop in support centres to understand the use of online social support in the context of this research, including offline interactions. Acquiring data in this way allowed the researcher to gather information that would not be available through interviews.

Finally the findings of this research can contribute to develop policies and interventions to support breastfeeding women, breastfeeding support organisations and the National Health Service.

### **1.7. Organisation of chapters**

This research is structured into sever chapters (figure 1). The first chapter presents an introduction to the research including its background, objectives, the research question to be addressed and methodological approach adopted. It also discusses the opportunity presented by the lack of

understanding of online social support in a peer-to-peer breastfeeding support context which culminates with a justification for the research.

Chapter two discusses the use of online support in health and wellbeing and explores the role and impact of online group support to manage health and healthcare. It discusses different aspects of using it by different groups, including breastfeeding mothers.

Chapter three describes the research design and methods used to explore the phenomenon of breastfeeding women's use of online support. The chapter also discusses the chosen research paradigm and the rationale for the approach taken. Finally the chapter offers a detailed description of the two groups involved in this research.

Chapter four presents the results of first part of the research. This was an interview study amongst voluntary breastfeeding supporters as they are responsible for delivering support and interventions. Supporters' views, perceptions and experiences were explored in in this study via deep interviews.

Chapter five presents the results of the second part of the study. The study involved breastfeeding women and explored their use of Internet or mobile applications to obtain support while breastfeeding their babies.

Chapter six brings together the issues raised and provides a deep discussion of the finding in the previous chapter using the theoretical framework proposed by the Social Cognitive Theory.

The conclusions of the research are presented in chapter seven. The summary of the research findings and contributions both to theory and practice are also presented in this chapter. In conclusion the chapter describes the limitations as well as directions for future research.

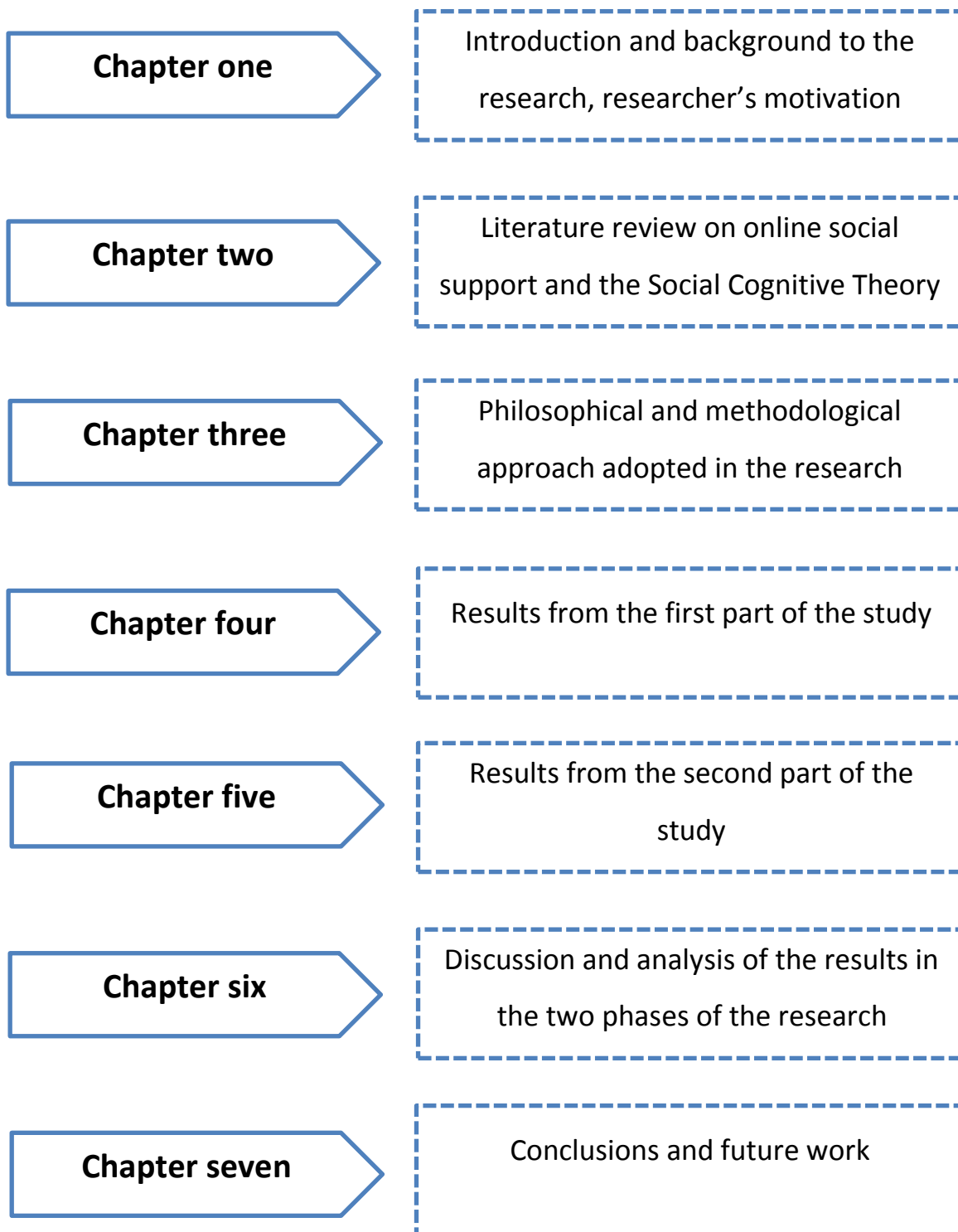


Figure 1- Thesis structure

## Chapter 2: Literature Review

### 2.1. Introduction

This chapter starts exploring the role of social support in health and progress to exam the role of online support groups in providing social support in the health context. Online support groups have been used by people dealing with different health conditions and diseases and will be discussed in this chapter. The relevant process, outcomes, benefits and concerns associated to online support groups and virtual communities are examined in this chapter in parallel with previous research on this field. We focus particularly on the role of online social support for women. This is relevant because all participants in the research are exclusively women. As indicated in previous research gender is known to influence online social support behaviour (Lin and Overbaugh, 2009);(Klemm *et al.*, 1999), consequently a gender specific understanding of online social support will provide a baseline to carry out and evaluate this research.

The chapter also reviews the Social Cognitive Theory, as it will be used to provide the theoretical framework to conduct this research. The use of SCT to explore online social support is also examined in this chapter in order to provide a baseline to compare this research.

Section 2.2 exams social support, its elements and its importance within the context of health and healthcare. Section 2.3 Introduces online support groups and the importance of online social support within this context. Section 2.3 also discusses concepts and process associated to online social support and the benefits and concerns associated to online social support. Section 2.4 reviews theoretical perspective on online support followed by a reasoning to adopt the theoretical framework proposed by the Social Cognitive Theory (SCT) to explore the phenomena of interest in this research. Section 2.5 presents a theoretical framework to be used to guide the exploration of the phenomena. The framework based on the SCT is believed to support the exploration and understanding of connections between online support and self-efficacy, outcome expectations, online support reliance, online support network size and the perceptions of general social support (Eastin and Larose, 2005). Finally section 2.6 summarizes this chapter.

## 2.2.Social support and health

Social support has been seen as a positive influence on health for many years (Stewart, 1993). Many studies in this field reiterate the role and centrality of social support to maintain health and potentially mitigate the effects of stress and health hazards (House, Umberson and Landis, 1988). This section will discuss the elements associated to social support in a bid to provide a reference for exploring the role of online social support amongst breastfeeding women.

A consensual definition of social support is somewhat missing within the literature and the term social support is often used interchangeably with social networks and social integration (House, Umberson and Landis, 1988). Nevertheless, Shumaker and Brownell (1984) proposes the following definition to social support: “an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient.” These resources include *assistance*, which may be in the form of financial aid or in emotional help and *protection* as a way to shield people from the effects of stress one might encounter in life (Langford *et al.*, 1997)

The conceptual analysis conducted by Langford *et al.*(1997) identified 3 major theoretical foundations of social support in the literature: Social comparison theory (Festinger, 1954), Social exchange theory (Homans, 1974), (Blau, 1964) and Social competence (Stewart, 1993). Swan & Brown (1990) observed that comparison is a mechanism used by people in order to develop their own understanding of themselves within a group. Three purposes are attributed for people use comparison in a group setting. Firstly, for self-evaluation, so to measure how correct their opinions are in relation to others. Self-enhancement or self-protection is the second reason attributed to comparison. As an attempt to increase self-esteem people compare themselves with people perceived as worse-off (downward comparison). Finally, for self-improvement purposes is an important process in the development of self-concept enhancing the coping abilities, emotional adjustment, self-esteem and psychological well-being (Langford *et al.*, 1997). Social comparison is thought to have limited success in developing self-concept without the process of social exchange (Langford *et al.*, 1997).

Tilden and Galyen (1987) use the propositions from the social exchange theory to explain human behaviour “in terms of rewards that satisfy a person’s needs”. The reasoning is that one must offer some rewards in order to encourage rewards from another and consequently this will define the social behaviour in a group of people. Therefore, “social support is neither free nor unidirectional”. Nevertheless, receiving and giving social support is seen as a positive factor in relation to life

satisfaction (Stevens, 1992). Langford et al (1997) suggest that social comparison and the exchange of social support influences social competence of an individual.

Social support is associated to four components in which all acts of support are assigned: *emotional, instrumental, informational and appraisal support* (House, 1981). Emotional support is seen as the most important type of support as it involves love, trust and empathy and presents the most evident link to health (House, 1981). Stressful situations are potentially hazardous to self-esteem and esteem support is an important component of emotional support to offer reassurance, acceptance, encouragement and approval (Schwarzer and Leppin, 1988). Belonging support is another component of emotional support to provide a perception on being part of a network of common interests and commitments and consequently being attached to other individuals (Schwarzer and Leppin, 1988).

Effects associated to emotional support include promoting or improving well-being (*direct effect*) (Schwarzer and Leppin, 1988) or supporting stress-coping mechanisms (Lazarus and Folkman, 1984). Emotional support is also expect to buffer the effects of a stressful event (Cohen and McKay, 1984) and potential harm influence positively the appraisal of personal resources through the experience of being respect and esteemed by others (Schwarzer and Leppin, 1988). Emotional support is associated to mortality reduction, as shown on the study of elderly women's perception of received emotional support (Lyyra and Heikkinen, 2006) and dialysis patients (Thong *et al.*, 2007)

Instrumental support refers to the provision of physical goods, services or aid (House, 1981). Although presumably one who provides such support is motivated by care and love, this is attribute differs in principle from emotional support (Langford *et al.*, 1997). Instrumental support is often associated with the elderly or people experiencing some sort of physical impediment, as the practical element is very predominant in this type of support. However this does not nullify the emotional component of Instrumental support (Semmer *et al.*, 2008). In the study conducted by Sherman, Ward and LaGory (1988) the following hypothetical situations were used to measure instrumental support levels amongst the participants: (1) someone to look in on the to see how they were doing; (2) someone to give them a ride to go shopping or to the doctors; (3) someone to get something for the at the store and (4) someone to look after their home when they are away. In this study men were more likely to name their spouses as instrumental helpers. Indeed women would figure higher as a second option as instrumental helpers if the spouse wasn't available.

Informational support is concerned with the provision of information or knowledge that might support an individual's through a stressful situation (House, 1981), (Krause, 1986). It can also be

related to the concept of “advice support”, where the support provider performs a more influential role in delivering the information (Schwarzer and Leppin, 1988). Lack of information and knowledge can lead to postpartum depression (Nahas, Hillege and Amasheh, 1999), which can in many cases be addressed through reassurance and providing enough information about the condition.

Appraisal support relates to providing evaluative feedback to an individual through corroborating his views, emotions or understands about himself or a situation (Schwarzer and Leppin, 1988). It entails supporting individuals to assess how their personal circumstances impacts their lives (House, 1981) in order to devise a coping strategy. Appraisal support is an important element of career counselling as it provides prospective workers with the opportunity to obtain useful information in making honest self-evaluations (Niles, 1996). Appraisal support was also found to be a predictor of age-related differences in blood pressure (Uchino *et al.*, 1995). This study found that appraisal support offered the participants an opportunity to deliberate, unveil and associate one’s personal problems with positive consequences to their health.

Social support is seen as an important factor in the establishment and continuation of breastfeeding (Raj and Plichta, 1998). Mothers have reported a number of sources for obtaining social support including baby’s fathers, their mothers, other breastfeeding mothers, participation in support groups and health professionals (Reeves *et al.*, 2006). According to Raj and Plichta (1998) the social interactions a mother has was shown to influence either positively or negative towards her breastfeeding. In addition, the mothers’ social interactions influenced confidence and persistence with breastfeeding. A number of sociodemographic and economic characteristics influencing breastfeeding are thought to be unchallengeable, with the exception of social support (Raj and Plichta, 1998). Therefore using online social support interventions to extend support to breastfeeding can potentially have a positive impact on breastfeeding initiation and continuation.

### **2.3. Online social support**

The use of the Internet to obtain social support is a controversial and much debated issue on the social effects of the Internet. Previous studies from different disciplines suggest that the Internet supports the exchange of off-line social support elements including information support (Kinnane and Milne, 2010), emotional support (Coulson, Buchanan and Aubeeluck, 2007) and appraisal support (Letourneau *et al.*, 2012). There is also evidence of fostering of meaningful relationships (Parks and Floyd, 1996) and its suitability to promote health and health education (White and Dorman, 2001). On the other hand, some evidence seems to support that time spent online



increases social isolation (Nie, 2001) and consequently decreases relationship quality with family and friends (Sanders *et al.*, 2000).

Coulson, Buchanan and Aubeeluck (2007) suggest that delivering social support using online applications allow people to overcome geographic and time restrictions, connect to a more diverse range of people with different experiences, opinions and perspectives and provides group users with anonymity. Wangberg *et al.* (2008) explored the relations between Internet use, social support and subjective health. The results in this study suggested a direct positive relationship between the Internet and subjective health as well as a positive indirect relationship mediated through social support. Social support is one of the most prevalent features of online support groups and also one of the most used outcome measure of virtual communities and electronic support groups (Eysenbach *et al.*, 2004). Additionally, delivering social support through online support groups is thought to be feasible and a good way forward to reach people (Wangberg *et al.*, 2008)

King and Moreggi (1998) propose two types of online support for healthcare: self-help mutual aid online groups (online social support groups herein) and therapy online support groups. The first is defined as open forums, often unmoderated and run by community members or self-help organisations. These types of group base their functionality on traditional self-help organisations such as the Alcoholics Anonymous (AA). The main feature of online social support groups is the common intent of its member to provide support and help to one another. Therapy online support groups differ from online support groups in the way they are organised and led by professionals in mental health. These groups are small and of restricted membership with the purpose to deliver a particular type of therapy.

According to King and Moreggi (1998) it is important to differentiate between the two types of groups, as they serve different purposes. Firstly, online social support groups no protocol is to be followed and consequently no target or pre-planned professional manipulation is present. Secondly the purpose of both groups differs on that online support groups are concerned in offer relief and improved feelings, as opposed to deal with changes in emotions, cognitions or behaviours through the use of therapies. Thirdly, leadership in online support groups is often not present or carried out by a “nonprofessional” administrator, whereas an online therapy group is always led by a trained professional. Finally membership in online support group is open and affiliation or de-affiliation can happen at any time without any particular reason as opposed to online therapy group membership.

Individual patients or patient organisations often initiate online social support groups, but health professionals have also initiated a small number of online social support groups. There are a number of factors influencing the initiation of online support groups including: (van Uden-Kraan *et al.*, 2010):

- (1) The opportunity to create a “meeting point” so to allow people affected by the same condition experience support and experience;
- (2) The level of activity of existent online support groups (too quiet or too busy);
- (3) The type of moderation of existent online support groups (too strict or not strict enough);
- (4) The prospect to educate/empower patients/participants and to bring health issues and condition visible to the public.

Most of online social support groups provide help through face-to-face groups and meetings; however an increase number of people are reported to find it easier and more convenient to address their needs through engaging into online support networks, also known as “Health related virtual communities”(Eysenbach *et al.*, 2004). Online social support groups can provide support for their members in the absence of face-to-face presence. They can also overcome time and distance restrictions, which can be particularly helpful for those with disabilities or mobility restriction (Finn, 1999).

A number of issues are associated to the use and effects of online social support. The intensity and nature of many different forms of electronic interpersonal communication are thought to be influenced by personality characteristics (Jenkins-Guarnieri, Wright and Hudiburgh, 2012). This can presumably be extended to online social support. Previous research indicates that heavy internet use in in specific domains such as gaming, entertainment and mischief, is associated to introverted personalities. This in turn affects the perception of social support in these individuals (Mitchell *et al.*, 2011).

Swickert *et al.* (2002) found that the personality dimension of neuroticism to be related to the use of information exchange and leisure activities indicating a negative associating between them. In the same study Swickert *et al.* (2002) also explored whether personality traits could moderate the association between internet use and perceived social support. The study found highly neurotic individuals and high users of chat rooms, emails and accessing to information reported lower perceived support compared to other personalities. The study called for further research to clarify these associations. In addition the study conducted by Swickert *et al.* (2002) found a significant interaction effect between agreeableness and leisure. The participants reporting a high level of agreeableness and high levels of leisure internet reported high levels of perceived social support.

The exact effect of personality in online social support needs further investigation, but its role is recognised amongst knowledge sharing in online communities and Facebook uses (Jenkins-Guarnieri, Wright and Hudiburgh, 2012).

The strength of the ties created or maintained through the use of online social support has been investigated previously. According to Granovetter (1983), a tie strength is defined as “a (probably linear) combination of the amount of time, the emotional intensity (mutual confiding), and the reciprocal services which characterise the tie”. In this context online social support amongst social support scholars is believed to be a weak tie (Wong and Shoham, 2011), as they operate outside the pressure and dynamics of close family relationships (Turner, Grube and Meyers, 2001). However, Eastin and Larose (2005) propose that weak ties assume a different role in online social support activities to offline support and can potentially offer good support source without being too close. In fact Wong and Shoham (2011) propose that the social emotional support benefits provided by weak ties through online interactions surpass the expectation related to the theorised strength of this type of tie. This include the presence of comfort and consolation in these type of interaction, expected to be obtained only through strong ties relationships.

Research shows that obtaining social support using the Internet has become more common amongst people searching for reassurance and information when dealing with their health and healthcare needs (Eysenbach *et al.*, 2004). Next section will discuss online social support and its influences in women’s lives. This will provide a better understanding of how this type of support might affect breastfeeding women.

### **2.3.1. Women and online social support**

Historically, network of families and social relationships have provided women with social support through personal interaction (Dare, 2009). However the widespread adoption of communication technologies, initially with the telephone (Moyal, 1992) and later mobile phones and the Internet (Boase *et al.*, 2006), has provided women the opportunity to expand their support networks. This combined with the fragmentation and dispersal of family and social networks as result of significant changes over the last decades, including the women’s movement and widespread migration, has contributed to the increase use of communication technologies by women to obtain social support (Dare and Green, 2011).

Dare’s (2009) study of the role of ICT in sustaining critical connections in women’s life revealed that women have indeed integrated a range of ICTs applications such as email, mobile telephones, text

messages, social network sites and instant messaging as way to sustain their social networks. This is attributed to hectic, lifestyles, challenging family and work commitments and increase migration.

Several studies have been conducted exploring how social support delivered online has affected women's life. Online social support through participation in online postpartum depression group was studied by Evans, Donelle and Hume-Loveland (2011). Social support for postpartum women is seen a key buffering factor in the prevention of depression (Howell *et al.*, 2009). Engaging women who are raising children in online support provides them with an opportunity to obtain support and connect with other women in similar circumstances (Evans, Donelle and Hume-Loveland, 2011). The study adopted a typology of social support to classify the posts in the chosen postpartum online support group for the study. A few themes arose within emotional support category throughout the posts: giving hope, safe place to be honest, and affection and empathy. Informational support posts were categorised into: Seeking Reassurance and Validation, Peer Experts: Providing information, and Medication Treatment Advice. Although instrumental support was less evident, some women offered practical suggestions to deal with the pressures caused by the postpartum depression in respect to childcare, daily activities and self-care.

Women suffering from cancer have used online support groups as an avenue to obtain social support (Han *et al.*, 2008; Sharf, 1997). In fact as opposed to men who claim to use the Internet to seek information about their cancer, women claim to use the Internet to seek social support while suffering with cancer (Seale, Ziebland and Charteris-Black, 2006). Lieberman *et al.* (2003) studied the impact of online support groups in women with breast carcinoma. Most of the women who completed the trial reported being helped by the experience, decreased depression symptoms and reactions to pain. Despite the constant pain experienced by the women in the study, they demonstrated a significant decrease in negative reactions to their pain; this can be presumably an effect of the social support received through online participation. However it is important to consider that these results might exclude the attitudes of certain types of personalities, as there was a rate of 20% drop-out in the study. Socio-economics factors might also have affected these results, as this information was not collected by the study.

Similar results were found by Sharf's (1997) study of how women communicate breast cancer online. The study found that women felt supported and consequently empowered to deal with their situation. In comparison with face-to-face groups, this study found that the most obvious difference was the 24 availability of online support groups. Women found this particularly helpful as they could post a message at any time and often enough would get a reply within a few hours. The expertise and experience found through online participation was also an important difference between the

groups. In face-to-face groups, this is limited by number of participants, as opposed to online groups where one can access a much bigger number of participants. The more people one can access the more experiences and expert knowledge one can gather.

Women taking part in this online support groups communicated in a specific gendered way reflecting female talking in other settings with most of the posts showing some form of acknowledgment and encouragement (Sharf, 1997). The presence of flaming was not found in this group, as common in women-dominated discussion groups (Herring, Johnson and DiBenedetto, 1995).

The use of online social support by women experiencing hysterectomy was studied by Bunde *et al.* (2006). It was interesting that the women in this study reported to use the online support group mostly for informational and advice purposes rather than emotional or esteem support. This might have been because in the study women reported their use of the online group wasn't in response of social undermining by their partners or because of lack of supportive relationships outside the online environment. Rather they saw the online support group as an opportunity to extend their support networks. This might be explained by Roger's theory of innovations (Rogers, 1995), suggesting that the participants of this particular online support group were in their majority individuals who are more socially connected and therefore not motivated by obtaining social support through participation in the online support group as per se, but to enhance their network (Bunde *et al.*, 2006).

Malik and Coulson (2010) investigated how infertile individuals used online support groups. In this study the majority of the participants were women which could be explained by the emotional element involved. The most common self-help mechanisms present in the online group were support, empathy and sharing of personal experience. This study corroborated previous results indicating that online support groups provide similar levels of help present in face-to-face groups and few negative aspects of communications.

Women facing problematic pregnancies also seek information and support using online support groups (Lowe *et al.*, 2009). Obtaining information through search engines was the first step to obtain information once a bad pregnancy prognostic was received. Problematic pregnancies are accompanied by complicated terminology and women and their partners needed information to make sense of what is happening. Additionally to gathering information women and their partners sought online forums that allowed them to go beyond information and gain further advice and support based on other people with similar experience. Women in this study experienced emotional

understanding through their participation in online support groups. It helped them to validate their feelings and to develop coping strategies when experiencing a complicated pregnancy.

Participation in online social support groups is associated to health outcomes and social processes, including empowerment (Barak, Boniel-Nissim and Suler, 2008), social support (Ballantine and Stephenson, 2011; Kalichman *et al.*, Jan 2003), and empathy (Winzelberg *et al.*, 2003). The next sections will discuss these outcomes and processes, starting with empowerment, its role and the results associate to it.

### **2.3.2. Empowerment in online social support**

Empowerment can be the result of a process or can be seen as an outcome of a process (Gibson, 1991). Zimmerman and Rappaport (1988) define it as “a construct that links individual strengths and competencies, natural healing systems and proactive behaviours to matters of social policy and social change”. However a conclusive definition of empowerment is difficult as it depends on the people and context involved (Gibson, 1991).

Empowerment can assume a transactional conception as it involves relationship with others as well as dynamic process where power is both give and taken in an attempt to redistribute it(Gibson, 1991). It can also be understood as a dialectical concept, due the existence of opposite positions in its process and outcome (Katz, 1983). In addition, empowerment can be seen as a developmental concept with the potential to improve individuals, families and communities (Rappapon, 1984)

Empowerment has historically been associated to the context of group strengthening; particularly minority groups (Barak, Boniel-Nissim and Suler, 2008) and been used across several disciplines, including psychology, sociology, education and management.

In her study of empowerment and its implication for health promotion programs Wallerstein (1992) discuss powerlessness and negative outcomes in health. She argues that although powerlessness can be associated to lower social economic position, unsanitary conditions, unhealthy behaviour, malnutrition and worksite hazards, the “lack of control of one’s destiny” is a more current form to comprehend susceptibility of disease from powerlessness. Conversely, empowerment was associated to better health outcomes.

There is a consensus amongst researchers of the multidimensional attributes of empowerment including spiritual, economic, political, organisational and economic (Breton, 1994). Although originally related to a group process, empowerment is also applicable to individuals involving a

number of personal processes including the capacity to make individual decisions, to critically think and to make use of relevant resources (Wallerstein, 1992).

Personal empowerment is believed to increase one's ability to self-manage and adopt healthier life-style behaviours having a substantial impact on healthcare systems to reduce the risk of poor health outcomes (Segal, 1998). Different perspectives of personal empowerment are suggested in the literature in relation to health: the ability to observe professional advice (the professional perspective), the independent information seeking approach (consumer perspective) and the social collective support (community perspective) (Lemire, Sicotte and Paré, 2008).

The professional perspective of empowerment is associated with acquiring expert knowledge from health professionals attributing an active role to the individual in dealing with health issues within the auspicious of a healthcare professional (Salmon and Hall, 2003). This perspective seeks to involve actively the individual in learning about their health condition and ways forward to address their needs (Lemire, Sicotte and Paré, 2008). This perspective is associated to the term "expert patient" in the literature where the patient takes a pivotal role in making decisions about his treatment due his level of understanding of his medical condition (Department of Health, 2001)

Empowerment from a consumer perspective is the result of a process based on personal access to resources and information to support decisions and choices (Lemire, Sicotte and Paré, 2008). Online support groups offer their members empowerment through their experience of autonomy, control and the feeling of being the experts of their own issues (Humphreys and Rappaport, 1994). Barak, Boniel-Nissim and Suler (2008) theorise that writing about one's issues allows emotions to be exposed and the opportunity to make sense of the facts. In a journey that encompass receiving and giving empathy, information and support one can experience the reducing of isolation, self-confidence and reassurance. Using the Internet for personal empowerment in health allows users to feel more "*competent*" and "*in control*" after accessing information on a health information website (Lemire, Sicotte and Paré, 2008).

The community perspective addresses empowerment through inclusion and participation in a group with similar interest and focus (VanderPlaat, 1998). The participation in a community contributes directly to health and welfare through the sense of involvement and belonging in addition to enhance self-care management (Segal, 1998). Lemire, Sicotte and Paré (2008) found that the presence of an online community empowers users through "a process of inclusion based on mutual assistance".

Online social support groups, is argued, are able to convey these different perspectives for personal empowerment (Lemire, Sicotte and Paré, 2008) and therefore impact health outcomes, wellbeing and health promotion. Nevertheless, empowerment of consumers and communities face obstacles including the traditional medical delivery paradigm, which comprises a paternalist and disease focus approach to decision making (Segal, 1998) and issues spanning of digital inclusion and divide. Lurkers and Posters were equally affected on their feelings of empowerment through participation in online support group, with the exception of the enhancement of social wellbeing (van Uden-Kraan *et al.*, 2008). Fewer lurkers in this study reported rise in their number of social contacts or decrease of loneliness, which was thought to be a consequence of their lack of participation.

Bartlett and Coulson (2011) investigation on the empowerment effects of using online support groups revealed the most common empowerment processes were comparison with other group members, information exchange, social support, helping others and sharing experiences. The following empowerment outcomes were also found in this study:

- (1) Feeling more informed
- (2) Greater confidence in relationship with physician
- (3) Greater acceptance of illness
- (4) Greater confidence in treatment
- (5) Greater optimism and hope for the future
- (6) Improved self-esteem
- (7) Enhanced social well-being

The potential empowering effect of online support groups has been much anticipated (Eysenbach, 2003). Empowerment is thought to be fostered in an online support group environment through three main attributes of personal empowerment: (1) reliance on self or peers; (2) voluntary participation and free choice and (3) helping others and socially identifying with others (Barak, Boniel-Nissim and Suler, 2008). In this context the online disinhibition affect (Suler, 2004) has an important role in allowing for self-disclose and impacting how people express themselves in and online environment (Barak, Boniel-Nissim and Suler, 2008).

The inclination to behave and say things on the cyberspace out of the ordinary way has been noted and this phenomenon is conceptualised as the online disinhibition effect (Suler, 2004). This is very relevant to the role of online support group, as people feel less controlled they tend to express themselves openly (Suler, 2004), Online support groups and their members benefit from self-disclose and honesty as they are important therapeutic components of such groups encouraging



members to share very private issues, problems and their lives (Barak, Boniel-Nissim and Suler, 2008). Group bonding and closeness can occur speedily in online groups than face-to-face groups as result of this (Suler, 2007). Several factors contribute to online disinhibition effect including anonymity, invisibility, delayed reactions, solipsistic introjection and minimisation of status (Suler, 2004).

People suffering from stigmatizing conditions such as AIDS, cancer or recovering from sexual abuse, benefit from anonymity and invisibility in an online support group environment as they feel safe to discuss potentially embarrassing issues and have more inclination to self-disclosure (White and Dorman, 2001). Other information such as age, gender, racial or ethnical identity, income and social status are also protected by the anonymity provided by online support group environment as the user is not often under the obligation to discover them (Finn and Steele, 2010),(Rheingold, 2000).

Online support groups using asynchronous communication offer their user the opportunity to reflect about issues and questions for some time (minutes, hours and days) before replying to them and therefore providing its member a delayed *reaction* mechanism. The opportunity to ponder on a subject and the freedom to engage or not in a group discussion can have a therapeutic effect on people and help to manage emotions initiated by a group discussion (Taylor and MacDonald, 2002).

Users communicating using computer mediated communication in the form of text can often have a sense of merging thoughts with other users in a conversation due the lack of cues and physical attributes, conceptualised as solipsistic introjection. Elaborating how another people look and talk might create a character within one's intrapsychic where it feels safer to have any conversation, which may enhance empathy, bonding and the identifying with other groups members (Barak, Boniel-Nissim and Suler, 2008).

Minimisation of status plays a fundamental part in encouraging people to self-disclose as all users, regardless of background, to see themselves as equals and peers in a non-authoritative environment.

The online disinhibition effect has a powerful influence on how people interact in online support groups and how much people self-disclose (Suler, 2004). Disinhibition can be benign, which is associated to generosity, allowing for self-disclose, revealing of fears, secret emotions and wishes. It can also have a negative connotation, involving rude language, anger, threats, pornography, crime and violence. All of these is associated the term toxic disinhibition (Suler, 2004). Some people also might perceive some of the factors related to the online disinhibition effect as hindrances to take part on an online support group (Skinner and Latchford, 2006).

Individual differences are also a factor influencing how much people self-disclose in cyberspace and will work alongside the online disinhibition effect to define a person's online behaviour. (Suler, 2004). This includes personality style, level of a person's feelings, wishes and motivation (Suler, 2004). Suler (2004) warned of the possible misconstruction of one's complex self through observing one's online behaviour. Disinhibition can be misleading and give a false idea of true identity as opposed to the process of inhibiting and disinhibiting revealing different expressions of self. In this context, different applications and diverse environments are thought to convey a different aspect of one's identity.

The next section discusses empathy, its importance in an online support context its process and outcomes.

### **2.3.3. Empathy in online social support**

Empathy is the capability to identify with and appreciate another person's circumstances and feelings (Preece and Ghazati, 2001). Being able to understand and identify with other people's emotions and reasons is a fundamental part of daily communication and as such shapes human interactions (Kohut and Ornstein, 1995). In offline communications people notice facial expressions, body movements and eye contact as cues to support their understanding of emotions involved in communication (Pfeil and Zaphiris, 2007) and therefore convey empathy. This can be a challenge in online support groups where there is an obvious lack of physical interactions and consequently cues. However despite this lack of cues, the investigation of empathy only conducted by Preece (1998) found that 81% of the communities involved in this study contained empathetic messages.

Håkansson and Montgomery (2003) proposed four components to offline empathy: Understanding, emotions, similarity and concern. Using this classification Pfeil and Zaphiris analysed the messages from a depression discussion board. They found two roles concerning to empathy present in the communication: the target (member experiencing the problem or original feeling) and the empathizer. Interestingly, in online support groups these roles can be interchanging and sometimes concurrent.

Preece and Ghazati (2001) explored empathy in online communities. In their study, empathy online was strong present in patient and emotional support communities and gender didn't appear to make any difference in the number of empathic messages in this type of online community. However overall the ratio of females and males in an online community appears to influence how empathetic a community is, with a higher number of women being associated to more empathy in a

community. The study also linked the moderation style to the level of empathy present in an online community with unmoderated communities being “less” empathetic in the study.

Breast cancer women taking part in online support groups were the target of Han *et al.* (2008) study to exam empathic exchanges. This study found that empathic message exchanges were the main mechanism in reducing breast cancer concerns and anxiety amongst the participants. This supported the proposition that voicing emotional support and empathy promotes a positive effect for women facing life-threatening illness (Dunkel-Schetter and Wortman, 1982).

The impact of empathy on interpersonal trust in textual communications was explored by Feng, Preece and Lazar (2003). Textual communication has a prevalent role in modern communications and as such is presumably a viable channel to experience empathy online. In this study two elements of empathy were taken into considerations: empathy accuracy and supportive response. Empathy accuracy is related to the capacity to truthfully understand the content of other people’s feeling and thoughts (Coke, Batson and McDavis, 1978). Supportive response is translated as “responding compassionately to another person’s distress” (Ickes, 1993). The main objective of the study was to establish the relationship between empathy and online trust. Online communities’ survival and thriving is dependent upon trust between people and as such empathy might help to build trust within an online community (Feng, Preece and Lazar, 2003). The study concluded that the relationship between the two elements involved in empathic responses has a pivotal role on interpersonal trust. Trust between users in online communities is affect by the type of message is exchanged. The findings in this study suggested that mixed or contradictory messages with discrepancy between the level of empathy accuracy and supportive response could influence trust between online community members.

A number of benefits and concerns related to participation in online social support have been unearthed in the literature concerned with online social support. These are explored in the next section.

#### **2.3.4. Benefits and disadvantages of online social support**

Online social support is linked to a number of benefits and associated to various positive outcomes (Dietrich, 2010). Finn (1999) lists a number of advantages of taking part in online social support. These include the provision of social support when face-to-face interaction is not available and the overcoming of mobility issues. In some cases when one is facing an issue with health or emotions and have no immediate access to social support, forum, emails and social network applications can offer an alternative way to get in contact with people who can offer support. Not be able to attend

to meetings or events organised by social support groups can also be mitigated by the use of online social support applications. Being able to access resources 24 hours a day is also cited as a benefit from online social support interventions. People affected by various situations who need access to social support are thought to benefit of the possibility to do in their own time.

Finn and Steele (2010) also mentions anonymity as a benefit of online social support, as it allows for the discussion of potentially embarrassing subject such as sexual abuse, AIDS (Lai *et al.*, 2008) and cancer (Im, 2011). Anonymity in an online social support context is thought to be a powerful motivation tool to allow free communication between peers without the stigma that accompany their struggles (Chuang and Yang, 2010). This allows people to experience self-disclosure (White and Dorman, 2001). Consequently, online social support seen as an empowering experience giving participants the opportunity to share their experience with emotional issues they are facing, and learn from other participants (Finn, 1999).

Online social support also allows participants to connect with other people through the elimination distance restrictions, consequently permitting participants to draw from different point of views and experiences from people geographically inaccessible (White and Dorman, 2001). In addition peer-to-peer communications using online tool can be helpful in facilitation new health habits, such as quitting smoke (Ancker *et al.*, 2009).

On the down side, a number of disadvantages are also associated to online social support. Digital divide is mentioned by (White and Dorman, 2001). Although a large proportion of the UK households (70%) were found to be connected to the Internet in a survey conducted in 2009, digital divide is affected by other factors including income, socioeconomic status and education (Dutton WH, Helsper EJ and Gerber MM, 2009). Consequently participation in online social support can be affected by those.

Isolation and addiction are also concerns associated to the use of online social support (White and Dorman, 2001). Nie (2001) analysed four studies on the impact of the Internet on the quality and quantity of interpersonal communication and sociability. In this analyse the time spent online is argued to increase social isolation and consequently impacts the quality of relationship with family and friends.

Following this discussion of online social support, its related process, associated benefits and concerns, the next section reviews the theoretical perspectives adopted in the literature to study online social support

## **2.4. Theoretical perspective of online social support**

Online social support brings together the disciplines of social sciences, nursing and information technology in an effort to provide users with the opportunity to share information and advice and also emotional support. This mix of disciplines combined with features of online communications such as anonymity and disinhibition is seen by Bambina (2007) as a “theoretical paradox” in her study of online support. For this reasons it is important to explore the theoretical perspectives offered and used by these disciplines to understand online support, which is the purpose of this section.

The perspectives of information systems and social psychology to explore online social support are discussed in this section. At the end of this discussion, a rationale for using the Social Cognitive theory to provide a framework for this research is offered. The Information Systems perspective on online social support is the first to be examined.

### **2.4.1. Information systems perspective of online social support**

Theories and concepts of user acceptance of information technology and computer systems have been applied to understand online social support previously. This section explores the theories of user acceptance along with previous research in online social support using these theories. A number of definitions of user acceptance are available in the Information System literature. The concept proposed by Davis (1989) of “the initial decision to use it or not” is one of the most prevalent in the literature and consequently adopted in this section.

Most of the concepts used to study and research information technology acceptance are drawn from theories with origin in social psychology, particularly the Theory of Reasoned Action (TRA), the Theory of Planned Behaviours (TPB), Diffusion of Innovations Theory (DOI) and the Social Cognitive Theory (SCT) (Bandura, 1986). Drawing upon concepts of TRA, Davis (1989) formulated a theory specific to the IT domain named the Technology Acceptance Model, TAM. TAM was developed as a theoretical model to predict and explain user acceptance of computer systems with the aim to provide insights on user acceptance process and to offer a methodological approach to user acceptance testing based on theory.

TAM like TRA uses the concept of Attitude (A) as predictor of Behavioural Intention (BI) and consequently system use. However TAM attributes Attitudes and Perceived Usefulness (PU) as determinants of BI. In his equation, Davis (1993) did not include Subjective Norm (SN) as part of its components in response to his uncertainty of SN theoretical and psychometric status. According to

Davis (1993) the difficult resided in the problematic distinction between the direct effects of SN on intentions from the indirect effects via Attitude.

After empirically testing the original model, Davis (1993) excluded the attitude construct because it did not fully mediate the effect of PEOU on Intention and the PU→BI link seemed more significant. TAM posits that PU is influenced by PEOU because, other things being equal, the easier a technology to use, the more useful it can be. Consistent with TRA, TAM suggests that the effect of external variables on intentions is mediated by PEOU & PU.

The original TAM model was extended by Venkatesh and Davis (2000) into TAM2 with the intent to explain “perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes”. Previous empirical tests of TAM proved that perceived usefulness was the strongest determinant of usage intentions and therefore set out to understand the determinants of this construct. New key determinants of perceived usefulness and intentions were proposed by this extension: Subjective norm, voluntariness and image (attributed to social influence processes), job relevance, output quality, result demonstrability and perceived ease of use (attributed to cognitive instrumental processes).

The role of social influences was explored in the model. The TAM2 model Venkatesh and Davis (2000) theorised that subjective norms affect directly intentions over PU and PEOU when system use is mandatory. In order to distinguish between mandatory or voluntary compliance the model proposes the use of voluntariness as a moderating variable. Subjective norms can also influence intentions through PU via a process called internalisation. TAM2 argues that regardless of voluntary or mandatory usage, internalisation rather compliance will take place.

In an attempt to integrate the various acceptance models Venkatesh *et al* (2003) proposed the Unified Technology Acceptance and Use of Technology (UTAUT). The theory is the result of reviewing and comparing 8 models commonly used to explain technology acceptance includes Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Combined TAM and TPB Model (C-TAM-TPB) , Diffusion of Innovations Theory (DOI) , Social Cognitive Theory (SCT), Motivational Model (MM) and Model of PC Utilisation (MPCU). UTAUT uses intention/usage as the main key dependent variable. After empirically comparing and testing the models, seven constructs were deemed to direct influence intention or use from which 4 were theorised to play a significant role as direct determinants of user acceptance and usage behaviour: Performance Expectance, Effort Expectancy, Social Influences and Facilitating Conditions.

Lin and Bhattacharjee (2009) carried out a study focused on the role of IT and usage of network IT in online social support. The study tested the relationship between IT self-efficacy, online social support expectancy and Network IT usage and their impact on online social support. The outcome of one's IT self-efficacy and his/her expectations of the benefits of using IT to obtain social support, will influence individual behaviour. In this context, the size of one's network is also a factor influencing an individual experience of online social support.

The study also explored the boundaries of existent IT usage through examining the impact of IT usage in social support and combining theories and constructs from social support within IT usage research. A key extension in this study was the role of the network. Lin and Bhattacharjee (2009) found that network size influenced directly social support

Although TAM and its associated theories have been used extensively in researching several areas of IS adoption and usage, including online social support, a number of concerns were raised by Benbasat and Barki (2007) with regards to its theoretical construction. These included "diverting their main focus from investigating and understanding both the design- and implementation-based antecedents, as well as the behaviour- and performance-based consequences of IT adoption and acceptance". Similar concerns with the soundness of TAM is expressed by Bagozzi (2007) who saw the lack of consideration of group, cultural and social aspect in technology acceptance as a critical shortcoming in the theory. According to Bagozzi (2007) TAM also falls short in its dealing of emotions and self-regulation processes.

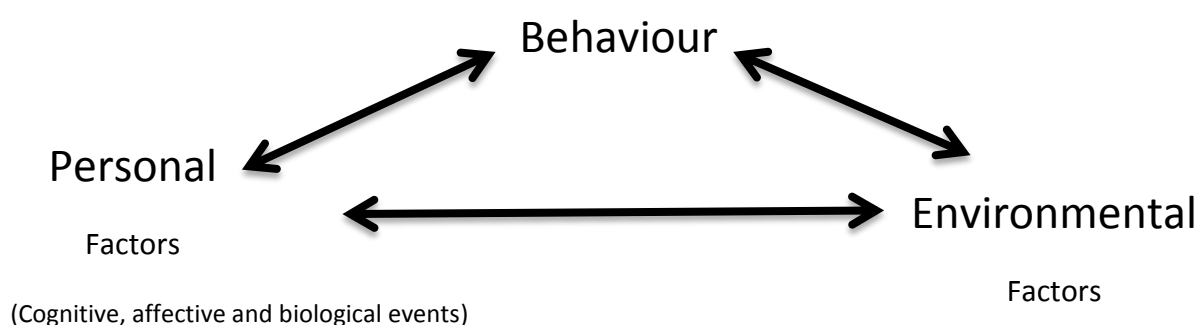
TAM has been used in the health care context in a great extent and some of the concerns raised by Benbasat and Barki (2007) and Bagozzi (2007) are echoed in the review of the use of TAM in health care by Holden and Karsh (2010) including the addition of constructs and the lack of model standardisation. The study also identified the different interpretation of definitions of TAM, suggesting a possible missing of theoretical explanation of constructs.

The theoretical constraints and shortcomings identified previously in TAM have been taken into consideration by the researcher. The researcher concluded that TAM is not suitable to explore how breastfeeding women use online social support. This research is interested in the processes, emotional ties and relationships present in online social support and its associated outcomes. These issues would not be able to be addressed by a theory that is parsimonious in its nature and unable to offer a framework to capture the interests of this research.

### 2.4.2. The social cognitive theory perspective on online social support

The Social Cognitive Theory (SCT) is a social psychology theory and as such is concerned with explaining human behaviour, feelings, thoughts, beliefs, attitude, intentions and goals, and how these are affected by other people through social interaction (Hogg and Vaughan, 2011). This can be translated as an effort to understand the individual within a particular circumstance. The SCT has been used previously to understand and explore several aspects of online communities including the contributions levels in online communities (Beenen *et al.*, 2004), online users viewing of social information (Knobloch-westerwick and Westerwick, 2011) , the use of badges in social media (Antin and Churchill, 2011) and online social support (Eastin and Larose, 2005).

The Social Cognitive theory was elaborated by Albert Bandura (1986) with the intention to provide a comprehensive theoretical framework for understanding human behaviour, social interaction and psychological well-being. Bandura (1986) viewed people as self-organizing, proactive, self-reflecting and self-regulating as opposed to reactive organisms and guided by environmental forces or driven by obscured inner impulses (Pajares, 2002). This culminated in the concept *Reciprocal Determinism* proposed by Bandura (1986) in which (a) personal factors in the form of cognition, affect and biologic events, (b) behaviour, and (c) environmental influences create interactions that result in a *triadic reciprocity* (Pajares, 2002) (see figure 2).



**Figure 2 – Overview of the Social Cognitive Theory and self-efficacy (Pajares, 2002)**

According to Bandura (1986) the triadic reciprocity “is a model of reciprocal determinism favoured by the SCT which does not mean symmetry in the strength of bidirectional influences, nor the patterning and strength of mutual influences fixed in reciprocal causation.” Rather, “the influence



exerted by the three sets of interacting factors will vary for different activities, different individuals and different circumstances”.

The model of triadic reciprocity offers a base to explain human function and to define the nature of persons in terms of the basic capabilities: Symbolizing, Forethought, Vicarious, Self-Regulatory and Self-reflective. According to Bandura the capacity to use symbols in virtually all aspects of people’s lives is remarkable and provides them with a powerful means of modifying and adjusting to their environment. By drawing on their symbolic capabilities, humans can also obtain meaning from their environment, create guides for action, resolve problems cognitively, support forethoughtful course of actions, gain new knowledge by reflective thought, and communicate with others at any distance in time and space (Pajares, 2002).

Bandura (1986) suggests that forethought is rooted in symbolic activity and through it people motivate themselves and guide their actions anticipatorily. Most of the purposive behaviour is regulated by forethought as people anticipate the likely consequences of their actions, and set goals and challenges for themselves. Forethought is the product of generative and reflective ideation which is translated into action through the aid of self-regulated mechanisms.

According to Bandura (1986) although learning through actions has been a major focus of psychological theories, in fact virtually all learning phenomena, resulting from direct experience, can occur vicariously, by observing other people’s behaviour. Learning by observation allows people to acquire rules for generating and regulating behavioural patterns without having to form them gradually by tedious trial and error. Vicarious learning is at the core of human survival and evolution as the transmission of language, social and cultural practices and lifestyle rely heavily in this type of learning. Moreover, vicarious learning can potentially prevent costly and even fatal mistakes associated to a trial and error approach to learning.

Self-regulatory capabilities have a central role in the Social Cognitive theory as they provide the potential for behaviour change. According to Bandura (1986), much of people’s behaviour is motivated and regulated by internal standards and self-evaluative reactions to their own actions. The major self-regulative mechanism operates through three principal subfunctions: Self-monitoring of one’s behaviour, its determinants, and its effects; judgment of one’s behaviour in relation to personal standards and environmental circumstances; and affective self-reaction (Bandura, 1991). The exactness and reliability of self-observation and self-monitoring is pivotal to self-regulation mechanism as well as the judgments people make regarding their actions, choices, and attributions.

In addition to this the evaluative and palpable reactions they make to their own behaviour through the self-regulatory process also influence the way people self-regulate their own actions.

Self-reflection is thought by Bandura (1986) to be the capability most “distinctly human” as it allows people to evaluate their experiences and to reflect about their own thought process. This capability also enables people to “produce generic understanding about them through reflecting on their experiences and their knowledge. It also allows people to monitor their ideas, act on them or predict occurrence from them, judge the adequacy of their thoughts from the results, and change them accordingly” (p.21).

The cognitive mechanisms influencing behaviour are self-efficacy judgments and outcome expectancies (Bandura, 1986). Amongst all the thoughts affecting human functioning Bandura (1986) identifies people’s judgment of their capabilities to deal effectively with different realities as the more central and pervasive. This is also called self-efficacy beliefs and it stands at the very core of the Social Cognitive theory. Perceived self-efficacy refers to beliefs in one’s capabilities to organise and execute the course of actions required to produce given levels of attainments and as such is a major basis of action (Bandura, 1998). Self-efficacy beliefs are function as a base for human motivation, well-being and personal accomplishment (Pajares, 2002).

According to Bandura (1986) Self-efficacy beliefs motivate people to act to produce the desired effects; however they not only operate in their own right but act on other determinants in the regulation of behaviour. Self-efficacy beliefs also regulate motivation by determining the goals people set for themselves, the strength of commitment to and the outcomes they expect for they efforts(Bandura, 1998). Consequently self-efficacy beliefs will have a great bearing in how people make use of their skills (good or bad use).

Self-efficacy beliefs will influence human functioning through influencing the choices people make and the course of actions they pursue. Self-efficacy beliefs will also help to define how much effort and how long people will persevere when confronted with obstacles, and how resilient they will be in the face of such difficulties. One’s thought patterns and emotional reactions are also influenced by self-efficacy beliefs. Moreover, the mediate role that judgments of self-efficacy play in human behaviour is affect by a number of factors, including disincentives and performance constrains, over or under estimations of one’s abilities and the amount of experience one has in performing a particular behaviour (Pajares, 2002).

According to Bandura (1998), people’s beliefs about their efficacy can be developed by four main sources. The foremost source to create a strong sense of efficacy is through *mastery experiences*.

The mechanism in this source is based on the fact that success builds robust belief in one's personal efficacy and conversely failure undermines it. *Vicarious experiences*, provided by social models, are another way to foster and strength self-beliefs of efficacy. Seeing people similar roles succeed in a particular task reinforces one's belief in his/her capability to also succeed. A third way of strengthening people's beliefs in accomplishing a task is through *social persuasion*. Persuading people verbally that they have the capabilities to succeed in an activity increases the likelihood that they will mobilize great efforts and sustain it than if they dwell on self-doubt. Finally *somatic and emotional* states influence how people judge their capacity to carry on a task. Physical ability or debility and mood will affect people's judgement of their capabilities. Consequently reducing people's stress reactions and altering their emotional state is a fourth way of develop people's belief about their self-efficacy.

The concept of self-efficacy has been adopted and used in previous research to explore two fundamental aspects of this research: online self-efficacy and breastfeeding self-efficacy. These concepts are discussed in the next sections.

#### **2.4.2.1. Online Self-Efficacy**

The Social Cognitive theory has provided a theoretical background to understand online social support through the exploring the relationship between self-efficacy and expected outcomes. Eastin and Larose (2005) proposed the term "online self-efficacy" and define it as the "confidence in one's ability to use the Internet to fulfil social support needs". Online self-efficacy beliefs to obtain online social support is thought to be equivalent to "certain interpersonal self-confidence" required to obtain offline support and therefore plays a major role in the online support process (Eastin and Larose, 2005). Online self-efficacy is theorised to influence directly and indirectly Internet behaviour causing a reciprocity between outcome and self-efficacy process (Eastin and Larose, 2005).

Outcomes expectancy according to Bandura (1997) is related to the perceived consequences of performing a behaviour, potentially positive or negative (Eastin and LaRose, 2000). According Eastin and Larose (2005) the four types of social support elements are expected outcomes available through the Internet: social companionship support, informational support, self-esteem support and instrumental support.

These types of social support provided the basis to estimate support expectation in the research conducted by Eastin and Larose (2005). The study proposed a path model in which online support self-efficacy is indirectly associated to how social support is perceived through both cognitive and behavioural components. In other words, expectations and online support self-efficacy are directed

linked and the size of one's online network will affect directly one's expectations, online support seeking activities and online support reliance (Eastin and Larose, 2005).

In the proposed model the level of engagement in online support seeking activities in individuals with high levels of online support self-efficacy and positive expectations towards online interactions are expected to be higher than those with low self-efficacy or low expectations. In addition to this the model expects that the increase in confidence to obtain social support online and expectation of success will impact the importance placed on these type of support.

Preliminary evidence of a positive impact of self-regulatory mechanisms of online social interaction on support activity and online support reliance for people seeking social support online was present in Eastin and Larose (2005). The study also found that online support activity impacts the online network size and consequently increases the perception of social support received. In the contrary of a detrimental effect on the off-line network size as result of increased size of online networks (Nie, 2001), Eastin and Larose (2005) found that the increase of online network size might expand to the real world and consequently increase the number of contacts and interactions off-line. Self-efficacy in this study transpired as a factor in Internet-related behaviour, influencing outcome expectations, comparative importance, online support activity and social network size.

Lin and Anol (2008) have also drawn from "key postulates and findings in the SCT" build a model of IT-mediated social support. In their study the concept of *IT self-efficacy* played an "important role" in understanding individual user's behaviour of Network IT usage, such as Usenet news or online bulletin boards. The concept of IT self-efficacy in this research borrowed and adapted to definition of Compeau, Higgins and Huff (1999) as "a users' beliefs in their personal ability to use a given IT".

Individual behaviour is postulated by the SCT to be influenced by one's IT self-efficacy and the expectations of the outcomes. In this study Lin and Anol (2008) noted that the concept of outcomes expectations relates to the construct of perceived usefulness present in TAM and the performance expectancy present in UTAUT as well as cognitive beliefs present in TRA. However for the purpose of their research, Lin and Anol (2008) labelled the outcome expect construct in SCT, "online support expectancy" and theorised the existence of a positive relationship to network IT usage in addition to a positive relationship to IT self-efficacy. The relationship between network IT usage and online social support was also hypothesised as positive as well as relationship between online social support and the size of an individual's network.

The study tested the hypotheses through a survey of the use of Instant Messaging (IM) amongst undergraduate students in Taiwan. Five constructs were tested in this study: IT self-efficacy,

Network size, network IT usage, online support expectancy and online social support. The results confirmed the intrinsic relationship between the constructs and provided insights on how a research model of IT usage can potentially be extended to studying online social support. It also provided some initial findings of IT-mediate social support. The research model proposed by the study after being empirically tested, highlights a few interest points, particular with regards to network size. Firstly the study found that the network size influenced directly social support, rather than indirectly via network usage. This is in contrary to suggestion from network theory that the size of a network influences one's network participation behaviour {{930 Liebowitz 1995;}} cited Lin and Anol (2008). Admittedly, this conclusion may be premature and the researchers urged further research to explore this area.

Secondly the researcher operated within the premises of network size related to the size of the network known to each subject, instead of the total number of user of a given network. This is quite interesting in a context of social support. The number of connections in an user's network is thought to be more relevant than the total number of users, as this will influence the user's perceptions of his/her reality of support.

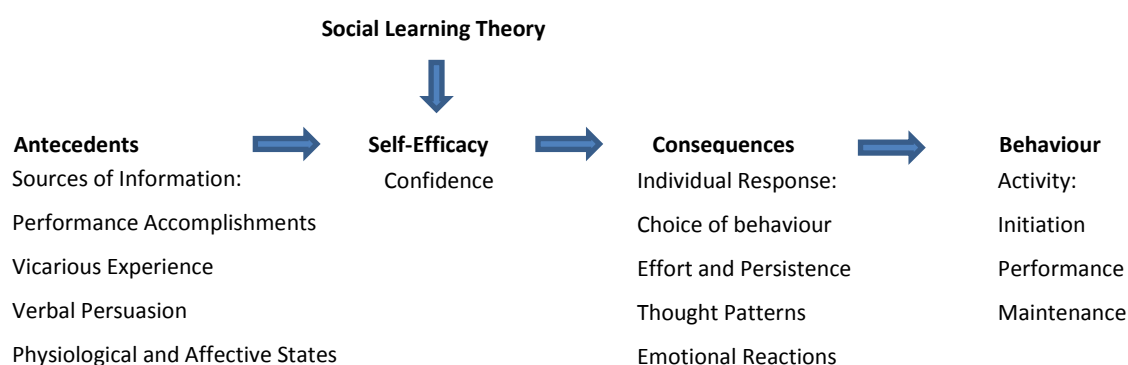
The influence of gender and age on self-efficacy beliefs have also been researched previously and the results proved controversial. Lin and Overbaugh (2009) studied the impact of gender on self-efficacy feelings of computer mediated learning and found a weak association to it. Conversely, in Sherman *et al* (2000) gender difference in self-efficacy were found significant toward the use of technology. This consideration is of importance in this research, giving the fact that all the participants will be female.

#### **2.4.2.2. Breastfeeding self-efficacy**

Self-efficacy beliefs are seen as pivotal in the dynamics involved in breastfeeding (Entwistle, Kendall and Mead, 2010; Kingston, Dennis and Sword, 2007; Dennis, 1999). Dennis (1999) called "a mother's perceived ability to breastfeed her newborn", *Breastfeeding self-efficacy*. Breastfeeding self-efficacy is also a salient variable in breastfeeding duration as it predicts (a) whether a mother chooses to breastfeed or not; (b) how much effort she will spend (b); (c) whether she will have self-enhancing or self-defeating thoughts patterns, and (d) how she will respond emotionally to breastfeeding difficulties (Dennis, 1999).

Breastfeeding self-efficacy is influenced by the four main sources as proposed by (Bandura, 1998): (a) performance accomplishments (e.g., past breastfeeding experiences); (b) vicarious experiences (e.g., watching other women to breastfeed); (c) verbal persuasion (e.g., encouragement from

influential people such as friends, family and lactation consultants); and (d) physiological responses (e.g., stress, fatigue, anxiety) (Dennis, 1999). To understand the role of self-efficacy in explaining and predicting breastfeeding behaviour Dennis (1999) proposed a self-efficacy framework (figure 3). This framework is founded on the proposition that breastfeeding behaviour is chosen, performed, or maintained as a function of (1) expectations about the outcomes from engaging in breastfeeding and (2) expectations about one's ability breastfeed (breastfeeding self-efficacy).



**Figure 3 - Breastfeeding Self-Efficacy Framework (Dennis, 1999)**

According to the proposed framework, self-efficacy influences thoughts and actions through four broad processes: (1) choice of behaviours, (2) amount of effort expenditure and persistence, (3) thought patterns, and (4) emotional reaction. Mutually, these four processes influence significantly behavioural performance (Dennis, 1999).

Choice of behaviour is marked by the inclination individuals have to avoid tasks they believe are beyond their abilities and to pursue the one they feel are more suitable to their capacity. According to Dennis (1999) the importance of self-efficacy expectancies in the decision to initiate breastfeeding is supported in previous research. Consequently women who worry about their ability to breastfeed are less likely to initiate breastfeeding.

Self-efficacy will also affect the amount of effort and persistence a woman is required to start and continue breastfeeding. Therefore a strong sense of self-efficacy will support women as they start to breastfeed and work through difficulties and setbacks.

## **2.5. Research theoretical framework**

The SCT has been previously used with success to investigate online social support and breastfeeding confidence. Therefore adopting SCT to provide a theoretical framework will support the exploration and discovery of the intricacies of how breastfeeding women use online social support. This approach is believed to allow the researcher to understand this phenomena and consequently to contribute to the research body in this area.

By drawing on the theoretical concepts discussed the previous section, the proposed framework (figure 4) will be used “as part of an iterative process of data collection and analysis” (Walsham, 2006). This framework provides the backbone for data collection and analysis in this research. The elements of the framework are described in the next sections, reflecting the previous discussion of online social support and self-efficacy in this chapter.

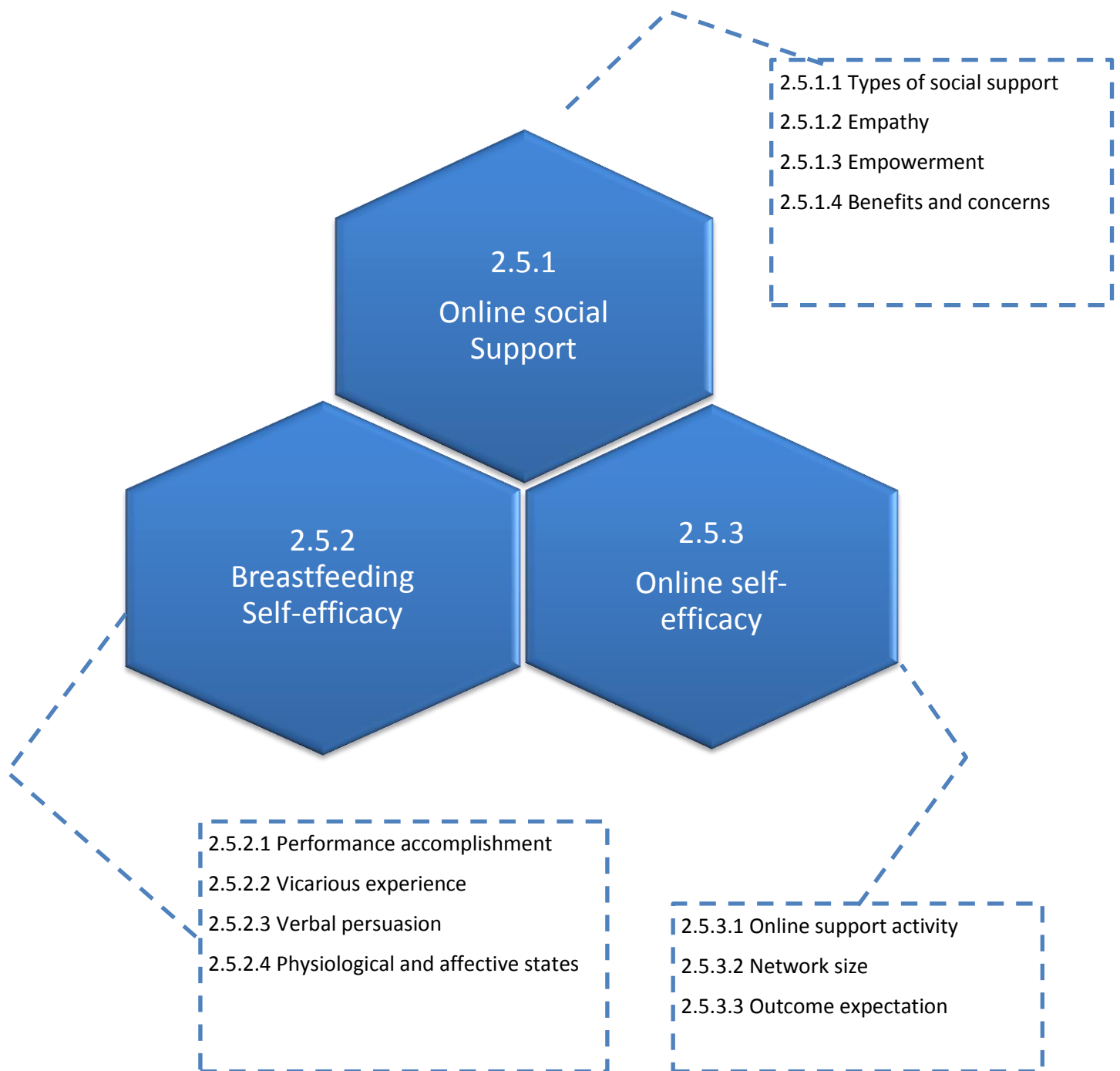


Figure 4 – Proposed research framework

### 2.5.1. Online social support

Social support is invaluable during breastfeeding and is an expected outcome from online social support. As reviewed before a number of processes and effects are associated to the exchange of social support. The following elements are associated to social support and relevant to this research:



- **Emotional, instrumental, informational and appraisal support**

These are the elements of social support as defined in the literature. This research will explore and try to understand the issues and complexities related to these elements in the context of breastfeeding online support.

- **Empathy**

Empathy is associated to social support as provides people with the ability to identify with other people's circumstances and feelings. The way breastfeeding women receive and deliver empathy in an online support context is of interest in this research.

- **Empowerment**

Empowerment is defined as an outcome of social support and has an influence self-efficacy and self-management. The empowerment process of breastfeeding women through the participation in online support is also of interest in this research.

- **Benefits and concerns associated to online social support**

A number of benefits and concerns are associated to participation in online social support. Exploring breastfeeding women's perceptions of the benefits and their concerns with using online social support are important in this research in order to understand the reasons why they use it.

### **2.5.2. Breastfeeding self-efficacy**

How mothers perceive their ability to carry on breastfeeding their babies is associated in the literature to the concept of breastfeeding self-efficacy (Dennis, 1999) . The influence of online social support on breastfeeding self-efficacy will be explored in this research. This will be achieved through exploring the antecedents of breastfeeding self-efficacy in an online social support context:

- **Performance accomplishments**

A performance accomplishment is associated to past breastfeeding experiences. The relationship between breastfeeding women past experience in an online support context is to be explored in this research.

- **Vicarious experience**

The opportunity to watch other women to breastfeeding is associated to vicarious experience. This research is interested in exploring vicarious experiences amongst breastfeeding women in an online social support context.

- **Verbal persuasion**

Associated to the encouragement received from family, friends and lactation specialists. The delivery of verbal persuasion in an online social support context will also be explored in this research.

- **Physiological and affective states**

This research is interesting in understand the Influences of online social support in the stress, fatigue and anxiety impacting breastfeeding performance experienced by the participants.

### **2.5.3. Online self-efficacy**

Online self-efficacy is defined as the ability one has to use the Internet to fulfil social support needs (Eastin and Larose, 2005). This research is interested in exploring how this will influence a breastfeeding woman use of online support and breastfeeding self-efficacy. According to Eastin and Larose (2005) online self-efficacy is associated to the following:

- **Online support activity**

The type and number of interactions one has in an online support environment influence how competent people feel about their ability to obtain social support.

- **Online network size**

The size of one's online network also is thought to influence one's online self-efficacy since it will allow for more contacts and consequently increase one's perception of received social support

- **Outcome expectation**

What people expect to get out from using online social support will also influence online self-efficacy. As a result people with positive outcome expectations are anticipated to have higher online self-efficacy than those with negative expectations.

In the proposed framework the concept of self-efficacy provides a main theoretical underpin to this research. The relationship between breastfeeding self-efficacy, online self-efficacy and social support is to be explored. This will to offer valuable insights in how online social support can influence breastfeeding women's experience.

## **2.6.Chapter summary**

Throughout this chapter we discussed and examined the current literature on online support for health and healthcare. We discussed the processes, concepts and outcomes found in the literature concerning it. The Social Cognitive Theory was also discussed and its suitability to research online support explored. At the end of the review, a framework to explore the role of online social support in breastfeeding women's life was proposed.

The next chapter will present and discuss the philosophical standpoint of this research and the methods employed to collect and analyse the data obtained through this research.

## Chapter 3: Research Methodology

### 3.1. Introduction

The purpose of this chapter is to present the philosophical assumptions supporting this research and to describe the research strategy and methods adopted to conduct this research. Creswell (2007) emphasised the importance of explaining the research approach as an effective strategy to increase the validity of social research. Research within Information Systems spans across many disciplines including social sciences, business and management (Galliers and Land, 1987). This offer a number of possible methods and approaches available to conduct research within this. Consequently, the choice of research approach within Information System requires careful consideration (Orlikowski and Baroudi, 1991). The research process is illustrated in table xxx offering an insight in the work carried out and its related activities.

<b>Research process overview</b>		
<b>Order</b>	<b>Process</b>	<b>Description</b>
1	Topic decision	The initial process of deciding the topic, scope and formulate the question (s) to be addressed by this research. The combination of the researcher's interest and the opportunity to explore an area with little knowledge were the start point. The scope of the study was decided to involve both mothers and breastfeeding supporters in an attempt to offer a broader understanding of the parts involved in online social support in the context of the research.
2	Ethical Approval	Obtain ethical approval from the Brunel Ethics committee to carry out the studies with breastfeeding supporters and mothers.
3	Engagement with the BfN and its members to conduct the first phase	After definition of topic, scope and question (s) to be addressed, the researcher presented the research to the BfN members during a AGM in November 2010. This was an

	of the research	opportunity to recruit participants for the interview study with the supporters as well as clarify any issues or questions raised by the participants. The interviews took place in the next 3 months.
4	Analysis of first data set	Following the collection of data from the interviews, the researcher used the methods and techniques adopted to analyse the collected data. The findings were presented during a conference in July 2011
5	Liaison with the NHS Berkshire East PCT to access to the breastfeeding drop in centres in the Maidenhead area	The researcher gained access to visit breastfeeding clinics run by health visitors and midwives in the borough of Maidenhead. The visits allowed the research to recruit participants for the second interview study. During the visits the researchers was also able to observe and interact with the mothers attending to the clinics and explore their use of online social support.
6	Analysis of second data set	Following the collection of the second data set from interviews, and the review of the researcher notes and observations, the researcher used the methods and techniques adopted to analyse the collected data.
7	Synthesize the information	This process allowed the researcher to combine the information collected and analysed from the two studies. The researcher attempted to find the similarities and differences between the groups and draw conclusions about the role, importance and influence that online social support has in the lives of women who are breastfeeding or women supporting breastfeeding

**Table 1 – Research Process**

This research is interested in breastfeeding women's views, feelings and attitudes concerning obtaining online support in a bid to offer insight in this phenomenon. As such, an interpretive research approach within a qualitative methodology has been selected as the most appropriate. An interpretive approach is helpful to IS researchers to understand human thought and actions in social and organisational context (Klein and Myers, 1999) .

A rationale for choosing a qualitative research approach is discussed in section 3.2. Section 3.3 discusses qualitative research process followed by the description of researcher's role. A discussion about the philosophical stance adopted in this research is carried out in section 3.5. Section 3.6

discusses the research design implemented in this research. The methods of data collection employed in this research are discussed in section 3.7. The approach to analyse the data collected in this research is described in section 3.8. The methods and techniques adopted to interpret and evaluate this research are discussed in section 3.9. The steps taken to address ethical requirements are described in section 3.10. Finally a summary of the chapter is presented in section 3.11.

### **3.2.Rational for qualitative approach**

The process of research is marked by dilemmas, especially choosing appropriate strategies and methods for addressing the research questions (McGrath, 1982). A number of researchers have explored the different approaches to research i.e. qualitative versus quantitative approaches. Creswell (2009) proposes that one distinction between these approaches is the use of words (qualitative) rather than numbers (quantitative) or the use of closed-ended questions (quantitative) rather than open-ended questions (qualitative). This distinction points to one of the key issues differentiating between qualitative and quantitative approaches: the nature of the data.

When analysing the differences between qualitative and quantitative approaches Denzin and Lincoln (2011) used the five significant ways to differentiate the approaches proposed by Becker (1996), which define different ways of addressing the same set of issues. The first point is the influence of positivism and postpositivism traditions in the way researchers react to and address data and subjects of their research. This consequently leads to the second point of accepting postmodern sensibilities, with the emphasis on rejecting positivist methods and assumptions. How researchers capture the individual's point of views also diverges between the different approaches, with qualitative researchers using interviews and observations techniques to get nearer to the participant's point of view. Quantitative researchers criticise this as unreliable and non-objective. The likelihood of identifying everyday life constraints is another difference observed in the approaches, with qualitative researchers being more probable to encounter them and consequently inform their research. Finally approaches Denzin and Lincoln (2011) expand on the importance of securing rich descriptions present in qualitative research, in opposition to quantitative research focused on generalisation and unbiased research.

Strauss and Corbin (1998) suggested that qualitative research includes any research that produces findings not reached at by statistical procedures or other means of quantification. Qualitative research aim is to attempt to gain insight into the individual's subjective interpretative patterns, experiences and positions (Ueltzhöffer and Ascheberg, 1999). In the same way Denzin and Lincoln

(2011) advocate that qualitative research is most concerned in processes and meanings that are not experimentally measured with qualitative researchers concerned with the socially constructed nature of reality. This comprises the relationship between the researcher and what is studied and the situational limitations that outline the investigation.

Klein and Myers (1999) observed that qualitative research is often mistaken to mean interpretive research. This misguided belief is rather incorrect as qualitative research can assume various approaches such as, interactionism, feminism, post-modernism and ethnomethodology (Denzin and Lincoln, 2011). The philosophical assumptions adopted by the researcher defines whether a qualitative research will assume a positivist, interpretive or critical stance (Klein and Myers, 1999).

Qualitative research has evolved within the IS discipline from a quantitative dominated discourse. Sarker (2007) presented a perspective on the evolution of qualitative research within IS. He conceptualised qualitative research as an innovation in a social system to allow for a historical account of how qualitative research has evolved with IS. After the introduction of qualitative studies into IS mainstream research (*initiation stage*), the lack of hypothesis and statistical analysis incur in the exclusion of the studies from the definition of research itself. This evolved to a *contagion stage* which saw an increase number of qualitative studies and established legitimacy to qualitative research within IS. This is attributed to the need to explore issues not addressed by previous theories through inductive and exploratory research. As result of this, issues of methodological suitability were present leading to a *control stage* phase in an attempt to establish some criteria for qualitative research within IS (Klein and Myers, 1999). Qualitative researchers were faced with a number of expectations of their research as result of a number of guidelines and principles created to conduct qualitative research. Obviously this created a paradox as while in one hand qualitative discourse is concerned with processes and meanings (Denzin and Lincoln, 2011), qualitative researchers were under the expectations to fulfil criteria such as internal validity, dependability, theoretical saturation and reliability to mention a few. To conclude Sarker (2007) suggested that qualitative research with IS is entering a *maturation stage* in which research is likely to see an extensive recognition of diverse genres of qualitative research, above “case studies” and even “positivist” and interpretive” case studies.

Denzin and Lincoln (2011) suggested that “three interconnected, generic activities define the qualitative research process: theory, method and analysis; or ontology, epistemology and methodology”. These activities reveal the “personal biography of the researcher”, which reflects the researcher’s perspective with regards to his/her class, gender, racial, cultural and ethnic community. This will impact how the researcher’s inclination to adopt a framework (theory, ontology) that will

define a set of questions (epistemology) which will consequently be investigated (methodology, analysis) in a particular way.

### ***This research***

A qualitative approach has been selected to explore the views, perceptions and expectations of women using online support to while breastfeeding their babies. Based on the previous discussion, such approach is helpful to aid the understanding of this phenomenon and to enlighten people involved in breastfeeding support. In addition a qualitative approach will enable the researcher to appreciate the social, political and cultural context which women involved in breastfeeding live, and consequently give better insight into the phenomenon.

In the next section the qualitative research process is explored which provides a basis for the design adopted in this research.

### **3.3. Qualitative research**

Denzin and Lincoln (2011) divide the qualitative research process into five phases: the researcher and the researched as multicultural subjects, major paradigms and interpretive perspectives, research strategies, method of collection and analysing empirical materials and the art of interpretation. These phases are discussed succinctly below:

*Phase 1: The Researcher.* The role of the researcher cannot be disassociated from the conduct of the qualitative research and this is marked by conflict and diversity. It is required from the qualitative researcher to take consideration of his place in history, his struggle to confront ethical and political research issues and to develop and apply proper research methods and methodology to human-to-human relationships. The role of the researcher in this research is presented in section 3.2.1

*Phase 2: Theoretical paradigms and perspectives.* These are based on the beliefs that shape how the research sees the world and acts in it. The net that contains the researcher's epistemological, ontological, and methodological premises may be referred to as a paradigm, or an interpretative framework, a "basic sets of beliefs that guides action" Guba (1990, (1989). Four paradigms structure qualitative research: positivist and post-positivist, constructivist-interpretive, critical and feminist-poststructural. This research adopts a constructivist-interpretive paradigm and reasons for its selection are presented in section 3.2.2.

*Phase 3: Strategy of Inquiry and Interpretive paradigms.* The research design is the first building block of this phase, which includes emphasises the research question, and the purpose of the study.



This phase has to address "what information most appropriately will answer specific questions, and which strategies are most effective for obtaining it" (LeCompte & Preissle 1993, p.30). The strategy of inquire adopted in this research combines interpretive field study and phenomenology as discussed in section 3.2.3.

*Phase 4: Methods of collection and analysis.* A range of data collection methods is available to select from interviews to direct observation, analysis of documents and use of visual materials or personal experience at this stage. As previously mentioned, the selection of those methods is usually based on the selected research strategy. In this study uses interviewing as the methods for data collection, which is presented in section 3.2.4.

*Phase 5: The art, practices and politics of interpretation and presentation.* Qualitative interpretations are constructs through a process of using a series of field notes, documents and data to produce the researcher's interpretation of the studied phenomenon to the public. This research presents and discusses its finding in chapter 6.

### **3.4. The role of the researcher**

The role of the research is instrumental in qualitative research, with her presence in the lives of the research participants being fundamental to the methodology (Marshall and Rossman, 2006). Her presence in the participants' lives can be brief but personal, as in in-depth interviews, or sustained and intensive, as in long-term ethnographies. Nevertheless the researcher comes into the participants' lives and this will cause a variety of strategic, ethical and personal issues not visible in quantitative approaches (Marshall and Rossman, 2006) (Locke, Spirdusso and Silverman, 2000). To address these issues Creswell (2009) suggested researchers to be explicit with regards to their "bias, values, and personal background, such as gender, history, culture and socioeconomic status" which may be relevant in the interpretation during the research process.

Patton (2002) noticed that researchers adopting a more traditional qualitative approach learn from participants' lives, but preserve a position of "empathetic neutrality". On the other hand, researchers adopting critical and postmodern genres accept that all knowledge is political and reject the proposal of neutrality, as the aim of their research activities includes activism and action (Marshall and Rossman, 2006).

#### ***This research***

My role in this research is certainly influenced by my own circumstances and beliefs. I am a woman, mother of two children, and breastfeed them both for over 10 months each. I am also trained as a

breastfeeding supporter. As such, I believe I can relate to breastfeeding women and understand their routine and their needs for information and help. As a trained supporter, I am able to have access to the women who provide the support and access the women who seek it. Being a breastfeeding supporter also allows me to interact with breastfeeding women, inquire in a friendly and informal manner about their uses, views and expectations of online support while they breastfeed their children. For these reasons I cannot be neutral in this inquire. My involvement with breastfeeding support is an important element in my involvement and interaction with the participants in this research. This not only influences my role throughout the research but it will inform my understanding and interpretation of the collected data.

### **3.5.Theoretical perspective**

A qualitative theoretical perspective is the result of the researcher's beliefs about ontology, epistemology and methodology held by a researcher (Denzin and Lincoln, 2011). Using a similar approach Orlikowski and Baroudi (1991) drawn on Chua's (1996) classification of the assumptions constituting the philosophical stances adopted by researchers propose three distinctive research perspectives based on three sets of beliefs (table 1). To further explain the philosophical stances adopt by researchers, Orlikowski and Baroudi(1991) propose that these are beliefs about physical and social reality, beliefs about knowledge and beliefs about the relationship between knowledge and empirical world. These beliefs include:

1. Beliefs about physical and social reality: Ontological beliefs have to do with the essence of phenomena under investigation; that is whether the empirical world is assumed to be objective and thus independent of humans in creating and recreating. Human rationality has to do with the intentions ascribed by researchers to the humans they study. Finally, beliefs about social relations deal with how people interact in organizations, groups and society.
2. Beliefs about knowledge: Epistemological assumptions concern the criteria by which valid knowledge about a phenomenon may be constructed and evaluated. Methodological assumptions indicate which research methods and techniques are considered appropriate for gathering valid empirical evidence.
3. Beliefs about the relationship between knowledge and the empirical world: These beliefs concern the role of theory in the world of practice and reflect the values and intentions researchers bring to their work. More precisely, what researchers believe is appropriate to accomplish with their research and what they intend to achieve within a specific study.

Beliefs about	Explanation
Physical and Social Reality	
<i>Ontology</i>	Whether social and physical worlds are objective and exist independently of humans, or subjective and exist only through human action
<i>Human Rationality</i>	The intentionality ascribed to human action
<i>Social relations</i>	Whether social relations are intrinsically stable and orderly, or essentially dynamic and conflictive
Knowledge	
<i>Epistemology</i>	Criteria for constructing and evaluating knowledge
<i>Methodology</i>	Which research methods are appropriate for generating valid evidence
The Relations between	
<i>Theory and practice</i>	The purpose of knowledge in practice

**Table 2 - Research beliefs (Orlikowski and Baroudi, 1991)**

Orlikowski and Baroudi's (1991) classification of research epistemologies proposes that qualitative research can be positivist, interpretive or critical. According to Orlikowski and Baroudi (1991) positivist research uses a structured investigation when a presupposed fixed relationship exists within phenomena. This will result in quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from a representative sample to a stated population.

Interpretive research according to Orlikowski and Baroudi (1991) assume that the process of interact with the world warrant people the opportunity to attribute meanings to process around them. This is marked by evidence of a non-deterministic perspective where the "intent of the study is to increase understanding of the phenomenon within cultural and contextual situations; where the phenomenon of interest was examined in its natural setting and from the perspective of the participants; and where researchers did not impose their outsiders"

Finally, research can be qualified as critical, if there is evidence of a critical stance towards taken-for-granted assumptions about organizations and information systems, and a dialectical analysis that attempts to reveal the historical, ideological, and contradictory nature of existing social practices (Orlikowski and Baroudi, 1991).

Orlikowski and Baroudi (1991) distinguished between positivist and interpretive investigation in their study of information technology in organizations. They identified positivist research methods as

methods that encourage deterministic explanations of phenomena where these explanations emerge from interactions between the researcher and his subjects. Here, the researcher dominates the relationship. The positivist approach is focused on the validity and control of the research procedures thereby adopting a predetermined and restricted stance towards the phenomenon under investigation. Interpretive research in contrast, provides evidence of a nondeterministic perspective with intent to increase understanding of the phenomena within a specific cultural and contextual setting and an examination of the phenomena and the setting from the perspective of the participants.

### **3.5.1. Phenomenology and hermeneutics in interpretive research**

The origin of phenomenology as a research methodology is associated with the works of Edmund Husserl (1859-1938) who conceptualises it as an attempt to establish the structure and meaning of experience, which in turn can lead to a richer comprehension of the phenomena in question. According to Husserl from a phenomenology perspective, experience is not restricted to sense data, but the result of intricate relations between an individual and the world and between individuals, with this experience anticipating a genuine structure of meaning (Lavery, 2003). Consequently, a vast range of phenomena can be investigated from a phenomenological point of view.

Phenomenology is essentially the study of lived experience or the “life world” (van Manen, 1997). Husserl proposes the “life world” as what we experience pre-reflectively, free of categorisation or conceptualisation and often enough contains things taken for granted or what is thought to be common sense. The phenomenological method involves three elements: (1) suspending the “natural attitude”, which includes scientific claims and “common sense”, (2) describing how things overall, including our own conscious, present themselves as phenomena in our daily experience, (3) distinguishing the critical structures of the phenomena, the way they present themselves, and the nature of human experience that allows them appear as they do (Guignon, 2012).

Husserl’s focus was to study the phenomena as they emerged through consciousness and he assumed that minds and objects occur within experience, thus eliminating dualism (Lavery, 2003). Cope (2005) proposes five major paradigmatic issues associated to phenomenological inquiry:

1. The rejection of dualism between consciousness and matter: there can be no separation between consciousness and matter or reality and appearance as far as phenomenologists are concerned. Moreover, phenomenologists abstain from making assumptions about what is or what is not reality; instead descriptions of phenomena are initiated from how an individual experiences it.

2. The intentionality of consciousness: This concept infers that the description of experience shows it is always to be the experience of something. In other words at any time during consciousness, then *consciousness is always directed towards something (object or person)*.
3. A presuppositionless philosophy: Being free of presuppositions was one of Husserl's motivations of reality where careful and authentic description of ordinary conscious experience is accompanied by absence of prior scientific, philosophical, cultural and everyday assumptions. Explanations should not be imposed before the phenomenon has been understood "from within" (Moran, 2000).
4. The suspension of the natural attitude: the primary feature of the natural attitude is that it is not concerned with philosophical inquiry into the basis of the world of experience. To move to a phenomenological attitude requires "bracketing" of one's presuppositions about the world adopted within the natural attitude. This way, attention is narrowed to the essential elements of the phenomenon in question.
5. The Lebenswelt: this concerns the notion of the "lived-world" described by Husserl as the Lebenswelt. The basic premise of existential phenomenology is that human beings cannot be studied in isolation from the world-context (lived-world) in which they interact and live.

Martin Heidegger (1889-1976) is attributed to have started hermeneutics phenomenology as a philosophical movement. Heidegger developed the ideas obtained from Husserl's phenomenology to incorporate hermeneutics. Heidegger's starting point was to adopt the concept of human as "being in the world" (*dasein*). Ontology and hermeneutics are fundamental part of Heidegger proposal of phenomenology as he was concerned with the way life and living things are given meaning. His interest focused in self-understanding our existence in the world and referred to his approach as a hermeneutics of "everydayness" (Heidegger, 1996).

Hermeneutics phenomenology defies the notion that generalisation empirically discovered about casual relations can be detected in the study of humans and instead advocates that as humans are "self-making" or self-constituting beings, fixed, unchanging regularities underlying their behaviour are no to be expected (Guignon, 2012). Similar to phenomenology, hermeneutics phenomenology is concerned with the life world or the human experienced as it is lived (Laverty, 2003).

Heidegger concept of “throw-ness” is important in this study as it advocates that we are thrown into particular circumstances, in a manner of speaking, such as participating in a particular culture at particular times and places, over which we have no essential control. Making sense of the situation and our place within it is still necessary (Withy, 2011). Breastfeeding women are very much a reflection of this concept, as often enough they will find themselves into a situation with other women in the same circumstance and they need to make sense of their place. The world as we perceive can change as result of our interaction with it, but at the same time it changes us (Withy, 2011).

The notion of tools proposed by Heidegger is also important aspect for this research. Heidegger assumes that we live in a world of tools, including artefact made by humans or “things” such as technology and our experience with those tools impact how we make sense of the world (Goff, 1968). Heidegger observed that most often the way deal with things does not place them in our consciousness, but we rather we take them for granted as part of a routine use (Harman, 2009). Following Heidegger’s notion of tools can help us to understand online support tools within a breastfeeding support-seeking context and how the women using them make sense of their situation.

### ***This research***

This research adopts an interpretive approach, which is anchored in the fact that a number of social, political and cultural issues are involved when exploring how women use online support while breastfeeding their babies. Interpretive methods are a suitable choice for such purpose as it assumes that our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools and other artefacts (Orlikowski and Baroudi, 1991). Moreover, interpretive research does not predefine dependent and independent variables, but focuses on the complexity of human sense making as the situation emerges (Kaplan and Maxwell J., 1993) and it is now a well-established approach within IS (Walsham, 2006) .

This research also seeks to understand this phenomenon through exploring people’s experience. As such, a hermeneutic phenomenological methodology within an interpretive approach is the best strategy for this research. Phenomenology is firmly located within an interpretive paradigm as a form of inquiry (Cope, 2005) as discussed in the next section.

Phenomenology hermeneutics provided a set of terms and a conceptual framework to explore breastfeeding women use of online support from an interpretive stance. According to Heidegger,

language is the conduit that allows people to make sense of lifeworld and its meaning to ourselves. Hans-Georg Gadamer further developed this idea by focus on the role of language in understanding and interpreting a phenomenon, as he stated “language is the universal medium in which understanding occurs, understanding occurs in interpreting” ((Gadamer, 1998), p. 389). Understanding and interpretation were inseparable according to Gadamer with interpretation is an evolving process (Laverty, 2003).

In conclusion, selecting hermeneutic phenomenology within an interpretive approach is suitable to research the use of online support by breastfeeding mothers, as it aims at “producing rich textual descriptions of the experiencing of selected phenomena in the lifeworld of individuals that are able to connect with the experience of all of us collectively” (Smith, 1997).

### **3.6. Research Strategy**

A research strategy provides a set of guidelines that link the theoretical paradigms to strategy of inquiries and methods of collecting and analysing empirical data (Denzin and Lincoln, 2011). A number of research strategies have been proposed to date to address different issues in information systems research with case study, field studies, field tests and laboratory studies being common in MIS research (Hamilton and Ives, 1982). Denzin and Lincoln (2011) propose the following as possible research strategies: case study, grounded theory, action and applied research, clinical research and ethnography to mention a few.

This research adopts a field study strategy as it allows the research to access the usual environment where a phenomenon occurs Gorman and Clayton (Gorman and Clayton, 2005), p. 64). Trochim (2006) defines field research as “a broad approach to qualitative research or a method of gathering qualitative data. The essential idea is that the research goes “into the field” to observe the phenomenon in its natural state or in situ”. Orlikowski and Baroudi (1991) support the notion that field studies are suitable to producing valid interpretive knowledge, as humans in their social context are at the centre of this strategy.

According to Burgess (1989) a relationship between the researcher and the subjects of the study develops as a social process in which the researcher plays a major part. Walsham (2006) discussed four elements are involved in carrying out fieldwork research including: the style of the researcher involvement, gaining and maintaining access, collecting field data and working in different countries.

### ***This research***

Using the spectrum suggested by Walsham (2006) I see myself as an involved researcher, giving my background and interest in breastfeeding. As anticipated by Walsham (2006) I expect this to offer me advantages in terms of in-depth access to people, issues and data. Breastfeeding mothers are in a particularly vulnerable phase of their lives, learning a new life skill and therefore very emotional. My background as breastfeeding supporter allows me to get involved with these women and to access their world, making a field research strategy feasible and suitable.

Two groups are identified within a breastfeeding support context fulfilling different roles in this context: supporters and breastfeeding women. In order to understand this phenomenon, participants from both groups were selected to share their views and to describe their experience with breastfeeding online support. Two phases were involved in carrying out this research. The first part of the study involved the women who are responsible to provide information and support to breastfeeding women. In this phase ten breastfeeding supporters share their views and experiences with supporting breastfeeding women online. The second part of the study involved breastfeeding women and enlisted seven women to discuss their experiences with online social support.

### **3.7. Methods for data collection**

The research topic, research philosophy and method and most significantly the availability of data from its intended source are pivotal in the choice of data collection methods to be applicable to a research (Myers, 2009);(Darke, Shanks and Broadbent, 1998). The data collected for research purposes can be classified as either primary or secondary data, with qualitative research preferring primary data from original source. This adds richness and credibility to the qualitative script (Myers, 2009). Four main methods of data collection are available to qualitative field researchers: (a) participation in the setting, (b) direct observation, (c) in-depth interviewing and (d) analysing documents and material culture (Marshall and Rossman, 1999).

Data collection in a phenomenological study has been equalled to taking part in a dialog and as such is often linked to in-depth interviews and observation (Halldorsdottir, 2000). In line with the aim of this research and my personal experience with breastfeeding support this research selected interviews as data collection methods to support the research aims. Participation and observation methods are elements present in qualitative studies (Marshall and Rossman, 1999) and as such, these methods are also part of the approach to data collection in this research.



The next section provides a description of the chosen methods of data collection used in this research. This includes details of the collected data and the role of the researcher during the data collection activity.

### 3.7.1. Documentation review

Marshall and Rossman(1999) propose that the review of documents offer the opportunity to understand the historical context of a particular setting providing background to the research. According to Patton (2002) this method is unobtrusive and presents a number of advantages including that information can be independently verified, without need to have intensive input from other sources. Reviewing documents also allow the research to build a picture of the values and beliefs of the participants (Marshall and Rossman, 1999).

### 3.7.2. Observation and participation

As a method, observation has a pivotal role in all qualitative studies as it allow to discover complex relations and interactions in the natural setting of the research through body language, cues and reactions observed in the participants (Marshall and Rossman, 1999). Field researchers in particular use observation as a major form of data collection (Bailey, 2007). Observation involves activities such as taking notes and recording events, behaviours and artefacts in the setting of the research.

This method is basic to all qualitative studies, influencing and demanding further thinking about the role of the researcher. The researcher's participation in the setting of the study influences her understanding of the phenomenon (Marshall and Rossman, 1999).However, a few issues are associated with observation such as ethical dilemmas and challenges to manage a discreet role and identifying the "big picture" when surrounded by a number of complex behaviour (Marshall and Rossman, 1999).

Flick (Flick, 2002) posed a few questions to be addressed by field researchers when planning observations:

1. Will the observation be covert or overt?
2. The researcher will be participating in the setting or only observing?
3. Where and when the observations will occur?
4. Unstructured or structured observations will be carried out?
5. The scope of the observation?

Participant observation has its roots in traditional ethnographic studies, with the objective to allow the researcher to learn the perspectives held by the studied group (Mack *et al.*, 2012). Ethnography

is concerned with improving our understanding of the real world, taking into account the issues, limitations and opportunities surrounding the lives of the participants (Serrant-Green, 2007). The main peculiarity of using ethnographic observations resides in the fact that the researcher observes the subjects of the research in their own community setting. Immersion in the field allows the research to experience the same reality as the participants and offers the researcher the opportunity to learn from his own experience.

Participation and observation in a hermeneutic phenomenological inquire “are considered two abstracted poles of a more pragmatic continuum” (Cohen, Kahn and Steeves, 2000). In order to be able to observe and participate in the social world of the participants it is suggested that the researcher make distinctions between her own participation in social interactions and the observations of the places or social setting important to the inquiry. This is achieved through recording fieldnotes with observations, insights and any details of physical environment or import information that might emerge after an interview (Cohen, Kahn and Steeves, 2000). Other information such as body language, tone of voice, environment distractions and important symbols hanging on the walls or standing on tables or bookshelves can be recorded by fieldnotes. They might offer more insight in the narrative of the interview and clarify recurrent themes (Cohen, Kahn and Steeves, 2000)

### **3.7.3. Interviews**

Interviews are perceived as “conversation with a purpose” in social research and deemed as greater in value than straight question and answers sessions (Burgess, 1989). Interviews offer a number of advantages as data collection method including the opportunity to obtain an answer to question, explore the meaning of it and to resolve any ambiguities (Corbetta, 2003). Field researchers have available three types of interviews: structured, semi-structured and unstructured (Bailey, 2007).

A structured interview is also known as a standardized interview and features the same questions asked of all respondents and consequently adding rigidity to the interview (Corbetta, 2003). Field researchers working from within a positivist paradigm often prefer to use structured interviews (Bailey, 2007) as way to collect data. Structured interviews provide the researcher with control over the topics and the format of the interview as the interviews are steered by a structured interview guide. As consequence, structured interviews have common format, which makes it easier to analyse, code and compare data. In addition, a detailed interview guide can permit inexperienced researchers to do a structured interview. However a few drawbacks are associated to structured interviews. This includes their adherence to the interview guide might miss out on probing for relevant information. Also, since there is a set interview guide, the respondents may hear and

interpret or understand the questions in a different manner. The researcher's verbal comments and non-verbal cues can cause bias and have an influence upon respondents' answers (Bailey, 2007)

Field researchers using an interpretive paradigm are more inclined to use semi- or unstructured interviews as they provide the researcher with flexibility and can be likened to dialogues in style (Bailey, 2007). In semi interviews the researcher's focus is not in testing a hypothesis but rather to discover issues and topics as they arise, at the same time as providing an initial framework for the discussion. They also allow both parties to explore the significance of the questions and answers and resolve any uncertainties while offering a friendly emphasis to data collection (Bailey, 2007). The researcher has a list of key themes, issues, and questions to be covered. In this type of interview the order of the questions can be changed depending on the direction of the interview. An interview guide is also used, but additional questions can be asked (Corbetta, 2003). This type of interview provides the researcher with opportunities to probe for views and views of the interviewee. Probing is a way for the interviewer to explore new paths which were not initially considered (Gray, 2004). Patton (2002) recommends to " ... explore, probe, and ask questions that will elucidate and illuminate that particular subject ... to build a conversation within a particular subject area, to word questions spontaneously, and to establish a conversational style but with the focus on a particular subject that has been predetermined".

Unstructured interviews are also known as in-depth or intensive interviews (Bailey, 2007). (2002) suggests 3 types of unstructured interviews:

- (a) Standardised open-ended interview: the researcher formulates a number of open-ended questions with the intention of reducing deviation in the questions posed to the interviewees. This method is frequently chosen for collecting interviewing data when a team of two or more researchers are involved in the data collecting process. In this method probing is still possible, depending on the nature of the interview and the skills of the interviewers (Patton 1987:112).
- (b) Guided interview: This approach for interviewing makes use of a basic checklist to make sure that all significant topics are covered. The interviewer is still able to explore, probe and ask questions thought to be of interest to the researcher. This type of interview approach is useful for producing information about specific topics.
- (c) Informal conversational interview: This type of interview takes the format of a chat, in which the participants may sometimes overlook the fact that they are subject of an interview. Most of the questions asked will be a reflection of immediate context in which the interview

takes place. Informal conversational interviews are useful for exploring interesting topic/s for investigation and are typical of 'on-going' participant observation fieldwork.

Unstructured interviews place no limitations on the questions to be asked. This can be helpful when little or no knowledge exists about a topic. Unstructured interviews are flexible and the researcher can investigate underlying motives. However, adopting unstructured interviews can be inappropriate for inexperienced interviewers and the interviewer may be biased and ask inappropriate questions. Also, respondents may talk about irrelevant and inconsequential issues. Consequently, it may be difficult to code and analyse the data (David and Sutton, 2011).

Phenomenological research relies on interviews as its main source for data collection purposes (Wimpenny and Gass, 2000). Phenomenological investigations typically use long interviews aimed at inducing a comprehensive account of the person's experience of the phenomenon. It's an informal, interactive process and utilizes open-ended comments and questions (Moustakas, 1994). Marshall and Rossman (1999) describes phenomenological interviewing as "... a specific type of in-depth interviewing grounded in the theoretical tradition of phenomenology". The researcher is an important component in the process of interview in phenomenological studies and issues such as bracketing and reduction are controversial when carrying out interviews (Wimpenny and Gass, 2000). Husserlian tradition advocates that the researcher must suspend her beliefs when interpreting a phenomenon will allow its "true" form to be revealed (Crotty, 1998). Heidegger and his followers opposed to this idea, as they believed that a close involvement from the researcher was necessary and indeed unavoidable (Lavery, 2003).

A variety of types of data can be produced as result of phenomenological interviews including words, explanations and narrative, with the last being of most interest from a hermeneutic phenomenological standpoint (Cohen, Kahn and Steeves, 2000).

### ***This research***

The documentation provided by the Breastfeeding Network in the form of leaflets, training material, information available on the website and internal policies and procedure was reviewed in the initial stage of this research. This provided a thorough background to the organisation as well as an insight in how social support is delivered. This research also adopted a semi-structured format to conduct the interviews. Semi-structured interviews also offer richness in data when compared with structured interviews, allowing participants to respond to questions and probes freely, and to narrate their experiences without being tied down to specific answers (Morse and Field, 1995). In

the context of this research, semi-structure interviews are appropriated as they allow the researcher to unearth the participant's experiences with online breastfeeding support and consequently provide me with rich information on this phenomenon.

Ethnographic observation was also adopted as a method to collect data in this research. As a breastfeeding supporter, I am able to attend to breastfeeding drop-in clinics hosted by voluntary breastfeeding organisations. During the clinics, supporters and mothers talk and engage in support activities. I am also able to attend to breastfeeding helpers/supporters training sessions and informal gatherings. This gave me the opportunity to observe their activities, including their use of mobile and internet applications to deliver or receive social support. I used extensively fieldnotes to record my thoughts, perceptions and any information I collected during my participation in breastfeeding support activities. This was pivotal in the process of collecting data and helped me to reflect in my experiences and self-evaluation. It also provided me the opportunity to develop contextual understanding.

The first part of the study was conducted with breastfeeding supporters to explore their experience, views and perceptions of offering online breastfeeding support. The interviews were conducted between November 2010 and March 2011. An interview guide was developed and used during each interview. The guide was composed by questions covering the themes extracted from the literature review. In this phase ten breastfeeding supporters were interviewed.

The second phase of the study involved breastfeeding mothers. The interviews were conducted between May 2011 and August 2011. Each interview was also steered by the guide developed previously, with the intent to explore the mothers experience, views and perceptions of using online breastfeeding support. In this phase seven breastfeeding mothers were interviewed. The interviews were tape recorded and additional notes were taken by the researcher. Subsequently, telephone calls were made and emails exchanged with the participants to clarify arising issues and to validate results.

The groups taking part in this research and their member are described in the next section of this chapter.

### **3.8.Participants of the research**

#### **3.8.1. Breastfeeding volunteer supporters**

In the UK there are a number of volunteer peer support organisations offering breastfeeding support. The importance of these organisations was highlighted in the Introduction of this thesis,

with their significance recognised by the DoH as “extensive, efficient and crucial” (Department of Health, 2003).

This study was conducted with volunteer members of the Breastfeeding Networking. The Breastfeeding Network (BfN) is a recognised Scottish charity with the objective “to be an independent source of support and information for breastfeeding women and others”. Its aims are:<sup>1</sup>

- Promote breastfeeding and a greater understanding of breastfeeding in the United Kingdom.
- Collect and disseminate information on breastfeeding and baby and infant nutrition.
- Provide information and support to parents on the feeding of babies and infants.
- Set and encourage the acceptance of quality standards for breastfeeding support.
- Establish and publish codes of practice for such support.

BfN offers training opportunities to all women who have breastfed their babies to enable them to gain skills, knowledge and experience to support breastfeeding in their community. There are four roles within the Breastfeeding Network: Helper, Supporter, Supervisor and Tutor.

Women who feel positive about breastfeeding are encouraged to train to become Breastfeeding Helpers. This initial course is a recognised qualification and allows women to work in community centres as BfN peer supporters. The course covers the following skills needed to support women in the local community:

- Basics of breastfeeding management
- Reflection on personal experience
- An introduction to listening skills
- An introduction to group work
- The role of BfN and other breastfeeding support
- Sources of breastfeeding information
- The role of research
- Introduction to measures needed to protect infant feeding from commercial interests

A Breastfeeding helper works under the supervision of either a registered Breastfeeding Supporter or a community health professional (nurse, health visitor).

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<sup>1</sup> As stated in the Breastfeeding Network website: [www.thebreastfeedingnetwork.org.uk](http://www.thebreastfeedingnetwork.org.uk)

Women who completed the Breastfeeding Helper course and have sufficient breastfeeding experience to meet the course requirements, including a period of exclusive breastfeeding, can apply to continue on to Breastfeeding Support training.

This is a further training required to qualify and register as a Breastfeeding Supporter. All aspects of training introduced in the Breastfeeding Helpers course are covered in more depth to allow a Breastfeeding Supporter to work in collaboration with health professionals or independently.

The Breastfeeding Network also offers training courses to enable its own Registered Breastfeeding Supporters to train as tutors or supervisors. Tutors are responsible for training new volunteers, run training sessions for current helpers and supporters while supervisors are responsible for maintaining the level of service delivery throughout the organisation.

The BfN offers support in the form of home visits, maternity ward support to nurses and midwives, telephone line support and support groups. The support is delivered by the members as per their level of training and experience. The BfN also runs a web site where women can obtain information about breastfeeding related matters such as how to start breastfeeding, position and attachment, returning to work, milk pumping and storage and information on drugs in breastfeeding. The web site also provides email links to queries breastfeeding women might have.

However, the use of Internet and mobile applications is being incorporated to the way breastfeeding support is delivered. Throughout this study the participants discussed their use and perceptions of Internet and mobile applications to deliver social support. The participants also elaborated on their perceived benefits, concerns and expectations of online social support.

Table 2 describes the participants and gives details of the interviews conducted between November 2010 and March 2011.

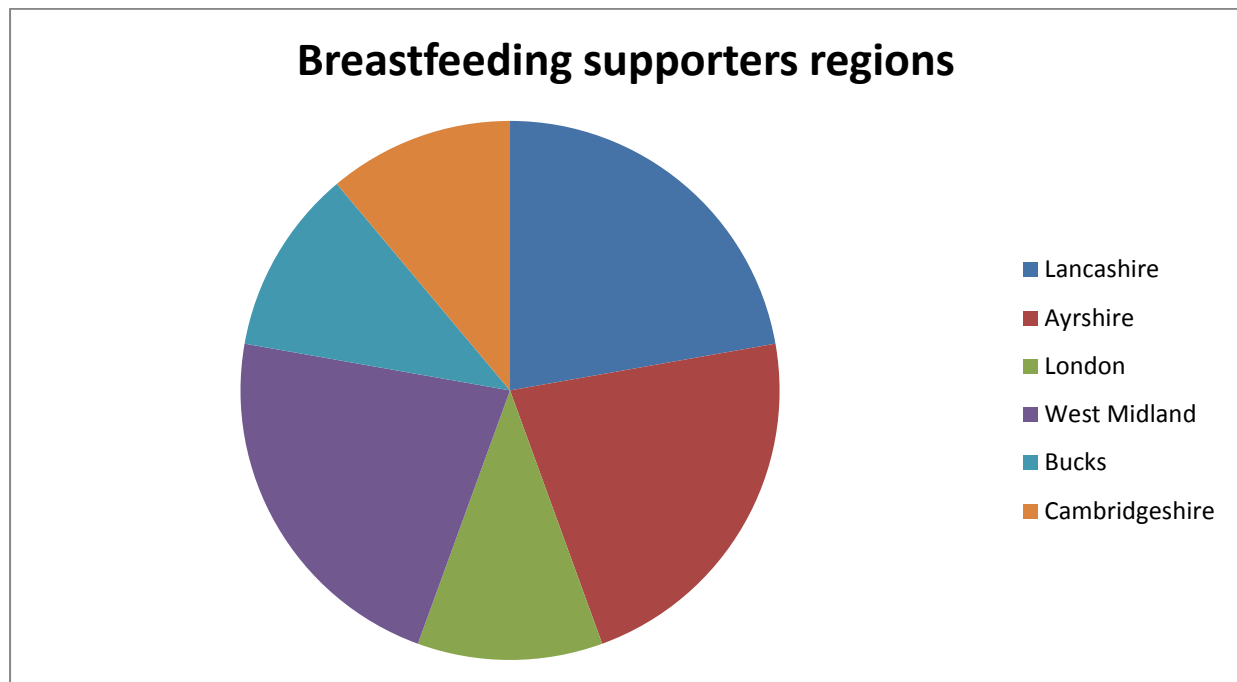
Interviewer	Breastfeeding support background	Interview duration
<b>Breastfeeding Volunteer 1</b>	BV1 is a breastfeeding supporter. She is a mother of 3 children and breastfeed them with different duration. BF1 is very committed to her duties as supporter and spends in average 4 hours a week offering women support either over the phone or in drop in centres. She has used emails to support women in the past.	45 minutes
<b>Breastfeeding Volunteer 2</b>	BV2 is a breastfeeding supporter and tutor. She also holds a directorship position within the BfN. She has 2 children and breastfeed them. BF2 is responsible for training new helpers and supporters. BF2 has not being involved directly with supporting in the last years, as her tutoring responsibilities take most of her time within BfN.	48 minutes
<b>Breastfeeding Volunteer 3</b>	BV3 is a supporter and supervisor. She breastfeed all three her children. She supports women through the telephone line and also in drop in centres. BF3 is very involved with the supporting activities in her region and has had experience with support women using a number of mobile and internet applications. BF3 works part-time within the BfN.	55 minutes
<b>Breastfeeding Volunteer 4</b>	BV4 is a supporter. She also hold a directorship position within the BfN. BF4 has past experience of moderating an online discussion board and is very involved with social media. She has three children and is a full-time mother	42 minutes
<b>Breastfeeding Volunteer 5</b>	BV5 is a helper and supporters women in drop-in centres. BF has three children, two in school age and one baby. She is a full time mother and has never supported women using Internet applications.	43 minutes
<b>Breastfeeding</b>	BV6 is a supporter, a mother of 3 and part-time worker.	55 minutes



<b>Volunteer 6</b>	She set-up the drop-in group in her neighbourhood and is responsible for it. She spends an average of 6 hours a week in her breastfeeding activities. She uses Internet and mobile applications to support women..	
<b>Breastfeeding Volunteer 7</b>	BV7 is a counsellor with the ABM (Association of Breastfeeding Mothers). She runs support groups and is part of the steering committee with ABM. One of her roles is to coordinate the email counselling service with ABM.	47 minutes
<b>Breastfeeding Volunteer 8</b>	BV8 is a supporter and works full time for BfN as part of the administration team. She is very involved with organisation of training, seminars and does a limited amount of support. She relies a lot on Internet and mobile applications to do her administrative job, but has not used it to support women.	38 minutes
<b>Breastfeeding Volunteer 9</b>	BV9 is a helper and trained nurse and midwife. She has also run baby massage clinics and parenting courses. She has a grown up family and works part time for the NHS.	46 minutes
<b>Breastfeeding Volunteer 10</b>	BV10 is a tutor with the responsibility to oversee all training activities within the BfN. She has held previously a directorship post within the BfN and is at the moment an Infant Feeding Coordinator for the DoH.	46 minutes

**Table 3 - Research participation's description: Breastfeeding supporters**

The breastfeeding supporters taking part in this study were spread geographically throughout the UK as depicted in figure 5.



**Figure 5 – Geographical representation of breastfeeding supporter in the study**

The breastfeeding supporters taking part in the study held diverse roles and responsibilities as described above. This was important as it offered a richer insight on the participants' experiences with online social support as per their training and roles. Table 3<sup>2</sup> depicts the participant's roles.

Role	Number of participants
Breastfeeding helper	2
Breastfeeding Supporter	7
Breastfeeding Tutor	2
Breastfeeding Supervisor	1

**Table 4 - Roles held by the participants in the study**

<sup>2</sup> Some of the participants held 2 positions at the same time e.g. supporter and tutor.

### 3.8.2. Breastfeeding mothers

The mothers taking part in the interviews attended to breastfeeding support drop-in centres in Berkshire (UK). Although they were all breastfeeding their babies they had a diverse background, feeding experience and family circumstances.. During the study the mothers discussed their use, perceptions, expectations and concerns about using online social support. The following table presents the characteristics of the women taking part in the study:

	One child	Two children	Three or more
<b>Number of children</b>	3	2	2
	Exclusive feeding		Mix feeding
<b>Feeding experience</b>	5		2
	Yes		No
<b>Home broadband</b>	6		1
	Smartphone		Conventional mobile
<b>Type of mobile</b>	2		5
	Full time	Part time	Stay home
<b>Work status</b>	0	2	5

**Table 5 - Breastfeeding women characteristics**

Table 5 describes the mothers taking part in the second part of the study. It gives details of the duration of the interviews, the mothers' use of Internet and mobile applications and their family and feeding circumstances. The interviews were conducted between May 2011 and August 2011.

Interviewer	Breastfeeding support background	Interview duration
<b>Mother 1</b>	Mother 1 is a first time mother with a new born baby. She has breastfed exclusively since birth. She uses Internet and mobile applications to research, get into touch with friends and family. She has a smartphone and broadband Internet. She access and uses Internet and mobile applications them for daily tasks it like shopping and banking.	50 minutes
<b>Mother 2</b>	Mother 2 is a first time mother of a 3 months old baby, with very little access to the Internet, only via her local library. She uses it to check emails once or twice a week and for searching. She has breastfeed her baby exclusively since birth.	57 minutes
<b>Mother 3</b>	Mother 3 is a second time mother with a 18 months toddler and a 4 months old baby. She has breastfed her second baby exclusively since birth. She has a smartphone and broadband access to the Internet daily and uses emails, social media, online banking and search engines.	46 minutes
<b>Mother 4</b>	Mother 4 is a third time mother with easy access to the Internet. She has a school age child, a toddler and a 6 months old baby. She uses the Internet as part of her daily routine. Her uses include social media, searching, emails and videocalls. She has breastfeed her baby exclusively since birth.	39 minutes
<b>Mother 5</b>	Mother 5 is a new mother with a 7 months old baby. She is mixing feeding her baby at the moment as she is returning to work full time. She has access to the internet at home and at work. At home she uses mostly for private	44 minutes

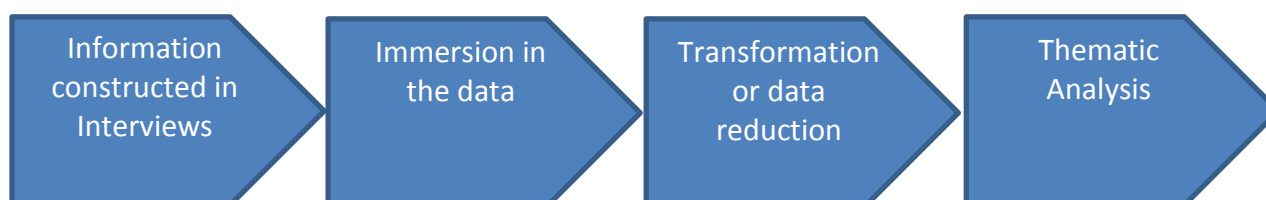
	emails, videocalls, online banking and shopping.	
<b>Mother 6</b>	Mother 6 is a new mother of 3 months old twins. She has access to the Internet and uses it for emails, searching, social media, shopping and banking. She has breastfed her twins since birth with some mix feeding.	45 minutes
<b>Mother 7</b>	Mother 7 is a third time mother with 1 young teenager, a 4 year old and a 15 months toddler. Although her toddler is fully weaned she feeds her toddler as and when is required. She has access to the Internet daily and uses it for emails, banking, shopping, social media and searching.	53 minutes

**Table 6 - Research participants' description: Breastfeeding mothers**

### 3.9.Data analysis approach

The approach adopted to analyse data followed the hermeneutics phenomenology approach, which involves moving from the field text, produced by the data collection, to a narrative text with the purpose to stand alone for other readers (Ricoeur, 1981). The process of data analysis was conducted by using NVivo 9.0 to support the management and organisation of code generation and storage and management of data.

The analysis in this research adopted the phases as suggested by Cohen, Kahn and Steeves(2000) including an initial analysis of the interviews, immersion in the data collected, transformation or data reduction and ending with thematic analysis (figure 6).



**Figure 6 – Data analysis phases: Cohen, Kahn and Steeves(2000)**

Data analysis from a hermeneutics phenomenological approach initiates during the interviews where the researcher starts to place meaning into the information obtained and possible label these meaning. I had a notebook in which I entered notes, questions and things I wanted to explore during the interviews. This allowed me to get a good understanding of what was being said and consequently have a feeling for the data.

Once the data was collected, a process of identifying critical characteristics which influenced the following phases was initiated. As the interviews were transcribed a visual and emotional connection with the data started to emerge. I went back and forth in each interview in a hermeneutic cycle in an attempt to make sense of the phenomena. Listening and transcribing the data helped me to detect important features of each interview I conducted.

Data transformation was the next task in which I set out to define what was relevant or not from the data collected. This process resembles editing and allows the researcher to exclude information that departure from the topic, reorganise the interviews to group discussion of the same topic in preparation to the next phase (Cohen, Kahn and Steeves, 2000). As the interviews flowed easily, at times it was easy to deviate from the main subject. In this phase I was able to identify these deviations and remove them from the main data.

Thematic analysis was the culmination of the data analysis process. Thematic analysis “is a method for identifying, analysing and reporting pattern (themes) within data” (Braun and Clarke, 2006). Boyatzis (1998) proposes that often enough thematic analysis goes beyond this purpose and aids in the interpretation of various aspects of the research topic.

van Manen (1990) proposes 3 methods to uncover thematic aspects from participants’ descriptions of their experiences: (1) the holistic approach, (2) the selective or highlighting approach and (3) the detailed or line-by-line approach. For this analysis I followed (Cohen, Kahn and Steeves, 2000)’s suggestion, and adopted a line-by-line approach. In this approach a sentence of the participant’s experience description is analysed and themes are identified. The framework presented in chapter 2 was used to detect the presence of the theoretical concepts identified in the literature review. I also allowed themes to “emerge” from the data. This hybrid approach of induction and deduction makes sure that the theoretical understanding was used as a way to “gain good insights from the data field... while learning from the data itself” (Walsham, 2006). Additionally, a hybrid approach allows “identifying or examining the underlying ideas, assumptions, and conceptualizations and ideologies” (Braun and Clarke, 2006).

The thematic analysis was also guided by the iterative phases as described by (Pettigrew, 1997), incorporating aspects of (Braun and Clarke, 2006), and (Fereday, 2006) to carry out a hybrid approach data analysis in the following phases:

- a) Developing theoretically driven initial codes: An initial data template based on the theoretical framework was developed in this phase. (Fereday, 2006) compared this template to a “data management tool for organizing segments of similar or related text to assist in interpretation” (Crabtree and Miller, 1999). Four broad categories formed this template: Online Self-efficacy, Breastfeeding Self-efficacy and Social Support.
- b) Familiarising with the data and developing data driven codes: (Pettigrew, 1997) suggest that deductive coding is a “prelude to a more open-ended process of inductive reasoning and pattern recognition”. From a hermeneutics phenomenological stance, the researcher uses the participant’s description of her experience to make sense of the phenomenon. Using Pettigrew’s principle I attempted to reflect my reasoning of the phenomenon through generating inductive codes.
- c) Connecting the codes and themes across data: This is the process is focused on themes and patterns across the data (Crabtree and Miller, 1999). In this research I worked with two datasets: the mothers and supporters descriptions of their experience. Similarities and differences between the data produced in each group were emerging as well as themes within each group started to form clusters (Fereday, 2006). In this phase I aimed to connect the codes, establish the difference and identify factors that could possible explain these difference e.g. demographics, family circumstances, etc...

### **3.10. Interpretation and evaluation of the research**

Qualitative interpretations are constructed as the result of the researcher’s interaction with the data collected and analysed (Denzin and Lincoln, 2011). Patton (2002) defines interpretation as “... going beyond the descriptive data. Interpretation mean attaching significance to what was found, making sense of findings, offering explanations, drawing conclusions, extrapolating lessons, making inferences, considering meanings, and otherwise imposing order on an unruly but surely patterned world.” In qualitative research interpretation and analysis of data occurs simultaneously, in an interactive process. In this process interpretation entails read and re-read, categorise and code the data in an attempt to and integrate themes into a “unified whole” Beck and Polit (Beck and Polit,

2008). Denzin and Lincoln (2011) suggest the final report of a researcher's interpretation can take several forms including critical, confessional, analytic, grounded theory and so on.

In phenomenological research, interpretation also takes into consideration the researcher's own perceptions and the historical context (Koch, 1994). A challenge for the phenomenological researcher is to produce "narrative text that accurately reflects the dialog that took place between the researcher and the participant with the aim to reduce as much as possible the bias the research brings to that dialog" (Cohen, Kahn and Steeves, 2000).

Cohen, Kahn and Steeves (2000) propose two domains a phenomenological researcher must tackle to address the danger of producing a biased interpretation of data:

- a) **Critical reflection:** within the phenomenological approach to research it is important to identify preconceptions, assumptions and prejudices (also called bracketing) to serve as a "checking point as analytical conclusions are made". Writing assumptions and beliefs about a phenomenon beforehand forces the researcher to think critically and be aware of subtle prejudices. This will aid the researcher to produce a text reflecting her interactions with the research participants less impeded by her own partialities. The very reason I started this research was based on my own experiences with obtaining support online. Therefore most of my assumptions and beliefs were influenced by my own experience. It was important to keep these in mind as I re-visited the interviews and the transcripts so I could try to interpret the women's experiences without leveraging from my own.
- b) **Opening up inquiry:** this process aims to allow the researcher carrying out phenomenological research to "open" her analysis to other in order to "audit" her analytical steps such as reduction of categories to themes. Obviously for a doctoral student such as me, that might present an impractical or too costly endeavour. To circumvent this issue, an audit trail is suggested including fieldnotes, and the researcher's reflective journal. (Rodgers and Cowles, 1993) recommends including the researcher's log with his thought process in coding and categorizing data to the audit trail. (Koch, 1994) proposes the adoption of audit trails to demonstrate dependability of a study: "leaving a decision trail entails discussing explicitly decisions taken about the theoretical, methodological and analytic choices throughout the study". This trail offers a description of different ways in which the change process might have impacted other processes and also been impacted (Lincoln and Guba, 1985).



Interpretation of qualitative research requires validation through close scrutiny – self-scrutiny as well as review by peers and outside reviewers Beck and Polit (Beck and Polit, 2008). The issue of rigor in qualitative research was discussed by (Sandelowski, 1986) where she disapproved the use of this term, deeming it to be too “harsh” to be applicable to qualitative research interpretation. Sandelowski (1986) advocated trustworthiness in replacement of rigor as a more suitable aim to qualitative research. Guba and Lincoln (1989) propose criteria of credibility, applicability, transferability and dependability as a way to achieve trustworthiness and provide a faithful description of the researcher experience.

Credibility requires that the researcher “demonstrate the credibility of the findings by having them approved by the constructors of the multiple realities being studied” (Lincoln and Guba, 1985). To enhance credibility in my research I returned to a number of my participants and asked them to read my initial analysis and discussed the thoughts underpinning them. As suggested by Koch (1994) the researcher enhances the credibility of her research through her descriptions and experiences, therefore it was very opportune that I am a breastfeeding supporter and as such have easy access to the women who took part in the research to consult them.

Guba and Lincoln (1989) adopted the term transferability as a substitute to applicability suggesting that it is dependent upon the degree of similarity between two contexts. The context where the study took place must be described adequately to allow judgment of transferability be made by readers. The term “fittingness” is proposed by Guba and Lincoln (1989) and adopted by Sandelowski (1986) for evaluation of qualitative research. To achieve this, I offered a “thick description” of original context in which each study took place including a comprehensive social and historical account (chapter 4 and 5).

Confirmability is established as result of achieving credibility, transferability and dependability (Guba and Lincoln, 1989), which can be summarized as “signposts indicating research decisions and influences should be present throughout the study and the entire study should function as an inquiry audit” (Koch, 1994).

Using the criteria described above to establish trustworthiness in this research, the interpretation of the data attempted to translate the researcher’s understanding of the data into findings. This included listening each taped interviews several times, consulting my fieldnotes, writing my thoughts and impressions of each interview, connecting the codes generated and consulting participants and colleagues throughout the process to obtain feedback on my interpretation. The interpretations of the findings are discussed in detail in chapter 6.

### 3.11. Ethical Considerations

Ethical considerations are important in order to protect human subjects taking part in any research. The subjects in the research were breastfeeding supporters, mothers and babies breastfeeding and as such called for well thought ethical considerations to protect them in the course of this research.

Breastfeeding is a very emotional and special time in a family life. For this reason, steps were taken to protect their wellbeing, privacy and confidentiality. Gaining access to the mothers' insights was an important issue in this research. As a trained breastfeeding helper, I am bound by the guidelines issued by the Breastfeeding Network of how to relate to mothers, babies and their families. Obviously that could put me in a conflicting situation. To mitigate this I made very clear from the beginning my role and objectives during the encounters I had with them. This was done while explaining and obtaining consent for participation in the research. In the case an issue surfaced that required support, I would refer the participant to a trained breastfeeding supporter who could address the issue. The mothers and supporters were also informed throughout their participation that their involvement was optional, and that they could withdraw at any time. In addition the following steps were also taken:

- Seek and obtain approval to conduct the research from the Department Ethics Committee. This involved the research approach, methodology and sample selection being reviewed by this Committee;
- Maintain strict confidentiality guidelines, which entailed to define access rights to raw data, transcript material and information relating to data storage;

### 3.12. Chapter Summary

This chapter presented the approaches adopted for this research. Starting from examining the existing research epistemologies that can be assumed, I selected the interpretive approach and offered reasons of its suitability for this research. The discussion for selecting a qualitative methodology to carry out the research followed, with a consideration for the suitable methods of data collection.

Given the nature of the research and the researcher inclination a discussion of hermeneutics phenomenological application in research was conducted. The data analysis techniques suitable to this approach were also described. Finally the approach to data interpretation and issues of trustworthiness in the research were debated and a set of criteria were selected to establish quality

in the process to translate the findings of this research into a final report. The research approaches and chosen methods are summarised in figure 7, presented below:

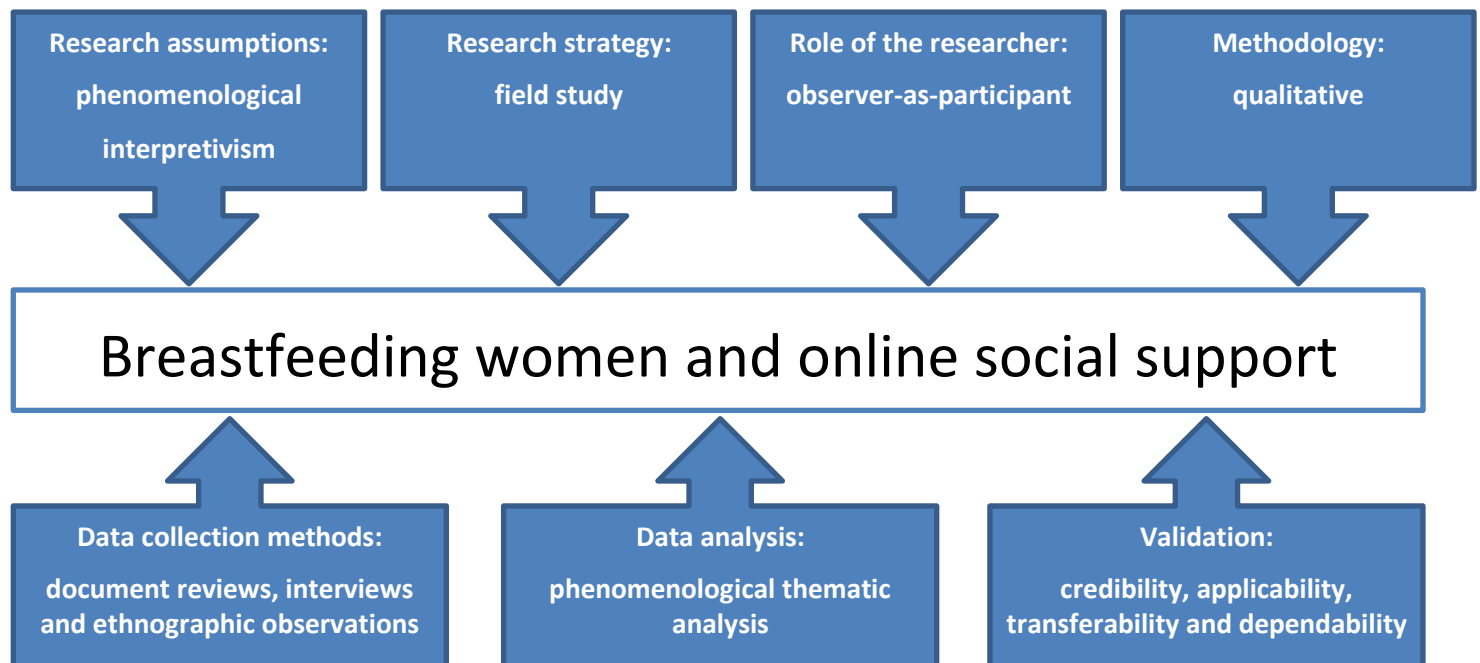


Figure 7 – Research approaches

The next chapter explores breastfeeding supporters' perceptions and use of use online support and presents the results of the thematic analysis conducted during the data analysis exercise.

## **Chapter 4: breastfeeding peers supporters and online social support**

### **4.1.Introduction**

This chapter presents the results of the first part of the study. Interviews were conducted with breastfeeding volunteers peer supporters in this first part of the study. The objective was to elicit the perspectives of women delivering breastfeeding peer support concerning the use of online support.

The start point of was a presentation of the research during the Annual General Meeting of the BfN, held in Ayr in November 2010. After the presentation I invited the women present to take part in the study and was available during the period of the conference to talk and answer further questions about the research. After that I was able to recruit ten women to take part in the study. The details of each participant were described in Chapter 3.

The chapter presents the findings from the thematic analysis. The thematic analysis was conducted in line with the steps from a hermeneutic data analysis approach suggested by suggested by (Cohen, Kahn and Steeves, 2000) including an initial analysis of the interviews, immersion in the data collected, transformation or data reduction and ending with thematic analysis.

The presentation of the findings are organised in accordance to theoretical tenets of the framework proposed in Chapter 2, based on the Social Cognitive Theory. All the themes generated during the thematic analysis are summarised in table 6.

	Major theme	Sub-Themes	Key Issues
<b>Social Cognitive Theory Framework</b>	Online social support	<ul style="list-style-type: none"> <li>➤ Types of social support</li> <li>➤ Empathy</li> <li>➤ Empowerment</li> <li>➤ Benefits and concerns of using online social support during breastfeeding</li> </ul>	<ul style="list-style-type: none"> <li>◆ Participants roles and responsibilities</li> <li>◆ Participants uses of Internet and mobile applications in daily routine and to deliver social support</li> <li>◆ Make a difference to struggling women</li> <li>◆ Social interaction</li> <li>◆ Accessibility</li> <li>◆ Convenience</li> <li>◆ New developments and technology expectations</li> </ul>
	Online self-efficacy	<ul style="list-style-type: none"> <li>➤ Network size</li> <li>➤ Online support activity</li> <li>➤ Online support outcome expectation</li> <li>➤ Perceived social support</li> </ul>	<ul style="list-style-type: none"> <li>◆ Incorporation of offline activities and peers into online experience</li> <li>◆ Participant's family circumstances</li> </ul>
	Breastfeeding self-efficacy and online social support	<ul style="list-style-type: none"> <li>➤ Performance accomplishment</li> <li>➤ Verbal persuasion</li> </ul>	<ul style="list-style-type: none"> <li>◆ Breastfeeding supporters / helpers perception of how online social support influences breastfeeding self-efficacy</li> </ul>

Table 7 - First part of the study: themes and key issues

## 4.2. Online Social Support

This study revealed that Internet applications are used to deliver social support to breastfeeding women. The supporters also used mobile applications, including mobile social networks applications and text messages to deliver social. The supporters reported using Internet and mobile applications

to both deliver social support to breastfeeding mothers as well to exchange information and social support with peers and colleagues. Breastfeeding Volunteer1 noted:

*“The internet is such a source of information and it seems to give one a feel that one is not isolated in the world and can connect with other people in similar situation, can connect with family and friends easily even though they may be mile away” (Breastfeeding Volunteer1)*

Using Internet and mobile applications was seeing by the participants in this study as an extra opportunity to deliver social support to breastfeeding mothers. They felt that it also allowed them to be in touch with people within the organisation, and as such allowed them to feel supported.

The four elements of social support were identified as part of the experiences amongst the participants as they delivered support to the mothers.

The participants talked about how Internet and mobile applications are used to deliver information when mothers contact them. Breastfeeding volunteer 3, who responds calls on the help line talked about her use of emails to send links to a mother with further information on the subject they were discussing:

*“Sometimes for example if a mum calls the support line and they having trouble visualizing something or they are finding it difficult to understand the description over the phone then I might with their permission send them a link to a website where they can look at a video or they can check something out like that” (Breastfeeding Volunteer3)*

The facility to allow a mother to put into words her concerns after thinking about them during the night or in a calmer period was another benefit of using email to support breastfeeding. The nights are normally a period when the mother has a bit more of time to think about what is the issue she is facing and consequently to verbalise it in a more coherent form.

The participants believed that providing emotional support for breastfeeding women helped them to cope with their stresses and anxieties. It also helped mothers to develop their confidence to follow their instincts. Breastfeeding Volunteer10 described her experiences with using emails to provide emotional support to one woman:

*“So if I give you an example, the dead straight question was, and this was a long time ago so I am paraphrasing, but it was something in the lines “how much alcohol gets through to the baby?” And it was written in the 3rd person and all those things. Of course I was very*

*careful and I checked the answer and made sure what I said was as accurate as I could possible get it to be. And then as the person relaxed in the answers that they were given I was in my own head I was thinking to myself "I bet this is the business of asking the doctor and saying my friend's got a problem that type of idea... So my answer before I knew any of to you see what I am saying? I was still being accurate, I still said things like it is impossible to know for sure but we do know the alcohol goes through. But e point was that through this email conversation the women was able to tell me her issues and I could help her to make the best decision possible" (Breastfeeding Volunteer10)*

The opportunity to see friends and peers online and ask a question that has just popped into one's mind was noted as a benefit. Breastfeeding Volunteer9 talked about the extension of the real life network into the virtual network and the feeling that one has of not being alone when using instant messaging and Facebook chats.

*"I have quite a few mums I see in the drop in centre as part of my Facebook. It is good because they know I am a helper and they can always ask me something if they see me online" (Breastfeeding Volunteer9)*

Breastfeeding Volunteer6 experienced being able to exchange messages with mothers in their network who were feeling a bit down and as consequence they met up for a coffee or at a drop in centre.

*"The other day I had a mum who sounded a bit fed-up on FB and as I was going to town I invited her to hook up for a coffee" (Breastfeeding Volunteer6)*

The ability to convey emotions via instant messaging and Facebook chats was also identified as one of the benefits of using this type of media to deliver support with breastfeeding, as noted by Breastfeeding Volunteer3:

*"When you use a discussion forum or a social network, it is much more interactive and depending on what sort of facility you use there are tricks for conveying emotions. So some of the websites have got these emotioncom things where you can do winks, smiles, you can get across something of what is the meaning of what you are saying than just the word. I thing that can be helpful..." (Breastfeeding Volunteer3)*

Home visits are one type of intervention the supporters can offer to breastfeeding women. These visits are generally arranged via the help line or in cooperation with health visitor. Breastfeeding Volunteerr6 described the use of a text message service to arrange home visits:

*“We arrange home visits by text as well. So, if mum wants a visit she can text and we’ve got in Sandwell a mobile phone we use for our peer support programme there.”*  
(Breastfeeding Volunteer6)

Reassuring mothers of how well there are doing with breastfeeding their babies is a fundamental part of the support provided by the breastfeeding supporters.

#### **4.2.1. Empathy**

Listening and being empathetic are fundamental skills involved in breastfeeding support. The participants in the study, regardless of their role within the Breastfeeding Network were training in those skills to deliver breastfeeding support. The women in this study also had different experiences with using Internet and mobile applications to deliver social support to breastfeeding women. Emails, internet search, text messages and social network were the used applications by the women.

The participants in the study thought that Internet and mobile applications were helpful to convey empathy to breastfeeding women. Breastfeeding Volunteer7 talked about her experience of using emails:

*“... Basically I will go on daily and check for emails coming to the ABM from mums and I organise the rota so people can answer then in turns, I make sure that they are all answered. The more complex ones are answered by the more experienced people... It is important that we can try to replicate the type of conversations we have when delivering standard support. We try to read between the lines, because you are used to have these kind of conversations. We try ask questions in a way that the women in the other side can talk openly about who she feels and then we can help her. I think you’ve got a team of about 10 to answer them.”* (Breastfeeding Volunteer7)

Breastfeeding supporters are mothers themselves and as such they understand how an empathetic comment can support and help a struggling mother and allow for social interaction. Breastfeeding Volunteer9, who is very involved in using Internet applications and maintain her own web site on infant feed shared:

*“It used to be through a website which used to have a message board on it called iVillage which I was just a board member when I was pregnant... So basically me another friends campaigned to get them to open a specific BF discussion board support which they then did and I ran for 8 years until this summer.”* (Breastfeeding Volunteer9)



The supporters also understood the importance of empathy and support in the first weeks after a baby is born. The use of text messages to establish a first contact with a mother after the baby's birth was welcomed by the participants. They saw this as an unobtrusive way to "open the door" and offer help and support.

*"Inverclyde has been using txt message support for over a year now. The health board agency had a worker who set up and managed the scheme. During the antenatal class mums would sign up to the scheme and in their due date they'd get a txt how they are doing and a few days afterwards they'd get another txt asking if they'd like any support with BF. The idea is to make contact coming into the home in the early days when things are most difficult and being able to offer help and support." (Breastfeeding Volunteer6)*

*"Talk to peers can give mums who are finding it challenging to breastfeed confidence to ask for help. We have been at the same place and can certainly empathise with the issues they have. This may not always be the case with a health professional." (Breastfeeding Volunteer2)*

#### **4.2.2. Empowerment**

In the context of volunteering, empowered individuals have the feeling to be able to provide significant support to needy people and encourage processes that benefit the community (Kulik, 2007). With this in mind, the women discussed the influence of using Internet and mobile application in their feelings of empowerment.

Participation on Yahoo groups was seen as empowering, offering the opportunity to be in contact with other supporters, share information, ask questions and being up to date with the latest developments in breastfeeding support. This consequently made them feel more apt to fulfil their supporting roles Breastfeeding Volunteer5 noted:

*"We have supporters and helpers list which is Yahoo groups which gets used in various different ways, like seeking support for mothers they are supporting, discussion about BF issues, current affairs. It is actually well defined what it is for and because it is not real time most people have to log in to read their messages or have their message delivered daily, it feels quite different from using an online forum type of thing, a bit slower." (Breastfeeding Volunteer5)*

*"With the Yahoo groups you don't need a home computer to access it, if you have a computer library you can access to it and you can still be part of that virtual network, even*

*you don't own a computer yourself. You can have an email and access any groups we have." (Breastfeeding Volunteer6)*

Search engines were seen as very helpful when delivering breastfeeding support, particularly over the phone. Breastfeeding Volunteer3 reported that it helped them to look for information and guidelines during conversations or email responses:

*"But if I get a mum who phone and she hasn't got internet access and she wants to know what BF groups are in different areas in the country. I mean I do default line call, which means I can take calls from anywhere in the country. So if I want to find out it is just so quickly and easy to log on and do a search. Go on the BfN website and see if there are any groups. Or post a message asking if anyone knows of a group near to a postcode or whatever. Then you could find out that kind of thing without the Internet but it would take a long longer and you wouldn't be able to tell her then and there. You'd have to get back to her the next day or whatever." (Breastfeeding Volunteer3)*

The volunteers also reported using search engines for their own education and information, to allow them to explore new developments with breastfeeding practices, drugs advice and research:

*"If I get a phone call particularly because I am just getting back into supporter, to make sure that I am most up to date with all information. I know some of the leaflets have changed recently and they are all on the BfN website, so I tend to download or look up in the drug information sheet. Things about BF groups in different areas and that kind of things" (Breastfeeding Volunteer1)*

#### **4.2.3. The Benefits of Internet and mobile applications to deliver breastfeeding support.**

The supporters talked a great deal about the benefits of using Internet and mobile applications to deliver social support. This was a great drive for them to incorporate these applications in their activities.

The participants thought that having a twenty four hour communication channel was very beneficial to both mothers and supporters. Breastfeeding Volunteer5 pointed:

*"It is a good idea to have the email address and use it to support 24 hours. The only time mums can approach someone is probably out of these hours. It is good that the mums can send questions in the night and in the morning someone picks it up and can answer accordingly with the urgency of the issue. I think it is quite a big potential. I am aware that*

*some mums use the internet quite a bit. They don't have to go out anywhere, they don't have to engage in a telephone conversation to find information. In that way I think the internet is a good idea that there is no a time limit to it." (Breastfeeding Volunteer5)*

Breastfeeding Volunteer7 highlighted the usefulness of a 24 hours email support service, so the mothers can send in their problems at any time that might find it convenient:

*"I mean email is very stable. I can send emails from a web address I use web mail to send those. Mum can email in the night is something they can do if they are desperately and get a response next. Our email counselling we say we aim to reply within a week but often we reply within 1 or 2 days. If it is something that really needs to be answered within 1 or 2 days sometimes it is better for the person to ring". (Breastfeeding Volunteer7)*

The participants in the study thought that using emails or text messages to support breastfeeding women was a less intrusive way to engage than a phone call, for instance. It allowed them to exchange support and information and fit it within their schedule. For instance if they were in the middle of cooking dinner or dealing with a behaviour issue with their children, a phone call would interrupt them. With a text message, they can respond to it when they are in a position to do so. That was seen as quite positive by the participants, particularly those with young children:

*"I think txt messages would be a very good way forward because it is much less intrusive than with a phone call you need to be able to sit down however long to have a conversation." (Breastfeeding Volunteer2)*

*"I mean I know that these days we are very much on demand, but I find with the text if I am very busy and I haven't time to look at my phone I and I know I have a message and I will respond. But then it is up to the mum when she comes back to me. It doesn't interfere too much with your life. You don't think now I've got to go and do some BF support now. It can be done without being tied to a pre-set time." (Breastfeeding Volunteer6)*

The content of a text message was also seen as slightly different from the content of an email message, for instance. Breastfeeding Volunteer2 identified the content of a text message as more immediate questions than what one you've got on an email:

*"With txt messages the mums can txt when they have a free moment and you can respond when you have a free moment and it is less of an interruption if you are in the middle of cooking dinner or dealing with a toddler. I can see messaging being a very*

*valuable resource as far as support goes. Especially if you can do things like multimedia message attaching pictures to illustrate” (Breastfeeding Volunteer2)*

Breastfeeding Volunteer4 perceived that the mothers she had supported preciously using either text messages or emails felt reassured and very grateful. That was quite positive from the point of view of those delivering support:

*“Most mums I’ve helped in this way (email, txt), they’ve been really grateful that I’ve taken the time to do it. They have been happy that they had it and it’s been there.” (Breastfeeding Volunteer4)*

The opportunity to see friends and peers online and ask a question that has just popped into one’s mind was noted as a benefit. The participants had mentioned previously that emails were the most used application amongst them to provide support to breastfeeding women. The ability to reflect on the content of a particular query, before answering was cited as a benefit to using it to provide support. This allowed the supporters to search for further information and “enrich” the content of their answers, as pointed by Breastfeeding Volunteer10:

*“But the good side is that you can sometimes, especially with emails you can take time to think about it. SO you can put it together in a word document, and I know some of the people who do it often actually have, they might have a document there on mastitis that they can cut and past6 from. And that I think is a good side, you could have the same with thrush and position and attachment one. So that is a good side of it.” (Breastfeeding Volunteer10)*

The facility to allow a mother to put into words her concerns after thinking about them during the night or in a calmer period was another perceived benefit of using email to support breastfeeding. The nights are normally a period when the mother has a bit more of time to think about what is the issue she is facing and consequently to verbalise it in a more coherent form.

A number of concerns were voiced by the participants of this study. The genuineness of the information available on the Internet was one of the most prevalent concerns amongst the participants. They all talked about the amount of information available on the Internet and how much they fear some of this information is misleading, untrustworthy and biased. This can affect the women in both side of breastfeeding support: the mothers who use this information and the supporters who can potentially use this information to support women, as noted by Breastfeeding Volunteer1

*“There is so much stuff in the internet anyone can set up a website with or without an agenda. The thing one needs to be careful is that the website you are using is genuine and the people offering support actually do know what they are talking about” (Breastfeeding Volunteer1)*

The participants were also concerned about information that is sponsored by formula feeding companies. They were very uneasy about this, as it infringes the WHO code of ethics in which formula feeding companies are not supposed to advertise their products to babies under 6 months old. Breastfeeding Volunteer3 noted:

*“Even things like Netmums basically it seems that people who have a business that seem to post. People have got their own agendas. They might be saying the same thing but it might not be the right think. It is not posted by something like Aptamil. Cow & gate have a different agenda.” (Breastfeeding Volunteer3)*

The lack of context with Internet and mobile applications was also a concern mentioned by the participants. The difficulty to understand the context and the lack of and face-to-face experience present in this type of media was thought to be potentially misleading.

The need to have a great number of emails or text message exchange in order to get to the “bottom” of the issue was also cited as a potential problem with this type of media. It can become a time consuming exercise and potentially jeopardise the support. Consequently this can lead to a fail delivering the right information to support women to make the best decision to address their problem, as pointed by Breastfeeding Volunteer10:

*“Yes, absolutely. I think a dangerous thing, and I don’t think it is necessarily dangerous, but I the danger with things like texting and anything else that is quick and you get that bold question, like I got a bold question. It was a very short question I got. And it was answer X and if I had answered X without thinking about it anything could have happen. Probably I’d not have heard from her again. And I’d not have known anything more. It may not have affect her so badly I have to say. However she got much more support from me than if I had answered in a variety of other ways. I’d guess but again I can’t know that for sure.” (Breastfeeding Volunteer10)*

The participants were aware of the platform Social Networks and Internet forums provide to disseminate information. Negative comments about breastfeeding and women’s experiences with it

can put women off doing it, perpetrate “old wives tales” and work to the contrary of the forum’s purpose, which Breastfeeding Volunteer4 saw as a downside:

*“And another pitfall with forums that are kind of quite open you get people posting of things all the time. In a way is lovely if you have a group of women that who have no training they might be supporting each other as we might imagine that it happen it the good old days on the corner of the street or whatever when everyone was breastfeeding. It allows communities of people who aren’t geographically close to become communities of BF women and to pass on tips. But of course you also pass all these myths as well and sometimes that gets perpetuated and there can be misinformation. And as a mother is perhaps difficult to sieve through and know what good information is. Because inevitable the downside of it is if we start talking about their issues all the mums that are surrounding there starting joining in and some of the things they suggest is not good. So at the moment we decided that we wouldn’t have this as mum to mum help service.”*  
(Breastfeeding Volunteer4)

The lack of personal engagement was also identified as an issue in Internet Forums, as well as the anonymous nature of it. As it is not possible to verify the identity of the participants of the forum, there was a perception amongst the supporters that one can find herself being pranked, wasting time with people who are not genuinely seeking help and being the target of malicious acts.

Security and privacy of Internet and mobile applications were also a concern among the participants of the study. The nature of the information they handle is quite personal, consequently participants were mindful of the potential issues that could arise from a security breach. Being able to offer information and support using these media in a way to maintain security and confidentiality was at the forefront of the supporters concerns.

How to protect information shared through mobile calls and text messages was a concern amongst the supporters. The protection of the supporters’ personal information was also an issue. In a traditional phone call the supporters felt more anonymous if compared with the mobile calls and text messages, as described by Breastfeeding Volunteer8:

*“If you are on mobile could people be in public places, would there be issues? I imagine that in a few years we’ll be doing it more, but I think we need to go slowly”* (Breastfeeding Volunteer8)

BfN Supporter 10 emphasized the importance of training the volunteers in how to protect the information they handled (their personal information and the mothers personal information) for delivering support using Internet and mobile applications:

*“I think it is important that supporters have guidelines to be able to support women the best way possible and keep with the quality standards expected from us. Consider training needs for the different Internet media and also privacy and security issues.” (BfN Supporter 10)*

However Breastfeeding Volunteer2 thought that the greater concerns about security and privacy were more prevalent amongst the older mothers and supporters rather than the so called “generation y”, i.e, children born from 1997 and 2002<sup>3</sup>:

*“They are not particularly bothered about it... I am not overly bothered about privacy but I could just be optimist that may be because I have not had any bad experience of my information being used. I can see that being an issue for some people but I think often younger mums feel a lot more comfortable with the social network side of things...” (Breastfeeding Volunteer2)*

Some participants were hesitant about extending the service to use videocalls. The most mentioned issue was around privacy and confidentiality. As breastfeeding support can be done from a home environment, Breastfeeding Volunteer8 felt that this could restrict their privacy. Having people looking into their homes and their children made them feel vulnerable:

*“And the other thing is the whole privacy thing of the rest of the family, you’d have to warn the rest of the family that you are in that room and you are doing that. I mean what if, for instance my son has got Asperger walks around the house in shorts all the time, if he was walking in background. Things like that you want to make sure it was private. This is not an issue for telephone support; if anyone walks in I just signal to be quiet.” (Breastfeeding Volunteer8)*

### **4.3. Online self-efficacy**

The concept of online self-efficacy has its roots in the Social Cognitive theoretical principle of self-efficacy as discussed in chapter 2. This entails the individual’s ability to use the Internet to “fulfil social support needs” (Eastin and Larose, 2005).

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<sup>3</sup> Term first coined in *Advertising Age*, Editorial: “Generation Y,” August 30, 1993, p. 16.

The participants in this study had different experiences and abilities with using Internet and mobile applications. Using online and mobile applications in the daily routine was common amongst the women taking part in this study. Emails, internet search, text messages and social network were the most used applications by the women. Some women used Internet and mobile applications very often and felt that the technology was an integral part of their daily routine. Breastfeeding Volunteer4 described her experience:

*“I use the Internet quite a lot in these days. I used it since before I had children with things related to having children I guess. I was using parenting websites before the birth of my first child. I guess got into that after a miscarriage, before the birth of my first child and I was looking for support. It wasn’t something that one talked a lot in real life so going online was a good way of finding anonymous support. I still use parenting websites and getting involved in discussions not only about things related to children but also politics.*

*I guess the Internet is part of my daily life and it has been I mean I’ve used the Internet since I was in my late teens. It is something I’ve used throughout my adult life and I see as another way to communicate really” (Breastfeeding Volunteer4)*

The women interviewed felt comfortable with using the Internet. Learning to use Internet and mobile applications was mostly done in a trial and error mode. The desire for improve knowledge was also present amongst the participants:

*“I do feel confident, not to the point I am doing programming, but using it and knowing pretty much the limitations of the technology and feel quite comfortable.” (Breastfeeding Volunteer2)*

*“For what I use it for I think it has been trial and error. Kind of sitting on my own and finding out what I am doing. It has grown a bit organically really the charities in their use of technology” (Breastfeeding Volunteer1)*

Some of the women had access to Internet and mobile applications, but they didn’t use it regularly. Breastfeeding Volunteer5 reported family circumstances influenced how often she accessed it:

*“Before my 3<sup>rd</sup> baby I used to access around once a week. After that I didn’t use it often at all. It was 5 months after the baby birth when I managed to look at emails and now probably around one each 2 weeks. Many people I know now use it much more than I do.*



*I think it is easier when it is just one baby only and it is still young and probably still has a long period of sleep. When my first was that age the internet wasn't that broadly used. If that was the case may be I'd have used the internet more because that seems to be such a source of information out there and it seems to give one a feel that one is not isolated in the world and can connect with other people in similar situation, can connect with family and friends easily even though they may be mile away." (Breastfeeding Volunteer5)*

Although the participants in the study had access to the Internet, some expressed their perception that there were a number of helpers and supporters without access to Internet and mobile tools, as noted by Breastfeeding Volunteer4:

*"I use computers a lot at work and it is no problem to use it at all. But I think there are quite a few supporters out there that don't use the Internet regularly to communicate electronic with other people." (Breastfeeding Volunteer4)*

The exclusivity of access to equipment was discussed amongst the women. Volunteers who were in employment didn't have to share equipment to access the Internet and often used either laptops or smartphones, and sometimes both. This obviously impacted the frequency of access to the Internet the women had. Breastfeeding Volunteer10 and Breastfeeding Volunteer9 who are employed noted:

*"I use it far too often – every day and feel quite confident. I use it basically for searching for things; I have a blackberry (from work) for internet access as well as the computer. I am supposed to use the blackberry only for work but it is as easy to use it at home." (Breastfeeding Volunteer10)*

*"I have a work laptop, a have a home laptop and a home PC and my smart phone. So, mostly, but I have a laptop through the NHS as well. I can't get onto FB through the NHS laptop for instance, but I can access emails." (Breastfeeding Volunteer9)*

However amongst the volunteers who stayed at home, access to computers was shared with the family and consequently they had less access to the Internet, as noted by Breastfeeding Volunteer6:

*"It can be difficult to fit in as my children are growing up and we have just one computer at home, but on the other hand you can do things quite quickly. Some people's jobs allow people to have 10 minutes here, 10 minutes but my job doesn't, I think depends on your job." (Breastfeeding Volunteer6)*

### 4.3.1. Network size

The participants talked about the size of their network and how they added, excluded and expanded it. In most of the participants their online contacts were a reflection of their real world contacts. Most of the participants added their offline friends, other supporters and mothers they were supporting to Facebook, mobile phones and emails. Breastfeeding Volunteer2 noted:

*“I don’t tend to support mums on txt, because I tend to keep my information within the organisation. I don’t tend to give out my email address. I have done txt support to friends and my trainees.” (Breastfeeding Volunteer2)*

Within the organisation, the supporters reported that the Yahoo groups allowed them to expand their online network, even though sometimes they had not met the person physically, as described by Breastfeeding Volunteer8:

*“The good thing about using the Yahoo groups is that I can be talking with a supporter for Scotland who I never met before, about something that she has experience with. For instance I had a lady who is blind coming to the support group the other day. I really didn’t feel I had enough understanding of her situation. So I posted a message on Yahoo and someone from Ayrshire responded. This supporter had helped a lady who was also blind in the past and I felt really lucky I could ask her questions. I added this lady from Ayrshire to my Facebook and now we talk every now and again” (Breastfeeding Volunteer8)*

### 4.3.2. Online support activity

The use of internet and mobile applications has affected breastfeeding voluntary organisations. Nowadays the use of websites to disseminate information and knowledge of breastfeeding practices is perceived as pivotal in their services. The voluntary women rely heavily on Yahoo groups to organise their work and to circulate information amongst them. Breastfeeding Volunteer10 pointed that although the growth in using internet and mobile applications to support breastfeeding has been a bit slow and somehow “organic”, this is seen as positive and with enthusiasm amongst the women:

*“I guess it has to be a bit chaotic as we are in the voluntary sector because we can’t run like a business. It is run largely by volunteer women in their home with kids in another room. I don’t know if it would have the same sort of appeal for people who actually work on it if it was more structured and business like. That said I think there is probably a demand from the users of the service, from mums with young babies, pregnant women, to have something that it is more systematic, because they don’t recognise the voluntary*

*sector. But should it come from the voluntary sector the structured support or should it come from the NHS? I don't know... Should the NHS provide the structure and stuff and we provide the filling the add-ons. If I have one wish for the BfN is that they'd provide pages of useful information on the website like the drugline stuff. We've got really good resources and leaflets we charge for, but if we provided them free of charge we could provide P&A information written by Lorna for example for everyone in the website. That's what my website did. So people can access to this information without having to pay for it. But we don't do that." (Breastfeeding Volunteer10)*

The participants also talked about their experiences with different applications to deliver social support. The participants thought that this was a good additional delivery channel, not a replacement for more traditional ones.

**Emails:** Email was the most used online application to deliver breastfeeding support amongst the women interviewed. Breastfeeding voluntary organisations have adopted this application to delivery support as an alternative channel. Often organisations offer a link from their website to allow women to send emails to their supporters.

**Instant Messaging and Facebook:** Although not very common, some supporters have used Internet messengers and Facebook chats to provide women with breastfeeding support. Breastfeeding Volunteer3 pointed that this tends to be a follow up from a previous contact with a known mother:

Facebook pages are used as information sharing point rather than exchanging personal details regarding to feeding difficulties. Facebook pages were perceived as not suitable to convey support, giving the sensitivity of the subject, as noted by Breastfeeding Volunteer8:

**Text Messages:** The use of text messages for supporting breastfeeding was also discussed during the interviews. Interestingly, the women identified two types of use for this application. Firstly, helpers and supporters talked about their personal use of text messages to support women. Mostly they use it to talk to women they have previously contact and a degree of friendship. Breastfeeding Volunteer2 felt that text messages allowed them to engage with these women in a friendly and informal manner, without requiring too much of their time, particularly if they were busy with children or domestic chores:

The other use of text messages to support breastfeeding was as part of outreach project sponsored by local health authorities. In some places, women have the opportunity to supply their mobile phone with the expected delivery date.

**Internet Forums:** Intriguing the voluntary organisation in the study did not host a discussing board or forum. The women discussed the importance of the moderator role in these types of application, and the dangerous of “perpetuate old wives tales”. The issue about sponsorship of such forums and independent information also came up. The participants felt that because of sponsorship deals, those forums aren’t really independent and therefore they prefer not to take part on it. Breastfeeding Volunteer4 comment on the assumed authoritatively role of moderators in such forums:

#### 4.3.3. Online support outcome expectation

The participants of the studies were mostly voluntaries. They had very clear anticipated benefits they would expect from spending time and effort support mothers to breastfeed, including online support. Breastfeeding Volunteer4 noted:

*“I have been a first mother and I know how hard it can be when you don’t have much support. I love what I do and I feel rather privileged to be able to help these women. I believe firmly that a breastfed baby is a happier baby in all senses. I think online support is one way to reach these women and therefore I am happy to do what I do.” (Breastfeeding Volunteer4)*

The participants believe that Internet and mobile applications can be incorporated further as part of the service offered to breastfeeding mums, to reach women in different sectors of the society such as young/teenager mothers, women who English is not the first language, women with difficult of locomotion or in remote areas and those with physical and emotional impairment. Breastfeeding Volunteer1 shared her expectations for reaching women in remote area where she is based:

*“I think there could be used for it for instance people in the islands and remote areas where there are that many people who aren’t breastfeeding.” (Breastfeeding Volunteer1)*

Using videocalls to delivery breastfeeding support was discussed by the participants in the study as a possible development to support women. There was a mixed response amongst the interviewees. Some of the participants were very supportive of the idea and saw this as a positive development, allowing incorporating the face-to-face element to deliver support. This would allegedly provide important and necessary cues when supporting women to breastfeeding their babies. These participants thought that this could potentially emulate the support obtained in drop in groups, with the possibility to address mobility and distance issues. It could also address personal issues such as lack of confidence some women experience with walk into a new and unknown environment,

particularly if they are struggling with emotional and mental health, as Breastfeeding Volunteer5 and Breastfeeding Volunteer4 pointed:

*“I like the idea of it. I think it is quite nice to have a technology like that. You have the more immediate help on the telephone line, but using Skype there is no charge for the mums. It makes it more obvious if you were getting prank calls for instance which can be a bit tricky to pick in telephone helpline as you just have the person’s voice to go by. If you were able to see the person face-to-face if in the video call you get a better impression a better understand, you can see who is there, a better understand of whom you are talking to.” (Breastfeeding Volunteer5)*

*“I think Skype would be very good actually. I think that would be a quite good way to actually access and see people when I am talking to them. You get to know more when you see them and use your intuition. I find that you literally miss half of the picture if you are only hearing, but then that does allow you time to tune in better if you are only listening. But generally speaking I’d prefer to see somebody.” (Breastfeeding Volunteer4)*

#### **4.4. Breastfeeding Self-efficacy and Online Support**

The participants believed that the support delivered via Internet and mobile applications was a positive endeavour used along with conventional support to influence how confident breastfeeding women felt, as noted by Breastfeeding Volunteer3:

*“The phone is more immediate, I think even with the calls we get from the helpline is actually really good to be able to email people with extra information. I can see them work in conjunction. I think it works some times for problems better. You have to ask more questions on email, which would happen more naturally by phone. I definitely think that it will grow...” (Breastfeeding Volunteer3)*

This was thought to influence how breastfeeding women feel about their ability to breastfeed. The women searching online support had the possibility to extend their network of support, particularly through the use of social networking and text messages. Some antecedents of breastfeeding self-efficacy were thought to be influenced by the support delivered using Internet and mobile applications.

#### 4.4.1. Performance accomplishments

The supporters thought that women who had a previous positive breastfeeding experience, felt more inclined to share and participate in social networks or forums, as pointed by Breastfeeding Volunteer6:

*“Although the moderator role is really to make sure that people are following the rules of the website there was a sort of unspoken idea that the people that were moderating that website, which wasn’t just me, would be people who knew something about feeding babies and would be able to reply with helpful information and signpost people to the right support and generally making sure that the information that people were giving balanced information and there was some accuracy on what people were told”*  
(Breastfeeding Volunteer6)

#### 4.4.2. Verbal persuasion

The participants also thought that Internet and mobile applications provide an alternative channel for the supporters to verbal persuade mothers of the benefits linked to breastfeed, which in turn can influence the mother’s self- efficacy feelings, as observed by Breastfeeding Volunteer9:

*“Once I had my son I realised that the support needed amongst BF women is very different from the support that is needed amongst a group of women who’s had babies and chosen not to BF or has been unsuccessful with BF...Doing so using text messages or emails is a good alternative option* (Breastfeeding Volunteer9)

### 4.5. Chapter summary

In this chapter I presented the themes arising from the interview study with breastfeeding peers supporters. The themes reflected the supporters’ experiences, views, concerns and expectations of using Internet and mobile applications to support women with breastfeeding.

All participants in the study agreed that using Internet and mobile applications is a way forward to extend the reach of support delivered by breastfeeding support organisations. All participants had access to Internet broadband and mobile phones. Internet applications used by the participants to deliver support included emails, social networking, Internet Forums and Instant Messaging. The participants also used extensively text messages to exchange support information with mothers. Some participants also used smartphones to access the Internet and to use Internet applications.

The impact of Internet and mobile application on the running of the voluntary organisation was also discussed by the participants. The supporters rely heavily on these applications to organise their

activities and training and to share information amongst them. The participants also discussed their expectations with regards to develop further the services, particularly through the use of face-to-face element provided by videocalls.

The participants reported a positive experience with delivering support using Internet and mobile applications. They felt that through using online social support they were able to deliver a new level of service. This new level of services had its own challenges, risks, benefits and promises. They also felt that the women who they had supported through these applications felt happy, positive and supportive.

The participants discussed the impact and benefits of Internet and mobile applications had in their breastfeeding support activities. This included the opportunity to reach breastfeeding mothers outside their geographic boundaries, to provide a 24 hours facility for women to contact support services, to provision of an open and multidisciplinary environment to discuss breastfeeding issues. The possibility of self-education and the ready available of information was also identified as some of the benefits of using Internet and mobile applications to deliver support to breastfeeding women.

Concerns about the use of Internet and mobile applications were also discussed by the participants. Privacy and security issues surrounding the use of these applications were amongst these concerns. The participants were particularly concerned about how to protect the mothers' personal information shared with them and also their own personal details. The need for standards and training to address these issues was also a concern amongst the participants.

The next chapter presents the result of the second part of study. The results presented in next sections supports further understanding of how the women involved in this research use Internet and mobile applications for breastfeeding support.

## **Chapter 5: Breastfeeding women use and perceptions of online social support**

### **5.1. Introduction**

This chapter presents the results of the second part of the study. Interviews were conducted with women who were breastfeeding at the time of the study. The women were recruited in four breastfeeding support group in the county of Berkshire (England) in the towns of Maidenhead (2), Slough (1) and Burnham (1).

As mentioned previously, I had access to these groups as result of my involvement with the breastfeeding network. I was able to talk to the women attending to the support group and explain the research. The women who indicated willingness to take part in the study were recruited and the interviews were conducted during their visit to the support group. The interview study had the objective to explore the participants' perceptions of using online and mobile applications to obtain breastfeeding support.

All the women in this study had some sort of experience with using online and mobile applications as part of their daily lives. Some of them had used these applications to obtain support with breastfeeding. Most of the women had Internet access at home, with the exception of one participant who accessed the Internet via her local library.

The thematic analysis was conducted as suggested by (Cohen, Kahn and Steeves, 2000), in line with a hermeneutics phenomenological approach adopted by this research. The presentation of the results of this study are organised around the five major themes that emerged during the thematic analysis as presented in table.

The presentation of the findings are organised in accordance to theoretical tenets of the framework proposed in Chapter 2, based on the Social Cognitive Theory. All the themes generated during the thematic analysis are summarised in table 7.



	Major theme	Sub-Themes	Key Issues
<b>Social Cognitive Theory Framework</b>	Online social support	<ul style="list-style-type: none"> <li>➤ Elements of online social support</li> <li>➤ Empathy</li> <li>➤ Empowerment</li> <li>➤ Benefits and concerns of using online social support during breastfeeding</li> </ul>	<ul style="list-style-type: none"> <li>◆ Extended hours support</li> <li>◆ Alternative support</li> <li>◆ Information access</li> <li>◆ Weak ties relationship strength</li> <li>◆ Overcoming of geographical, stigma and mobility issues</li> </ul>
	Online self-efficacy	<ul style="list-style-type: none"> <li>➤ Network size</li> <li>➤ Online support activity</li> <li>➤ Online support outcome expectation</li> <li>➤ Perceived social support</li> </ul>	<ul style="list-style-type: none"> <li>◆ Incorporation of offline activities and peers into online experience</li> <li>◆ Participant's family circumstances</li> </ul>
	Breastfeeding self-efficacy	<ul style="list-style-type: none"> <li>➤ Physiological and affective states</li> <li>➤ Vicarious experience</li> <li>➤ Verbal persuasion</li> </ul>	<ul style="list-style-type: none"> <li>◆ Role of online social support in dealing with stressful situations</li> <li>◆ Exchange thoughts and experiences as they are happening</li> </ul>

Table 8 - Second part of the study: themes and key issues

## 5.2. Online Social Support

The participants talked about the support they had received throughout their experience with breastfeeding. Family, friends and peers were mentioned as source of support. The participants talked about how mobile and Internet application helped them to be in touch with them. These people were seen as trusted source of support. The participants had confidence they would get good advice from these people. The participants chose people that they thought had either knowledge or experience with breastfeeding or people they felt gave them empathy and could understand their context, as pointed by mother 6:

*"I am part of the NCT group, and we talk a lot about breastfeeding. That is a major source of support for me. We talk about our issue and share our approach. In the end I feel I can make my own decisions without necessarily having to do the same as other people. This is quite good" (mother 6, 3 months old baby)*

Importantly the people chosen to provide the participants with online social support were seen as the ones who could provide information, without pressuring the participants in any direction as described by mother 4:

*"I like talking to the supporters in the clinics, because you don't feel you are being judged. I have seen mothers coming up to them and asking about mixing feeding or even bottle feeding. They are helpful to give you information and support without pressuring you. I couldn't cope with someone telling me what to do all the time, I feel I need to make my own mind." (Mother 4, 6 months old baby)*

The four elements of social support were present in the data collected throughout this study. Breastfeeding supporters were seen as good source of information, and the information available on the breastfeeding support organisation were seen as trustworthy. Mother 3 felt she could approach the supporter and receive information to support their decision:

*"I went to a drop-in centre because baby was having green poo. I had googled before and found some information about what could cause it. Still I felt I needed to go and speak to someone who was trained in this area. I prefer to use information from websites like La Leche of the Breastfeeding Network. These are serious organisations and I have confidence in the information from there, as opposed to things anyone can put up on the Internet" (mother 3, 3 months old baby)*

Mother 5 also reported to use search engines and "trusted" website to obtain information to support her decision making process:

*"If I need to know anything I always Google before I even talk to anyone. I do feel it is important to me to gather information from various sources before I make a decision" (mother 5, 7 months old baby)*

Mother 3 talked about the support they received from their midwives in the first days after delivery. She felt confused with the different information she got from different midwives visiting her in different days:

*“It’s bizarre, because every people you see say different things and that really frustrates me. One midwife said the baby’s poo was green because I was giving him too much foremilk. She suggested that I empty one breast before giving her the other breast. The next midwife suggested that I’d leave him on the breast for 10 minutes and then offer him the other breast.” (mother 3, 3 months old baby)*

For this mother having the support of peers was fundamental to decide what to do, as they’d get together and talk about the different advice and information each one got and then she’d feel more able to choose a way forward to deal with her issues, despite getting different information from different midwives:

*“we all talk to each other (NCT group) and I sort go on my own intuition and I read for myself and I make up my own mind, I am collecting my own information and then make a decision, but that’s me...” (mother 3, 3 months old baby)*

Mother 7 talked about the change on weaning practices since she had her last baby and how finding information on the Internet and then further talking to a breastfeeding supporter influenced her choice of weaning:

*“When I first weaned my oldest son, it was 3 months we’d give them baby rice. With second baby there was a change in the guidelines and breastfeed exclusively until 6 months was advised, which I did. However with baby number three, I discovered the concept of baby lead weaning. I came across with it when searching for weaning guidelines. I really liked the concept and I was lucky enough to have a brilliant breastfeeding supporter who knew a lot about it. Baby number three never had pureed food, she went straight on feeding herself at 7 months. That meant she could seat with us and entertain herself while I was able to give attention to my 4 year old. (mother 7, 15 months toddler)*

Mother 4 found very helpful to be able to obtain information via email:

*“I wanted to have a glass of wine when she was around three months and wasn’t sure whether this would be OK with baby. I really didn’t feel easy to ask the supporter or the health visitor as I didn’t want them to have a wrong idea. So I emailed the ABM. I got a really good reply, not judgmental but with the facts and risks. There is a lot of stuff on different websites, but I really wanted to have a balanced view on the issue. I decided to express before I had ½ glass of wine and my partner fed her. It was really good to have a bit of wine without feeling guilty. (mother 4, 6 months old baby)*

Obtaining information using search engines and trusted websites helped mother 4 to recognise the symptoms of mastitis and to act timely to avoid further complications and possible breastfeeding discontinuity:

*“It was good to nip the mastitis on the bud. I had fed previously my two children and had a great experience. I really want to do the same for her. Getting the right information and antibiotics made a big difference. I have friends who had it and couldn’t continue with breastfeeding. The support from the breastfeeding helper was very important, as she got me through it.” (mother 4, 6 months old baby)*

Emotional support obtained from friends, family and peers during the participant’s experience of breastfeeding was pivotal for the success of their experience. Internet and mobile applications allowed an extra channel to contact friends, peers and families and consequently obtain emotional support, as described by mother 1 and mother 3:

*“Our group do text each other quite a lot. When we are confused, a bit down, tired, irritated the list goes on... It is good to feel that there is someone that you can just text without having to spend a lot of time explaining the context. They just know what’s up and tell you something that will help you to feel better” (mother 1, newborn baby)*

*“My iPhone is my contact with the world these days...” (mother 3, 3 months old baby)*

Curiously obtain support using forums was the least preferred form of online support amongst the participants. Mother 6 noted:

*“I really don’t have time to be looking into forums. I personally find my routine busy enough as it is, let alone to try and follow threads. For me with young babies is too time consuming and confusing” (mother 6, 3 months old twins)*

Being able to write an email “offline”, was seeing as a good fit for breastfeeding women wanting to explain their issues, but without much time to do it during the day, as noted by mother 4:

*“If I need to write an email with a question, nights are great. It is when I can think properly without any interruption from a toddler or a young child. Not only breastfeeding question, but anything. I just like the idea of someone somewhere will read my email and then I will get an answer in a few days. It is also good that when you are writing it gives you the opportunity to reflect on the problem and sometimes things don’t look the same after that. ” (mother 4, 6 months old baby)*

The mothers reported to use online social support to obtain instrumental support. Mother 6 shared how text messages allowed her to invite friends to come and help with her twins:

*“If I am really struggling for the day I will txt a friend asking if she can come over. It is always so much better to have someone at home with me.” (mother 6, 3 months twins)*

Internet and mobile applications also conveyed messages to provide the mothers with positive feedback of their efforts with breastfeeding, conveying appraisal support. Mother 6 noted:

*“It always makes me feel better when I get a text or an email from a friend saying how amazing I am doing feeding both babies. Officially people can tell you this when they meet you, but with text and emails you can read them again and again to remind yourself of the good things you are doing” (mother 6, 3 months twins)*

### **5.2.1. Empathy**

Empathy plays an important role in supporting breastfeeding women. The women in the study reported that receiving empathetic remarks and expressions was fundamental to help them with the emotional struggles they felt during their breastfeeding experiences. Mother 1 shared:

*“Sometimes I feel very worried I am not producing enough milk, particular when the baby is crying without an obvious reason for it. “Last week I did give him 60 ml of formula, as I couldn’t think of anything else that be causing his distress other than hunger. I felt a bit bad about it, but when my partner came home he was really good and reassured me saying that it was OK and tomorrow would be another day. I felt better. Since then he has settled and I have managed to feed him exclusively” (Mother 1, 4 weeks old baby)*

The participants feel that when they are listened in a non-judgmental way they can work through their problems. Mother 6 reported that being listened to with empathy and being offered comprehensive information based on her needs was very encouraging and affirmative:

*“The main problem I had before I found the support group was that sometimes I felt as if I was not being listened to by the health visitor. She is a nice lady and has been helpful, but I just felt she didn’t have the time. Coming here is great because we can all talk. The supporters have been through this experience and they listen and give you very good information.” (mother 6, 3 months old twins)*

### 5.2.2. Empowerment

The women in the study reported that the social support they received from their family, friends and peers empowered them to deal with their difficulties during breastfeeding. Mother 6 noted:

*“Having twins and breastfeed them has not being easy, I can tell you. I couldn’t do it without a very supportive husband and family. I have wonderful friends who are always a phone call away. (mother 6, 3 months twins)*

The easy access to information and support through using search engines was mentioned by mother 4 as an empowering factor:

*“When you see the benefits of breastfeeding your child, and that is very easy to find using google for instance, you feel an extra boost. I want to do the best for him and definitely being aware of the benefits helps a lot” (mother 4, 6 months old baby)*

Being in control of what goes in the baby’s tummy and consequently being in charge of it gave a mother 2 a feeling of being empowered to breastfeed her baby:

*“I just feel like super woman producing all this milk and being absolutely linked to him” (mother 2, 4 months old baby)*

Being part of a peer-group also empowered the participants. Mother 3 mentioned that being in touch with her peers using Internet and mobile tools also empowered her to carry on with breastfeeding:

*“It really helps to get a text message, an email or a call from someone close to encourage me. As people are busier these days we might not get to see each other that often, but the reassurance you get from this is great” (mother 3, 3 months old baby)*

### 5.2.3. Benefits and concerns of using online social support during breastfeeding

Online support obtained in the form of Internet or mobile applications were seen as positive. Several benefits were attributed to this form of support by the participants.

Internet and mobile applications had an important role in allowing the participants to interact with their friends and peers. Mother 3 talked about how often she texted her friend who is also breastfeeding in the middle of the night, when they both were feeding:

*“We text each other in the middle of the night when we are doing a night feed... It feels like there is somebody else out there... because I am on my own in the night feeds, my iPhone is my contact with the world” (mother 3, 3 months old baby)*

Mother 4 also talked about how mobile applications are helpful to contact friends and family, particularly as her baby didn't have a set routine:

*“She is not really in a proper routine, she does sleep most of the night, but there is no set time for her to go down. Once she is asleep and I am sitting on the bed I use Facebook or text friends. I am definitely on my phone much more since she was born using Facebook or texting. You can't always get in a car and visit people, so you can feel a bit out of the loop... It stops you feeling so isolated” (Mother 4, 6 months old baby)*

Mobile application was seen as a good “fit” by mother 1 as her baby didn't have an established pattern. She could be in contact with her friends and peers whenever the baby was asleep:

*“I have Facebook on my iPhone and I use it, mainly when she is sleeping. Or I will look on my emails. It makes things easier as wherever I go I have my phone. I am not always indoors and if I am out and about visiting friends I can still use Facebook to know what is happening” (Mother 1, 4 weeks old baby)*

The participants also reported that using Internet applications is a good way to find out about health information they might need with regards to their own health or their family health, as noted by mother 7:

*“I tend to always google if I want to know more if I think there is something wrong with me or any of us” (mother 7, 15 months toddler)*

Mother 3 felt that using mobile and internet applications gave them the feeling of being connected and supported by friends, peers and family when she was recovering from a c-section:

*“I had a C-Section and couldn't drive for a few weeks. I exchanged a lot of texts, Facebook messages and emails. That was very helpful” (mother 3, 3 months baby)*

The convenience of being able to contact people, find information and share their lives with peers, friends and families at any time, from home and at a modest cost was another benefit noted by the participants. Mother 3 also mentioned the fact that she could text her NCT friend in the middle of the night without worrying they would wake anyone up or bother the babies:

*“It is great to have this ‘conversation’ with a friend who is also awake while everybody else is sleeping and it doesn’t disturb anyone” (mother 3, 3 months old baby)*

Mother 6 also thought as very convenient to be able to talk to people who were able to emphasize with them even when they could not leave the house when the twins were first born:

*“In the beginning with the twins was really hard for me to get organised to leave the house. Some days I just decided to stay in and take it easy. I would text friends and ask them to come over. Or I’d write of me Facebook something like ‘having a PJ day, anyone fancy joining us? which was good. Someone often enough would come over for lunch” (mother 6, 3 months twins)*

Mother 7 reported that once everybody is in bed she uses her computer to email friends, check her Facebook to found out what’s going on and to look for stuff:

*“It is like my ‘me’ time to do something else other than cook, clean, help the children with homework, school runs e the like. It is quite convenient to be able to do all of this without having to go out” (mother 7, 15 month toddler)*

The convenience of contact breastfeeding supporters using emails was also mentioned. Mother 4 stated:

*“I think it is quite convenient to be able to ask questions 24 hours a day to be know you will get a knowledgeable answer” (mother 4, 6 months old baby)*

The participants had several concerns about the use of Internet and mobile applications to obtain support during breastfeeding. Mother 1 didn’t like to take part in forums as she found them confusing and very ‘noisy’:

*“I went on a forum for breastfeeding and I found that a bit too much. It may be me, but having loads of people talking about their experiences, people I didn’t know, did not agree with me. I felt overwhelmed with it.” (mother 1, new born baby)*

mother 3 felt that there were too many conversations that were more confusing than helpful in forums:

*“I think because I was quite overwhelmed with the whole experience, forums on breastfeeding didn’t work for me... there were a lot of ladies I thought were being a bit bossy and too militant... I prefer to talk to people” (mother 3, 3 months old baby)*



The provenance of the information available on the Internet was another cause for concern. Mother 2 felt that not all information on the Internet could be relied upon:

*“I was looking for information on feeding patterns and in one forum someone was saying that feeding a baby on demand is damaging. That kind of information can make you very unsecure. I had a baby who fed a lot and that is the last thing I wanted to hear.” (mother 2, 18 months toddler)*

Information sponsored by companies was seen with reservation by mother 5:

*“Some websites of companies selling pacifiers don’t take into consideration that this can interfere with the feeding and lead mothers to believe that it is OK to give a new born a pacifier. I think that is really bad” (mother 5, 7 months older baby)*

The participants found that the amount of information available on the internet presented the risk of being overloaded with too much information. This could potentially have a detrimental influence in the process of making a decision with regards to important issues such as weaning, mix feeding, stop breastfeeding and looking after the baby. Mother 6 noted:

*“I really got fed up with looking for information when I was pregnant with the twins. I looked at several websites and forums, at I really found it overwhelming. I decided that I was going to wait until the babies arrive and then take as it comes. I think one can be too bogged down with things one reads. It is good to be able to find information, but in my case I just had to stop looking... (mother 6, 3 months old twins)*

The level of access mothers have to Internet and mobile applications was a concern amongst the participants of the study. Mother 3 expressed her concerns with mothers who don’t have easy access to the Internet:

*“there are a lot of people who don’t have access to the internet or smartphones. I am quite lucky to be in a situation we can afford those. But I imagine that there are a lot of women to whom this is not a priority, and that is an issue if you are thinking of doing online support.” (mother 3, 3 months old baby)*

In addition mother 3 expressed concerns about the availability and quality of connections:

*“Then we have people living in remote areas without mobile signal or unreliable internet access. Those people obviously can’t use this type of service” (mother 3, 3 months old baby)*

The participants also expressed concern with the prospect of women with inclination for depression or isolation to have this tendency accentuated by the availability of online support, as noted by mother 4:

*“I suppose one concern I have is with women out there that can be inclined to depression and find it difficult to relate in the real world. I am not like that, but I know a couple of mothers from my children’s school whom I wonder if that wouldn’t be the case” (mother 4, 6 months old baby)*

Confidentiality and privacy were discussed by the participants. Mother 6 didn’t seem very worried about keeping the contents of her conversation confidential:

*“I am aware that people can break into your email and bank account and this sort of stuff. But I think because I am exchanging texts and emails with not very important content, it doesn’t really matter if anyone reads. I suppose if I was talking about a serious disease I’d be more wary, but if people know about how many times I fed my children, it is not a big deal” (mother 6, 3 months old twins)*

However mother 2 noted about the use of forums:

*“Well anyone can join a forum and I am not sure if being to open about your issues is a good thing. Having said that sometimes it helps to get things out of your chest” ” (mother 2, 18 months old toddler)*

The use of videocalls to contact breastfeeding supporters was seen positively, however some concerns with regards to privacy were raised by mother 3:

*“I’d need to have met the supporter previously. I think it could a really good alternative way if you couldn’t go to a group, but I’d feel comfortable with talk about my baby with someone I never met before.” (mother 3, 3 months old baby)*

The same concern with privacy was present with using emails to obtain support, as noted by mother 1:

*"I am not uneasy with the idea, but I think the organisations must be able to keep that sort of information private" (mother 1, newborn baby)*

### **5.3. Online self-efficacy**

The participants reported feeling confident to use mobile and Internet applications to obtain social support. The participants described their use of Internet and mobile applications to obtain social support, which included emails, text messages, internet searches and social network. Mother 3 described her ability to obtain social support using Internet and mobile tools:

*"To me, this is part of my daily routine, particularly my iPhone. I text my friends and family to arrange to meet up, I facebook my thoughts and issues, I search for information including breastfeeding issues..." (mother 3, 3 months old baby)*

However mother 2, who didn't have Internet access at home reported using text messages as a way to contact peers and friends to obtain social support more often than Internet applications:

*"I can use the Internet when I go to the local library, which is good. But I use it more if I am looking for something. Every now and again I look into the forum from iVillage, I like it. Text messages are cheaper than a phone call and we can say loads through it." (mother 2, 4 months old baby)*

#### **5.3.1. Network size**

Participants attending to drop-in centres regularly said they really benefit from being able to attend to a group where everyone was breastfeeding. Mother 4 talked about how she grew her online network through swapping email addresses, mobile numbers and adding their peers from the breastfeeding support group to their Facebook and MSN networks:

*"If I can't come for one reason or other, I can always keep in touch via Facebook or text. It is a great source of support" (Mother 4, 6 months old baby)*

The participants reported the "transfer" of their offline support network into their online environment, as noted by mother 4:

*"I have many friends who I've known for ages who are also my Facebook contacts." (Mother 4, 6 months old baby)*

Mother 2 was a participant who used forums said that she'd also add contacts if she had established a good relationship via forums:

*“There is this particular forum about parenting that I’ve made a few online friends. I have not met any of them, but we talk online via the forum.” (mother 2, 4 months old baby)*

### **5.3.2. Online social support activity**

The women in the study reported that their online support activity was related closely to the struggles they were experienced. Internet and mobile applications allowed the participants to have an additional way to obtain support from their peers, friends and family, as noted by mother 3:

*“I have been on my iPhone much more since having her. I think it is quite good, because I can have it on my pocket, I can access my Facebook, text and look at my emails. It is much simpler than put the computer on. I speak my friends, text or ring my mum and Facebook a lot. It gives me a direct contact with the world. Obviously it is much better to catch up with people, but if you can’t it does help to have access to the Internet and things like emails...” (mother 3, 3 months old baby)*

It also allowed the participants to extend their friendships through sharing their intimate thoughts and feelings as they were happening, as shared by mother 5:

*“If I am having a bad day with baby, it is good to go on Facebook and kind of express my struggle. I will get messages from my friends which really help. It is like if I could share with them what’s happening and they will understand. It is also good when I can help a friend going through some difficulty. Sometimes you can arrange to meet up and have a good old moaning about things” (mother 5, 7 months older baby)*

Mother 5 also felt that sharing feelings and thoughts with their friends and peers as they were happening helped them to feel integrated and part of a community:

*“It also makes you feel part of a community. You can create events of Facebook and let all you NCT friends know, if you are arrange a coffee morning for instance.” (mother 5, 7 months older baby)*

Internet and mobile applications also allowed them to share photos and stories with their families, as it is not always possible to see parents, brothers or sisters. Sharing their babies’ development with their families made them feel closer:

*“I have a sister living in Australia, so I always sent pictures of her. I also Skype and she can see her. We can talk for a long time on Skype and swap experiences and stories. I think this a great thing. Otherwise I would feel that both my sister and I were missing out too much*

*on each the children growing up. Officially in the past people didn't have any choice, so I am lucky to be able to do that now" (Mother 4, 6 months old baby)*

Being able to contact breastfeeding supporters using emails or mobile phones was also seen as very helpful for not emergent issues. Mother 4 felt she could take the time to express her feelings and doubts using emails.

*"It was good to write an email about my doubts whether I should / could drink while breastfeeding. If I had gone to speak to someone I think I'd have found difficult. I didn't want for people to think I was an alcoholic or something like that. So I felt that writing an email would allow me to explain my question without feeling pressurised. I wouldn't have emailed if it was something I was concerned about like if the baby was unwell or something like that. But the question wasn't urgent and I didn't feel exposed. I think emails are quite good for this purpose" (mother 4, 6 months old baby)*

### **5.3.3. Online support outcome expectation**

Obtain accurate information was mentioned by mother 3 as an expected outcome from using online social support. This participant talked about being able to obtain information from trusted source to support her decision making process:

*"If I have any issues I normally go to the NHS Direct website or the BfN to get information to start with. It helps if you have an understanding of what the possible causes or solutions for the problem are before I talk to anyone else" (mother 3, 3 months old baby)*

Mother 3 went on to expand on her expectations of using online support:

*"Normally once I have an idea of what can be causing the issue, I then talk to my friends. Often we talk face-to-face, but if it is something I need to talk before I see them, then I either phone or text." (mother 3, 3 months old baby)*

Having a positive breastfeeding experience was mentioned by mother 5:

*"For me I think it is all about enjoying this amazing opportunity to feed my child. Whatever it is I use to contact my friends or family to obtain support, I do so I can enjoy it. I have a few friends who feel a bit obliged to breastfeed their children for a few months and I think at the end of the day they didn't enjoy it." (mother 5, 7 months older baby)*

Mother 2 mentioned that being able to feed their baby successfully was a motivation to use online social support:

*"I think like all mothers all I want is to do what is right for her. At the moment being able to breastfeed her is the right thing. May be I will stop in a few months, who knows..."*  
(mother 2, 4 months old baby)

Exchange social support and obtain help with the difficulties they were facing at any time of the day were also outcomes mentioned by mother 3:

*"The fact that I can talk to friend who is also breastfeeding in the middle of the night is great. Just a little exchange of texts when everything is quiet is quite good"* (mother 3, 3 months old baby)

#### **5.4. Breastfeeding Self-efficacy and Online Support**

The participants in the study reported that the support they obtained using Internet or mobile applications influenced how capable they felt to breastfeed their babies. The opportunity to use Internet and mobile applications to enforce their beliefs in how important breastfeeding was and how much the babies were benefiting from it was also seen as having a positive impact in the participant feelings of self-efficacy. Mother 6 noted:

*"Because I have 3 or 4 friends who had babies around the same time and we are all breastfeeding, we can text each other with messages to re-assure each other, to ask questions or to share how we are feeling, not exclusively about breastfeeding, but about the whole motherhood experience. I feel that I am part of a group that is pulling together to one direction, that give you a boost..."* (mother 6, 3 months old twins)

##### **5.4.1. Physiological and affective states**

The mothers in the study talked about their anxiety with regards to breastfeeding. First time mothers were more anxious than more experienced women as expected. First time mothers felt, as they didn't have any experience, they were not always doing the right thing. The main cause of anxiety amongst the participants was the perception they were not producing enough milk to feed their babies. The way the participants dealt with their anxiety over milk production varied.

Mother 3 expressed her milk to find out how much she was producing. She also rang the support line to talk about the issue. She felt reassured by the supporter and carried on with the feeding:

*"Baby was really distressed and I was really worried whether I was producing milk or not. I was given a pump, which was very handy. I was able to express and see that I was producing milk. I searched on Google for information on expressing and rang the phone line to talk to someone about it. I felt much better after I expressed, it put my mind to rest*

*to a certain extent. The lady on the phone line was lovely and gave me very good advice on expressing.” (mother 3, 3 months old baby)*

Anxiety about milk supply prompted mother 1 to attend to a breastfeeding group. She also rang the support line and talked about her concerns with a supporter. Having people with experience reassuring her of her ability to produce milk was a big relief:

*“I really felt anxious about producing enough milk. I am not sure why, may be it is because I don’t know how much she is taking and this used to make me very unsure. I feel less anxious now, because I can talk to the supporters and I can come here. They thought me which signs to look for to know whether the baby is taking enough. I guess I thought babies wouldn’t cry as much as they do and the obvious thing to me was to think that it was because she was hungry, which is not always the case...” (Mother 1, 4 weeks old baby)*

The participants in the study said that talking to friends, family or a supporter helped them to either overcome or manage the feelings of anxiety. Mother 6 talked about using text messages and overcoming stress through it:

*“If I am having a bad day, sometimes I just txt one of my NCT friends and say ‘It’s been hell today, fancy a cuppa?’ Or sometimes I will get a message like that. It is good to know that there are other people struggling with the same issue” (mother 6, 3 months old baby)*

Mother 3 talked about the convenience of Facebook posts in sharing her anxieties and the positive feedback from friends in overcoming stress through:

*“It is good to post something like: ‘My baby is crying since 05:30... I think I run out of milk. My friends know I am struggling and some post helpful and nice things back, some ring or text me.” (Mother 4, 6 months old baby)*

Being able to obtain the right information about milk supply, baby signs of being fed properly, how to position and attach a baby were important for participants to deal with their feelings of anxiety. Using the phone, Internet or mobile applications to obtain this support was seen as an easy and convenient way of doing so. This was not a replacement for a face-to-face conversation, but could be a parallel alternative to increase the communication channels, as pointed by mother 5:

*“If I am very worried about her taking enough or not I would go to the baby clinics to talk to a health visitor or a breastfeeding supporter. Having said that I have spoken to a*

*supporter on the help line and also done lot of Google search. All this helps me to know what to do.” (mother 5, 7 months old baby)*

All participants had experienced tiredness and fatigue during breastfeeding. Mother 5 and mother 2 talked about how it is hard to manage it, as they couldn't get away from it.

*“It is just a fact that having a new born baby equals to be tired all the time. He feeds every 3 to 4 hours now, but in the beginning was every two to three hours. I feel tired all the time. Sometimes I don't even know what I am doing.” (mother 5, 7 months old baby)*

*“It has been very tiring with a toddler and a young baby. I feel constantly exhausted, but I enjoy them. I know it will get better, so I keep telling myself.” (mother 2, 4 months old baby)*

Instrumental support was most needed to manage the tiredness with things like chores around the house and looking after the baby while the mother had a rest. Mothers and partners were the ones offering this type of support more often, as described by mother 2 and mother 3:

*“I am very lucky to have my mother with me for a few weeks. I have had an easy run, if compared with other friends, but even so I am exhausted all the time. So having my mother here has really taken the pressure off.” (mother 3, 3 months old baby)*

*“My mother and mother in law have been great. They take into turns to come over and help with the older one. I don't have a lot of rest, but at least I sometimes it is just me and baby, which really helps. (mother 2, 4 months old baby)*

Amongst women with more than one child tiredness was an even bigger problem to deal, as each child had different needs. Mother 7 expressed how important emotional support was for her, as despite the tiredness she still had to cook, clean, do school runs and manage to feed the baby:

*“I honestly couldn't do without having friends and family supporting me. I have had different experiences with feeding the children. The first baby was hard, but as it was the first I didn't have anyone else to worry about. I am glad it was a positive experience, otherwise I would probably not done it again. With the third baby, I have to carry on doing everything else. My husband is very good and my mum helps, so I can just about manage it...” (mother 7, 15 months old baby)*

Talking about their tiredness was seen as helpful, particularly talking to other women who had breastfed their children and survived it. Mother 6 talked about the importance of being encouraged



by her friends and being able to “put up” with the tiredness because of the benefits of breastfeeding the baby:

*“I come to the drop in centre and it really helps me to talk to the supporters. I know that breastfeeding won’t last for the rest of my life and in the long term she will benefit a lot from it. It is good to know that other people have gone through it and are now getting on with other things in their lives. It does help me to persevere” (mother 6, 3 months old baby)*

Mobility issues were discussed amongst the participants. Mother 6 experienced a c-section reported that it made breastfeeding initiation more challenging, much due to be less mobile and more house bound:

*“After the C-Section I felt very tired and drowsy. It was hard to start breastfeeding, but I was lucky to have a good midwife who really helped me. Doing simple things as picking baby up was not easy to start with. My husband did a lot of the picking up, bathing and stuff until I was back on my feet” (mother 6, 3 months old baby)*

Mother 4 experienced instrumental delivery found it hard to start breastfeeding, as she was sore and tired:

*“I had a hell of a birth and ended up with a vacuum assisted delivery, not the most pleasant experience I can assure you! The midwives were very good afterwards with the breastfeeding and there was a breastfeeding supporter in the ward who was also very helpful” (Mother 4, 6 months old baby)*

Not being mobile to start with reduced the women’s ability to go out and about, which in turn influenced how much the women felt isolated. Using Internet and mobile applications was seen very helpful to these women as they could contact friends, share their struggles and arrange to be visited, as noted by mother 6:

*“I couldn’t drive for over 4 weeks and as my husband went back to work I really felt stuck in the house. Obviously I could go down the shops, but I don’t live in the middle of the town. I was on FB and on emails with friends and family quite a lot. Text messages are really good as well. I also used Skype to talk to close friends.” (mother 6, 3 months old baby)*

Physical discomfort including sore and cracked nipples, engorgement, blocked milk ducts were experienced by the participants, as noted by mother 3 and mother 5:

*“I had terrible sore nipples to start with. It was really painful and it almost put me off the breastfeeding thing. The health visitor suggested me to visit the breastfeeding drop-in centre. That made a massive difference, as I learned what was causing the pain. The supporters have helped to put the baby on the breast correctly and the problem was sorted.” (mother 3, 3 months old baby)*

*“On day 5 or 6 I felt my breasts were so full and heavy, even my arms were difficult to move. It was difficult to put the baby on the breast and that was quite distressful. I had a leaflet for the supporter line and I rang them. I was taught about expressing to alleviate the fullness and how this would settle soon. I felt like Pamela Anderson!” (Mother 4, 6 months old baby)*

Mother 7 experienced an initial mastitis and reported:

*“After a few days breastfeeding I felt really horrible and had fever. My left breast was really sore and red. I wasn’t sure what the problem was so I went to Google and type ‘red breast in breastfeeding’. Mastitis came up and I rang the doctors. The doctor saw me and confirmed I was developing mastitis. He gave me antibiotics and recommended to see the health visitor. It was quite confusing and scare. I looked a lot on the web for information about mastitis. I also came to the breastfeeding club to get more information. The supporters were excellent and really helped me through it.” (mother 7, 15 months old baby)*

Physical discomfort represented a challenge to the women who wanted to breastfeed. Many of their friends had given up breastfeeding because of it. However, despite the issues faced by the women in the study, they all persisted with it. Mother 7 attributed it to the support they received in combination to their resolution to breastfeed:

*“It has not been easy to start with. The experience with mastitis was very unpleasant and physically challenging. I am very thankful for all the support I got. My husband and mother were a rock. The breastfeeding supporters were excellent and really helped me. What really got me through was to know that this is the best start for my baby. I guess I have been lucky to persevere” (mother 7, 15 months old baby)*

Having a number of online contacts was seen as a positive influence on how the participants felt about their breastfeeding experience. The opportunity to increase their online network through the new relationships formed as consequence of meeting new friends and peers through their breastfeeding experience was also seen as very positive, as noted by mother 4:

*“I do have quite a lot of friends on my Facebook. I tend to add people as I get to know them through coming here, or going to classes, or from my older children school. It is always good to have people you can talk to and can support you” (mother 4, 6 months old baby)*

The participants in the study reported an increase in their confidence to breastfeeding their babies through the support they obtained using Internet and mobile tools. The ability to share thoughts and struggles, to reach friends and peers, to support peers and exchange messages was seen as a positive influence in how the participants felt about their breastfeeding experience.

#### **5.4.2. Vicarious experience**

Participants attending to drop-in centres regularly said they really benefit from being able to attend to a group where everyone was breastfeeding, as noted by mother 4:

*“It is great to come here and being part of a group where we all have this thing in common. We get to know new people and their children. We talk about many issues and get to hang out outside this forum.” (Mother 4, 6 months old baby)*

Mother 4 also described how attended drop-in centres allowed her to swapped email addresses, mobile numbers and added their peers her Facebook.

#### **5.4.3. Verbal persuasion**

Online social support was able to convey persuasion amongst the participants. Mother 7 commented on her experience receiving supported messages from peers which contributed to persuade her to continue with breastfeeding, despite facing difficulties:

*“One of my friends who breastfeed her children has been very supportive, particularly when I had an initial mastitis. It was a great help to be able to ask a question or just got a text saying “I hope today will be an easier day. I was very determined to push through, but the support was very helpful also” (mother 7, 15 months toddler)*

Mother 5 described being in the other end of verbal persuasion, using emails e Facebook messages to encourage friends who are struggling with parenting related issues, including breastfeeding:

*“It is really interesting how we can use emails and Facebook to try and send something positive to friends who we know are struggling. Sometimes that is all what is needed to give us a bit of a boost.” (mother 5, 7 months old baby)*

## **5.5. Chapter Summary**

In this chapter we presented the results of the interview study conducted with breastfeeding women attending to breastfeeding peer support groups. The results were presented in the themes discovered during the thematic analysis.

The participants talked about their struggles with breastfeeding and how social support, including online social support, helped them to manage and overcome them. They also talked about their perceived benefits of obtaining social support using Internet and mobile applications.

The pitfalls and concerns of online social support were also discussed with the participants. These included the trustworthiness of the information available online, access to mobile and internet applications and issue with security and confidentiality of the information shared. Despite their concerns and reservations, the participants were in agreement that online social support is a desirable extra channel to obtain social support from families, friends and peers.

After the presentation of the results of the two studies in this research, the next chapter offers a discussion based on the Social Cognitive Theory framework to provide a rich and deep exploration of online social support for breastfeeding women.

## Chapter 6: Interpretation and Discussion of results

### 6.1.Introduction

This chapter has the purpose to analyse and discuss the results of the studies presented previously in chapter four and chapter five respectively. This research was conducted to explore role of online social support in the context of voluntary breastfeeding peer support in the UK. This research set out to address the question: why and how do breastfeeding women obtain online social support. To address the question two studies were conducted in this research. The first part of the study was conducted with breastfeeding supporters to explore online social support from the perspective of women providing breastfeeding peer support. The results of the first part of the study indicates that online support delivered by the participants in the study involved the elements of social support including instrumental support, informational support, appraisal support and emotional support. In addition the supporters indicated that the applications used to deliver online social support were able to convey empathy and empower struggling women to overcome their difficulties. The study also provided an insight on the role that Internet and mobile applications have assumed in a voluntary peer support breastfeeding organisation.

The second phase of this study was conducted with breastfeeding mothers attending to breastfeeding clinics in the county of Berkshire (UK). The study explored of the participants' experiences with using Internet and mobile applications to obtain social support throughout their breastfeeding experiences. The participants in this study shared their experiences of using this type of support and their perceived benefits and risks of doing so. The researcher also spend time in breastfeeding support clinics, observing how the women engaged with each other and exploring their use of online social support.

This discussion follows the proposal of by Cohen, Kahn and Steeves (2000) to conduct phenomenological with the purpose to produce "narrative text that accurately reflects the dialog that took place between the researcher and the participant with the aim to reduce as much as possible the bias the research brings to that dialog". The data analysis conducted previously pointed to a number of key issues applicable to breastfeeding women using online social support to obtain peer support. These key issues (table 8) are relevant in the discussion of the role of online social support within the context of breastfeeding peer support, as described in the table.

Major theme	Context	Key Issues
<b>Online social support</b>	Women using Internet and mobile applications to deliver social support in peer support context	<ul style="list-style-type: none"> <li>◆ Participants roles and responsibilities implication in online social support</li> <li>◆ An extra delivery channel to make a difference to struggling women</li> <li>◆ Extra social interaction between supporters and breastfeeding women</li> <li>◆ New developments and technology expectations</li> </ul>
	Breastfeeding women using Internet and mobile application to exchange social support in a peer support context	<ul style="list-style-type: none"> <li>◆ Extended hours support</li> <li>◆ Alternative support</li> <li>◆ Convenience</li> <li>◆ Information access</li> <li>◆ Weak ties relationship strength</li> <li>◆ Overcoming of geographical, stigma and mobility issues</li> </ul>
<b>Online self-efficacy</b>	Breastfeeding women and supporters using Internet and mobile applications to deliver social support in peer support context	<ul style="list-style-type: none"> <li>◆ Incorporation of offline contacts into online experience</li> <li>◆ Participant's family circumstances</li> <li>◆ Age irrelevance</li> <li>◆ Outcomes expectations: instant sharing, access to information and support with the intention to improve breastfeeding experience</li> </ul>

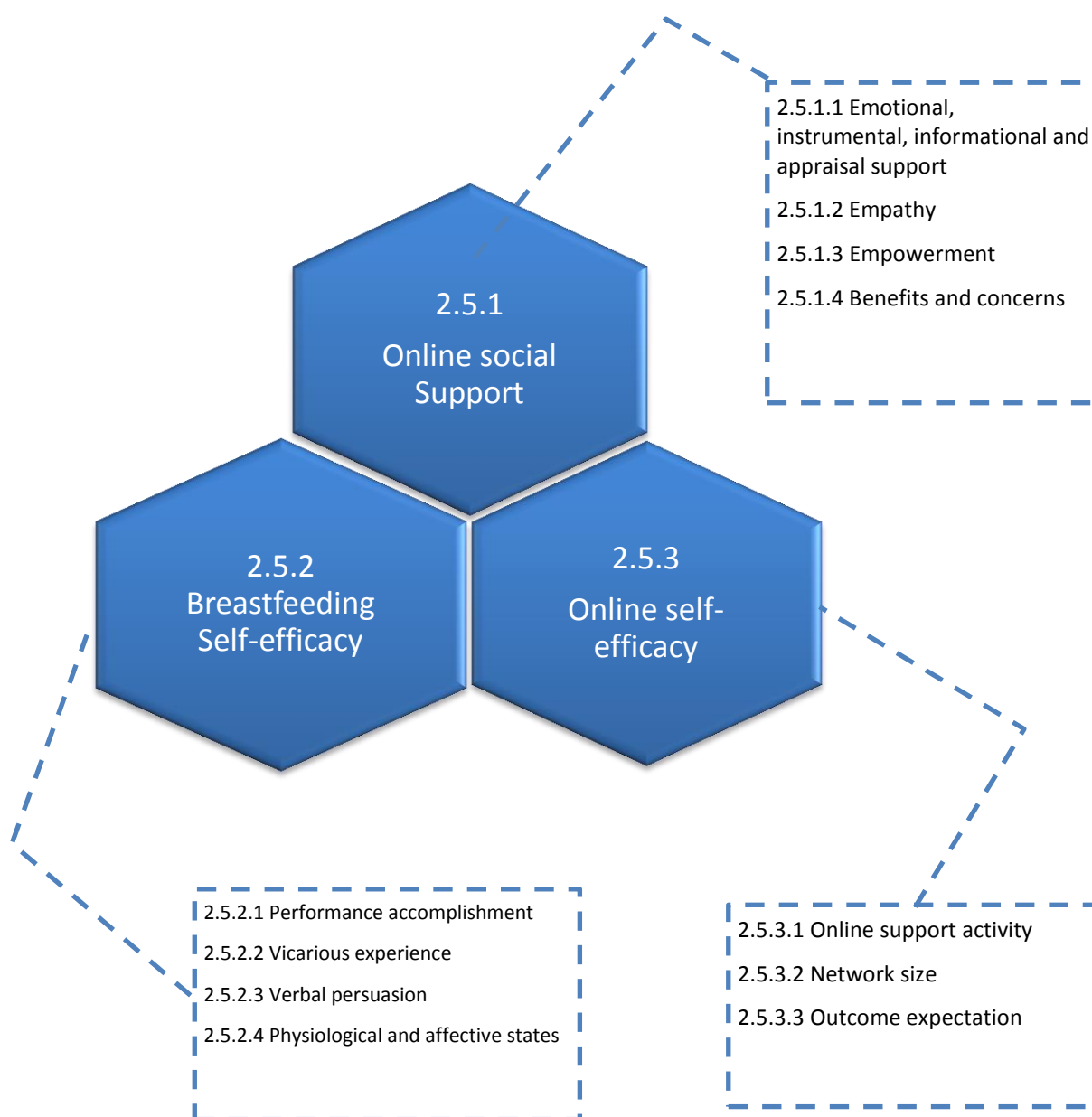
<b>Breastfeeding self-efficacy</b>	Breastfeeding women and supporters using Internet and mobile applications to deliver social support in peer support context	<ul style="list-style-type: none"> <li>◆ Breastfeeding supporters / helpers perception of how online social support influences breastfeeding self-efficacy</li> <li>◆ Role of online social support in dealing with stressful situations related to the participants' breastfeeding experience</li> <li>◆ Exchange thoughts and experiences as they are happening, to obtains emotional and informational support affecting feeling of breastfeeding self-efficacy</li> </ul>
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**Table 9 - Key issues for discussion of the results**

The participants in this research were inclined to believe that this type of support is helpful, appropriate and empowering. The results of the studies also indicated that women in this research involved in providing breastfeeding peer support as well as breastfeeding women use Internet and mobile applications to obtain social support. The women saw online social support as an extra channel to interact with other women, family and friends to obtain social support while breastfeeding. Breastfeeding mothers believed that their experiences' with online social support influenced their feelings of self-efficacy towards their ability to breastfeed their babies.

A few concerns and issues with regards to using online social support in a peer-to-peer breastfeeding support context were raised in the course of this research. This included issues with regards to privacy, confidentiality and trustworthiness of the information exchanged between peers and the information available on the Internet. Concerns about accessibility to online social support interventions were also voiced by the participants in addition to concerns related to the lack of context in online social support settings.

The theoretical framework (figure 8) was used to explore online social support amongst breastfeeding women. The framework is based on the Social Cognitive Theory and offers the structure to discuss the findings of the studies conducted in this research. The analysis and discussion of the results is divided into three sections: online social support in breastfeeding support, online self-efficacy amongst breastfeeding women and the influence of online social support in breastfeeding self-efficacy.



**Figure 8 – Research theoretical framework**

Before discussing the findings and implications of the studies, it is important to point out certain limitations. The data collected was representative only of people who chose to take part in the studies. The study with breastfeeding mothers did not include information about women who chose not to breastfeed. The women who took part in the studies had generally reported positive experiences with breastfeeding. This was reflected in their attendance to breastfeeding support groups and involvement in breastfeeding support. Therefore the beliefs toward online social support amongst women who had negative experiences or who chose not to breastfeed are not known in this research.



With these cautions in mind, the results of this research are helpful to address the question put forward at the beginning of the research. This includes the impact of online self-efficacy on social support for breastfeeding women. It also includes the influence of online social support on breastfeeding self-efficacy feelings and outcomes, the perceived benefits and risks associated with online support and ultimately the fittingness of this type of support for women while breastfeeding their babies.

## **6.2. Online social support for breastfeeding women**

Social support is an important factor during breastfeeding and has the potential to influence its initiation and continuation (Raj and Plichta, 1998). Breastfeeding women in this research reiterated the importance of talking and interacting with people who are able to provide them with social support during their breastfeeding experience. The women in this research voiced their views that face-to-face interactions are preferred to convey or receive social support, particularly in a crisis situation, as found in previous research (Dare and Green, 2011). However, like women facing other health related circumstances, the women taking part in the studies had also incorporated Internet and mobile applications in their daily routine and as a way to obtain social support from peers, friends and families (Evans, Donelle and Hume-Loveland, 2011; Hudson *et al.*, 2009; Han *et al.*, 2008).

The four elements of social support were found to be present in the online social support activities amongst the participants: emotional, informational, appraisal and instrumental support. The participants also believed that online support was a good alternative way to receive or convey empathy and empower breastfeeding women. The women taking part in this research used emails, social media, search engines and text messages as a way to exchange information, convey support and sustain or increase their social network.

Breastfeeding women have a great need for encouragement and reassurance (Graffy and Taylor, 2005) and the women in this research echoed this. The results in this research echoed the importance of receiving emotional support in a peer support setting during breastfeeding as shown in previous research (Thomson, Crossland and Dykes, 2011). Emails and text messages were particularly seen as appropriate for this purpose. Previous research had pointed to the use of emails amongst women to exchange emotional support (Dare and Green, 2011).

Similarly to breastfeeding women using emails to communicate with physicians (Thomas and Shaikh, 2007), the participants in this research exchanged informational support with their peers and breastfeeding supporters. However in this research there was a strong emotional content in emails

exchanged between the participants. It maybe because of the peer-to-peer context, the supporters not only provided information, but also tried to explore further the issue they were dealing with. Conversely Thomas and Shaikh reported emails with informational support content, without the intention to create a dialog with the breastfeeding woman.

Breastfeeding women exchanging emails with peers and friends saw this as an opportunity to write about their struggles, issues and obtain emotional similarly to the findings in Dare and Green (2011). The breastfeeding women in this research used the emails as a way to exchange social support with real world relationships and with breastfeeding supporters. Conversely, the breastfeeding supporters' experience of using emails to convey emotional support was mostly in response to inquiries from mothers experiencing difficulties with breastfeeding, who they didn't have any previous relationship.

This research uncovered the uses and importance of exchanging text amongst breastfeeding women and their peers to obtain social support during breastfeeding. Breastfeeding women and supporters' use of this type of support was influenced by its unobtrusive nature. Text messages fitted in with demands on time and the unsettled pattern of sleep experienced by the mothers, particularly mothers of young babies. They also allowed for the exchange of short messages at any time in the day. Although short, the messages had a deep emotional content and were seen as very supportive by the participants. Interestingly breastfeeding women in the study didn't feel that the lack of contextual information was problematic when exchanging text messages with their peers. This was attributed to the fact that they exchanged messages with close friends who knew them well and could put their text into context easily. The breastfeeding supporters were very supportive of using text messages as a gateway to initial contact with mothers.

The use of text messaging in health care is a well-established practice amongst healthcare workers using it to improve health behaviour such as insulin therapy management (Franklin *et al.*, 2006), compliance medicine taking (Márquez Contreras *et al.*, 2004) and appointments' reminders (Downer *et al.*, 2006). However this study points towards the role of text messages to exchange social support in a peer-to-peer context. Although previous reviews of text messaging interventions indicate its potential for education and training, its potential for social support seems to be little explored (Militello, Kelly and Melnyk, 2012; Krishna, Austin Boren and Balas, 2009). However, as shown in (Reid and Reid, 2010) text messaging can enrich one's social relationships, which is indicated also in this research.

Social media such as Facebook was also used to exchange emotional support and empathy amongst the participants in this research. The use of Facebook to obtain social support has been researched previously and it is thought to impact users in their ability to draw on resources from other members of the networks to which they belong (Ellison, Steinfield and Lampe, 2007). The breastfeeding women in this research perceived Facebook as a good communication channel to interact with people within their social network. Facebook allowed them to obtain information and support from weak tie relationships, which in turn help them to make decisions and overcome struggles. The breastfeeding women reported to incorporate their offline contacts from breastfeeding and antenatal groups into their social networks. This was reported as a bonding factor and very helpful in time of stressful situations. It is possible to conclude that the support exchange with weak tie relationships via this media had an impact the breastfeeding women feeling of self-efficacy.

However the breastfeeding supporters were quite opposed to using Facebook pages to convey emotional support publicly. They felt that this could potentially expose the mothers and would be in conflict with their code of practice in which they are committed to protect the privacy and confidentiality of people they were supported.

The emotional and appraisal content of the messages exchanged either via email, text or Facebook reiterate the role and the emotional strength of weak ties in online social support (Wright, Rains and Banas, 2010); (Boase *et al.*, 2006). In previous research peers and friends have been linked to a weak tie relationship (Wong and Shoham, 2011). However as suggested by Boase *et al* (2006), the peers and friends exchanging online social were able to provide influence and information. They exchanged message containing comforting, intimate and reassuring substance. Furthermore, despite non-previous relationship established, the messages from supporters to mothers were of a very emotional content and the mothers felt supported and reassured by them. For breastfeeding women, emotional support is directly linked to the amount of emotional intensity felt, the intimacy or mutual confiding and the degree of sharing through the use of Internet or mobile application between the mothers and her peers, friends or supporter (Granovetter, 1983), rather than only the amount time, interaction and affection typical in weak ties relationships.

The women in the study also used Internet and mobile applications to exchange informational support. Receiving informational support allowed breastfeeding women to evaluate their options when facing a decision and feel more control of their choices. Breastfeeding supporters used emails to send reliable information to the women they were supporting. Breastfeeding women obtained information from peers and supporters via emails, social media and text messages. In this context the information obtained by weak ties relationships had a strong influence on breastfeeding

women's decision making process. As the information came from non-authoritative sources, the women felt they could reflect on it and not pressurised in any particular direction. This was perceived as an empowering process by the mothers, similarly to women dealing with cancer (Fogel *et al.*, 2002), infertility (Malik and Coulson, 2010) and depression (Houston, Cooper and Ford, 2002). However in the case of breastfeeding women, the information received through online social support had the particular aspect that it often helped the women to make choices not only for themselves but also for their babies.

The personal empowerment amongst the participants in this research had similar processes as suggested by Barak, Boniel-Nissim and Suler in online social support. Breastfeeding women took the opportunity to write emails to ponder and reflect about their issues. As proposed by Barak, Boniel-Nissim and Suler (2008), through writing one has the opportunity to expose her deep feelings and find relief which can lead to "emotional catharsis". The participants felt that when they had the time to write to peers, friends or supporters with an issue helped them to understand themselves, their feelings and thoughts. This felt empowering in the sense that they could make sense of their situation and consequently see things clearly. However, for breastfeeding women the hectic life style can often be an impediment for them to find the time and the energy to do so.

Being able to access to information and knowledge was also empowering for the participants in this research in agreement with other women using online social support users such as cancer patients (Winzelberg *et al.*, 2003) and hysterectomy (Bunde *et al.*, 2006). The use of search engines to look for specific information or emails to contact peers or supporters to obtain information considered trustworthy empowered them to make decisions. Online social support amongst breastfeeding women allowed them not only obtain information but also share it with other peers. This was seen as an empowering experience, as suggested by (Barak, Boniel-Nissim and Suler, 2008) as it allowed the participants to be proactive and act not only as an information seekers, but also as an someone who possesses a vital and valuable experience.

Self-disclosure was also an important aspect of empowerment amongst the participants in this research. Amichai-Hamburger, McKenna and Tal (2008) suggested that self-disclosure present in online environments contributes to empowerment, as people disclose their thought more freely without need to build trust first. Similarly, in this research, the participants felt that online social support allowed them to share their thoughts and emotions freely with their friends and peers any time of the day using text messages, emails and social network in a non-judgmental way. This lead to the development of coping strategies and feelings of belongings which contributes to personal empowerment (Barak, Boniel-Nissim and Suler, 2008).

Interestingly, the women in this study didn't show much inclination to use discussion forums, where the online disinhibition effect is often observed and of lurkers and posters seem to be equally empowered (van Uden-Kraan *et al.*, 2008). This might have been because the women in the study had well established online and offline relationships and felt they were able to obtain online emotional, information, appraisal and instrumental support from their established networks.

Empathetic messages were exchanged by breastfeeding women and their peers, friends, family and supporters using Internet and mobile applications. These messages helped the women to deal with their anxieties and self-doubting. Similarly to the finds by Feng, Preece and Lazar (2003), the messages exchanged between breastfeeding women and supporters displayed empathy accuracy and supportive responses. This sustained the building of trust between breastfeeding women and their peers and supporters and was perceived as positive.

Benefits and concerns with regards to using online social support were identified in the course of this research. In accordance with previous findings in White and Dorman (2001), the participants indicated the extended hours access present in online social support as a benefit of online support. The mothers felt that being able to contact their friends, family and peers at any time and exchange information and support was very beneficial. The ability to overcome geographical distances and mobility issues were also benefits identified by the participants also as found previously in Finn and Steele (2010). The women in this research thought that this was quite relevant to breastfeeding mothers who lived in isolated places and those who had experienced difficult births or c-section deliveries. The supporters also identified online social support as very beneficial for women living in different countries from their families whose first language is not English.

The inconspicuous nature of online social support was also seen as beneficial and a good fit with the participants' lives (Reid and Reid, 2010). The mothers felt that text messages allowed them to carry on with their business while being able to exchange messages with their friends, peers and families. Supporters have similar perceptions of how online social support fitted in with their lives. It is important to bear in mind that most of the supporters were voluntaries and being able to offer support while carry out other activities was seen as a positive aspect of online social support.

The low cost of using text messages to communicate instead of mobile of phone calls was mentioned by the participants, similarly to findings in Reid and Reid, (2010). The supporters pointed that some women only have mobile phones to communicate and the low cost of text messages helps them to swap information and support which can be beneficial when facing a stressful situation.

A number of concerns have also been voiced amongst the participants. Although all the women in the study had access to Internet broadband, they all mentioned the lack of access to the Internet as a concern with using online social support. The issue of digital divide has been a present concern in the literature regarding to online social support (White and Dorman, 2001) and similarly this concern was voiced by the participants in this research. For this reason, the women felt very strongly that although online social support initiatives were a positive development, it was very important that it remained an extra channel to deliver social support. They were against any move towards replacing any face-to-face intervention with online interventions. Similar concerns were present in Roberts *et al.* (2009) when he explored the use of video support for infant feeding.

Issues with privacy, confidentiality and integrity of the information and support exchange were also mentioned as potential concerns. The women showed concerns with using information that could be potentially inaccurate, biased or incomplete to use as guidance, risks also recognised in (Ancker *et al.*, 2009). Interesting this concern was more visible amongst the supporters, who also cited lack of context and potential litigious outcome as result of misunderstood support received online. These concerns are also mentioned previously in White and Dorman (2001).

Personality traits might have had a role in how the women in this research used online social support. Previous research indicates that heavy Internet use in in specific domains such as gaming, entertainment and mischief, is associated to introverted personalities. This in turn affects the perception of social support in these individuals (Mitchell *et al.*, 2011). The researcher's observations during her visits to the clinics gave the impression that the women willing to volunteer as supporters are naturally more extroverts and confident. The same also applied to the breastfeeding women who were willing to attend to a breastfeeding group and forge new friendships through it. This results might add to the findings from (Swickert *et al.*, 2002) that certain personalities coupled with high online support activities influence positively the perception of online social support exchanged.

### **6.3. Online self-efficacy amongst breastfeeding women**

Online self-efficacy is defined by Eastin and Larose (2005) as the ability one has to use the Internet to fulfil social support needs. The results in this research indicate that online self-efficacy amongst breastfeeding women as well as breastfeeding supporters was influenced by their experiences, exposure and expectations of online social support as theorised by Eastin and Larose (2005).

Eastin and Larose (2005) initial modelling of online social support postulated a directed relationship between online social support activity and perceived social support. The results in this research indicated that the type and number of interactions between the mothers and their friends, peers

and supporters influenced how competent they felt about their ability to obtain social support using Internet and mobile applications. This contradicts the results found by Eastin and Larose (2005) after testing their model, as some activities took a long time to perform and were not seen as very helpful.

Interestingly in this research, the women's family circumstances influenced their online social support activity. Women with larger families with broader age range of children were busier and had less time to use Internet applications to obtain social support. For these women face-to-face contact and conventional phone calls were seen as more suitable to their situation and consequently they had less exposure to online social support.

On the other hand women with one baby or smaller families and supporters with grown up and independent children were more inclined to use email, social networking and mobile applications to exchange social support. These women had more exposure to using these applications and consequently they were more active in their online social support use. They also had higher expectation of using online social support to fulfil their emotional needs.

In addition, similarly to the findings of previous research (White and Dorman, 2001), (Hargis, 2001), age was not a predictor of how much the women in this research used online social support. The wide age range amongst the participants (26-59 years old) was an opportunity to explore its influence on their online social support activities. The breastfeeding women age range varied between 29 to 41 years old and this was not found to influence the women's online support activities.

Admittedly, the study did not recruit teenager mothers. This could have given a different dimension on online social support use in the context of this research, particularly with regards to online risks, self-disclosure and establishment of online contacts. Teenagers are known to use and benefit from online social support in similar manner as the women in this research, including using it as a source of information and support. Livingstone's (2008) study of teenager's use of social networking for intimacy, privacy and self-expression indicated their willingness to share personal information to a wide circle of contact, not necessarily close friends or people they had built an offline relationship previously. This approach influences how they disclose their feelings and exchange private information and thoughts.

Siriaraya *et al.* (2011) research shows that in one hand teenagers exchanged a larger number of empathetic messages in an online support community context. In another hand although they show a high level of understanding in this context, teenagers display a lower level of concern with peers in

the same situation. Consequently the lack of teenage mothers' participation in this study might have missed some important aspect on online social support for breastfeeding women, particularly as the teenager mothers population in the UK is considered one of the highest in Europe (Lawlor and Shaw, 2004).

The size of the online network of the participants pointed towards an interesting aspect. Contrary to findings in Nie (2001) the size of the offline networks amongst the women did not tend to contract as results of the online support activities. In fact the women online network tended to increase through the addition and /or reactivation of offline contacts as theorised by Eastin and Larose (2005). In this research some of the women had more online contacts, incorporated their offline contacts into their online social support activities more readily and consequently expanded their online network. Among these women their perception of being able to access social support at any time was a determinant factor in their online support activities. This behaviour was more common amongst first time mothers who were part of conventional support groups such as the NCT. The women relied on their peer network to obtain social support and often contacted each other via text messages, Facebook and emails. First time mothers also show inclination to contact breastfeeding supporters using emails if they had something they wanted to discuss, but it wasn't urgent.

Supporters also incorporated the women they were supporting offline into their online support activities. Often that would happen after they developed a relationship with mothers in a face-to-face environment such as drop-in centres, home visits or through support line. They would add mothers to their Facebook and swap mobile phone numbers, if they felt that was appropriate. The women's online support activities in this research did not contract the size of their offline networks as thought previously (Nie, 2001), but rather helped them to maintain and in some cases if even expand them, similarly to the finds in Eastin and Larose (2005) .

Outcomes expectations in the context of online social support are still poorly understood in the literature (White and Dorman, 2001). Outcome expectations amongst breastfeeding mothers, who used online social included to be able to share their thoughts, contact their friends when going through difficulties and receive encouragement, information and empathy.

Breastfeeding supporters used online social support with the expectation to have an alternative channel to reach women to deliver social support. The women perceived that the expectations of online social support were met and consequently this was a positive influence in their feelings of online self-efficacy.



#### **6.4. Breastfeeding self-efficacy and online social support**

Social support is thought to be influential and a predictor of the levels of breastfeeding self-efficacy (Dennis, 2006). The results of this research offer insights on how online social support elements influence breastfeeding women's feeling of self-efficacy. It also describes breastfeeding supporters' perceptions of how the support delivered online affects breastfeeding women's self-efficacy and breastfeeding outcomes.

Dennis (1999) theorises four antecedents to breastfeeding self-efficacy: performance accomplishment, vicarious experience, verbal persuasion and psychological and affective states. The results of this research indicate that online social support can be a source of vicarious experience and social and verbal persuasion, echoing findings by McCarter-Spaulding (2012) study of social support in breastfeeding. In addition the results of this research suggest that physiological and affective states can be influenced by online social support.

Breastfeeding supporters were women who had a positive breastfeeding experience and as such a "source of information about skills and abilities" (Dennis, 1999). Sharing their experience through online social support applications had the potential to affect positively breastfeeding mother's self-efficacy. The supporters act as role models and sharing their personal experiences with new mothers is a form to promote positive breastfeeding behaviours (Dennis, 1999). Online social support was an extra channel to share this information. The same also applied to breastfeeding women who shared their positive experiences with friends and peers.

Emotional and appraisal support deliver verbal persuasion to breastfeeding women, potentially impacting their level of self-efficacy (Dennis, 1999). The results in this research indicate the suitability of online social support to exchange emotional and appraisal support amongst breastfeeding women, their peers and supporters. The messages received by breastfeeding women were perceived as emotionally supportive and re-assured them of their ability to carry on with breastfeeding. Therefore the findings in this research can infer that online social support conveys verbal persuasion to breastfeeding women and consequently can impact their self-efficacy.

Physiological and affective states are theorised to impact breastfeeding women's self-efficacy either positively or negatively (Dennis, 1999). The results of this research indicate that emotional and appraisal support in the form of positive and re-assuring messages via online social support applications have the potential to buffer stressful situations such as tiredness and fatigue. Breastfeeding women receiving these messages felt esteemed and supported and perceived this a positive influence in their ability to overcome physiological and affective struggles.

Vicarious experience is associated to behaviour and observational learning (Dennis, 1999) and no evidence of it in an online support context was found in this research. The applications available for online social support at the moment are not suitable to allow for observational learning and demonstrations performance. However this can potentially change if videocalls are to be adopted by breastfeeding support organisations, women and their peers.

The relationship between self-efficacy and a desired behaviour is well established in the literature (Bandura, 1986). According to Eastin and Larose (2005) online self-efficacy beliefs plays a major role in the online social support process and will impact its desired outcome. In this research women displaying high online self-efficacy were able to use Internet and mobile applications effectively to engage with their friends, peers and family and obtain social support. The women also were able to transfer their offline contacts into their online activities to maintain and expand their source of support. Consequently these women felt supported to feed their babies, which was the desired outcome they had. The women in this research who were less able to use Internet or mobile applications to exchange social support still looked for support in traditional ways. The fact that they didn't use online social support as effectively as the other peers didn't influence their feelings of breastfeeding self-efficacy.

### **6.5. Chapter summary**

The results of this research were discussed throughout this chapter in an effort to offer an interpretation and understanding of online social support in the context of breastfeeding peer support. The theoretical underpins provided by the Social Cognitive Theory and a hermeneutics phenomenological approach were helpful to understand the mechanisms and processes of this phenomena and offer a rich picture of it in this specific context. This includes the discussion of the elements, process and issues related to online social support in each group involved in the process of online breastfeeding peer support: mothers and supporters.

A number of key issues identified in the data analysis were discussed in this chapter. These issues give an indication of the needs, expectations and concerns amongst breastfeeding women using online social support, which can be helpful in developing future intervention to support this group.

At this stage, online social support for breastfeeding women can act as an additional strategy to offer breastfeeding women access to emotional, informational, appraisal and practical support as well as empathy and empowerment mechanism.

## Chapter 7: Conclusions

This chapter presents the conclusions drawn after conducting this research. The chapter first offers general overview of the research and the overall conclusions achieved as result of the two interview studies conducted. This is followed by a presentation of the contributions of the research, including contributions to theory, policy and practice. The implications and limitations of the research are discussed at a later part of this chapter followed by an indication of future work to be carried out. Finally the researcher's personal reflection of the process, experiences and outcomes finalise the chapter.

This research set out to investigate online social support amongst breastfeeding women in a voluntary peer to peer context. This is a novel exploration of this phenomenon and as such contributes to describe its context and intricacies. The research explored the relationship between online social support and online self-efficacy and breastfeeding self-efficacy, from a social cognitive perspective.

To achieve the objectives defined in chapter 1, a number of actions were carried out, as described following:

1. *To conduct literature review examining existing research on online social support.*

The researcher identified and reviewed a number of research conducted within the realm of online social support. This provided an opportunity to explore previous research and to understand the processes related to online social support, particularly in the context of online social support for women. Two theoretical perspectives to online social support were discussed: information systems and social cognitive perspectives. At the end of the discussion, the researcher justified the selection of the theoretical framework provided by the social cognitive theory to conduct this research.

2. *To depict the groups involved in voluntary breastfeeding support and explore how they use the online social support;*

In chapter 3 the researcher offered a detailed description of the women involved in voluntary breastfeeding peer support. Two groups were involved in this context: the breastfeeding women and the breastfeeding supporters. This offered a discussion of the research context in order to define its boundaries. Chapter 4 and 5 presented the results of the data analysis from the interview studies conducted with these groups.

3. *To explore any benefits or challenges of using online applications to support breastfeeding and the impact on women using it;*

Chapter 6 used the theoretical tenets provided by the Social Cognitive theory to offer an understanding of online social support in the context of voluntary breastfeeding peer support. The relationship between online social support and online self-efficacy and breastfeeding self-efficacy was discussed in this chapter. In addition the chapter discussed the perceived risks and benefits of this type of interaction between the women in the context of this research. The expected outcomes of online social support were also discussed in chapter 6.

4. To contribute to theory and offer recommendation to practice.

The following are the major areas of contributions in this research:

- To further the understanding online social support from a social cognitive theoretical perspective;
- To explore the antecedents, processes and outcomes of online social support for breastfeeding women;
- To understand the implications of online self-efficacy and online social support in a breastfeeding support context, and their influence on breastfeeding self-efficacy.

A number of contributions to theory and practice are resulted from the findings of this research, as summarised in table 9. These contributions will be described in the next sections of this chapter.



Research area	Existing research	Contributions of this research
<b>Online social support</b>	Online social support Previous studies explored breastfeeding online support in a clinical context. The results indicate that online social support for breastfeeding women offer an alternative to conventional breastfeeding support, particularly from a time-consuming and cost perspective	Similarly to other applications of online social support, breastfeeding women use online social support to share their emotions and thoughts and expand their social network in a bid to obtain social support. This research gives insights in the processes and outcomes of online social support in this context.  Online social support for breastfeeding women can be helpful in establish and maintain supportive relationships and help women to achieve their breastfeeding goals
Empowerment	Online social support is thought to able to convey different perspectives for personal empowerment and therefore impact health outcomes, wellbeing and health promotion.	Online social support helps breastfeeding women to make sense of their situation and support their decision making process. Consequently influences breastfeeding outcomes.
Empathy	Online exchange of empathic message influences positively concerns and anxiety amongst the participants of online communities. Voicing emotional support and empathy promotes a positive effect for women facing life-	Similarly breastfeeding women this research felt that empathetic messages received online helped them to manage anxiety, particularly those with an emotional or informational content.

		threatening illness.	
		Email communication between clinicians and breastfeeding women were found very helpful, particularly to give the women a sense of empowerment and support to carry on breastfeeding their babies.	Email, text messages and social networks have the potential to exchange empathetic messages between breastfeeding women and their peers. This messages were found to be empowering and supportive in helping women to carry on breastfeeding their babies.
<b>Social Cognitive Theory</b>	Online self-efficacy		Online social support influences positively breastfeeding women feelings of self-efficacy. The positive influence of social support in breastfeeding self-efficacy has been well documented in previous research. This research not only corroborates this link, but explores the mechanisms and processes associated to social support delivered through Internet and mobile applications
	Online social support and online self-efficacy influence on Breastfeeding self-efficacy		A novel finding of the influence of online self-efficacy on breastfeeding self-efficacy. A breastfeeding woman with high online self-efficacy is likely to use online social support to obtain social support and consequently feel supported and empowered to perform the desired behaviour

Table 10 - Research contributions

### **7.1. Research contributions to theory**

Online social support has been researched previously from the perspective of the social cognitive theory in a number of contexts, including obesity (Ballantine and Stephenson, 2011), women's lives (Dare and Green, 2011) and cancer (Im, 2011);(Seale, Ziebland and Charteris-Black, 2006). This research offers insights from this perspective in an unexplored context: breastfeeding volunteer peer support. The result of this research indicates that online social support influences positively breastfeeding women feelings of self-efficacy.

The positive influence of social support in breastfeeding self-efficacy has been well documented in previous research (McCarter-Spaulding, 2012);(Kervin BE Kemp, 2010);(Dennis, 2006). This research not only corroborates this link, but explores the mechanisms and processes associated to social support delivered through Internet and mobile applications. The elements of social support (emotional, informational, appraisal and instrumental support) were identified in the support exchanged online amongst the participants in this research. In addition, the results of this research indicate the presence of empathetic exchanges and empowerment feelings amongst the participants. As result, this research indicates that Internet and mobile applications are able to convey these elements and influence positively the outcomes amongst breastfeeding women.

Online self-efficacy is theorised to be influenced by online social support activity, network size and online support expectation (Eastin and Larose, 2005). This results in this research support a relationship between online support activity and high feelings of breastfeeding self-efficacy. It further suggests that online social support activity amongst breastfeeding women using online social support is influenced by a number of factors. These includes the size of a family, the age of the children in the family and the women's involvement in breastfeeding support activity.

Finally online social support influences the antecedents of breastfeeding self-efficacy. In the context of this research this is translated through the indication that Internet and mobile applications are suitable to allow breastfeeding women verbal persuade other peers, receive support to mitigate the physiological affective struggles they encounter and to share their experiences with breastfeeding.

In conclusion, this research contributes to further the understanding of how the tenets of the Social Cognitive Theory can be used to research online self-efficacy and its outcomes in a breastfeeding peer support context.



## **7.2. Contributions to methodology**

This research adopted field study as a method to conduct an interpretive research. Documentation reviews, observations and interviews were used to collect the data used in this research. The role of observations was very important to provide an understanding of the dynamics of online social support in the context of this research. The researcher adopted an ethnographic observation strategy combined with a hermeneutics approach capture the social, emotional and practical aspects of this phenomenon.

Through spending time in breastfeeding drop in centres the researcher was able to observe instances of women exchanging text messages while breastfeeding their babies, swapping online social network contacts and using information obtained online to discuss their concerns with the supporters and health visitors. This also allowed the researcher capture the emotional aspects involved in the context of this research.

Being in the place they went for face-to-face support and observing the interaction between their online and offline activities contributes to form a deeper understanding of the phenomenon explored in this research. As indicated previously a small number of studies explored the use of online social support in the context of breastfeeding support. However, none of these studies adopted observations of online social support in a breastfeeding peer support setting. This was relevant in this research, as the phenomenon occurred in an online and offline setting, and consequently observing it gave the researcher insights in the beliefs, values and world views of the participants. Interviews only would not have allowed the researcher to have access to this aspect of online social support in a breastfeeding volunteer peer context.

Consequently, the main methodological contribution of this research was to use ethnographic observations in the setting of breastfeeding drop in support centres to understand the use of online social support in the context of this research, including offline interactions.

## **7.3. Contributions to the field of Information Systems (IS)**

This research presents a novel exploration of the use of IS by breastfeeding women to obtain social support. This study reinforces the role and impact of IS in society and social relationships. According to {{983 Bates, Benjamin J. 1990;}} the ends, forms and ways new information systems are implemented define their social effects. In this research breastfeeding women used a number of Internet and mobile applications in a unstructured way. This allowed them to obtain Social Support

and from both strong and weak tie relationships and to reflect on the exchange of information and support.

It also explores the role of IS in wellbeing and healthcare. Information Systems are thought to have the potential to “reduce healthcare costs and improve outcome” (Fichman, R.G. 2011). Although this research did not look into cost effects of using online social support during breastfeeding, strong indication was present of its impact on breastfeeding outcome. The women who engaged with online social support to obtain social support while breastfeeding reported it as helpful and positive. This consequently influenced the duration and exclusivity of their breastfeeding experience.

#### **7.4. Implications to practice**

This study explores the use of online social support to support breastfeeding women in a peer support context. The research explores not only the use of one particular application such as a discussion forum or emails exchanges. The research explores how people inserted in an offline peer-to-peer breastfeeding support group use the Internet and mobile tools to exchange social support. Consequently, the findings of this research can contribute to develop policies and interventions to support breastfeeding women, breastfeeding support organisations and the National Health Services.

Breastfeeding peer support organisation can use the outcome of this research to understand how to expand their services through online social support. This might involve expanding the use of text messages to provide breastfeeding women with information as per their request, organise home visits and knowledge sharing. The findings in this research can also be used by breastfeeding support agencies to training their volunteers in use online social support applications to further reach breastfeeding women.

The results of this research also serve to give an indication of the type of new developments that can be deployed to further the support delivered by breastfeeding support organisations, such as videocalls and mobile applications to convey emotional support. Breastfeeding volunteer support organisation can also use the results in this research to question how to make the best of certain types of interventions, such as Internet forums and social networking. Further thought should be given to develop these types of intervention in a way that allows for women exchange support and

at the same time address the concerns raised in this research such as privacy, trustworthiness and confidentiality of personal information.

Government agencies responsible for defining health promotion policies could potentially benefit from the results of the research in two ways. First through incorporating online social support to the way breastfeeding support is delivered by the National Health Service. Engaging nurses and midwives in using online social support applications might provide an extra channel for clinicians to support breastfeeding women. It might also help to develop new breastfeeding promotion strategies which in turn can have a positive influence in breastfeeding initiation and continuation rates.

The second way is through engaging with breastfeeding support organisations to develop partnerships to deliver this type of support. This could be implemented through a sponsorship to develop online social support applications to be delivered by volunteer organisation in a similar way the breastfeeding national helpline works at the moment.

Ultimately breastfeeding women will benefit from this research, through the implementation of online social support interventions addressing the issues raised in this research. The women will consequently have access to more services and applications, as well engage with volunteers or clinicians trained to fulfil their needs over an alternative channel.

### **7.5.Researcher's reflections**

I started this research because I wanted to apply my previous knowledge and experience with Information Technology to improve women's health. Researching how online social support can influence breastfeeding was an great opportunity to explore a possible role of Information technology in this context. Breastfeeding is a challenging endeavour and the support a mother has is fundamental in her experience. Using Information Technology to obtain this support is an extra resource that seems to influence positively their experiences.

However, one never fully understands the demands of task until it is done. Carrying out this research was a huge challenge for the researcher, as she tried to balance being a mother of small children and the demands associated to doing a PhD. A number of skills needed to be developed in this process, including technical and personal skills and many lessons were also learnt. This include the difficulties related to recruit busy mothers to find the time to share their experiences, feelings and anxieties related to such an emotional time in their lives. It also include to manage and deal with a number of partners who had different needs throughout the research. Nevertheless, carrying out this research

presented an incredible opportunity to explore how information technology can be helpful to women to receive emotional support.

Despite their business, the women taking part in the research were very helpful and open to discuss their experiences. The researcher had the opportunity to learn how breastfeeding women are adopting and adapting new technologies into their busy lives. The researcher also learned how technology can open new opportunities for these women to communicate with their peers, family and friends and overcome distance and time restrictions. The women in the research discussed very openly how this influenced their breastfeeding experience.

The researcher also had the opportunity to develop a network of colleagues and professionals who are engaged to research and recommend new uses of technology to support mothers, families and their children. Through this network, the researcher had the opportunity to discuss her ideas, findings and views of future developments. This was a very important element of the process of this research. Through collaboration between multidisciplinary agencies and organisations, the researcher believes that technology can be developed and tested with the aim to allow women to use technology to help them with their needs.

In an ever more complex world where the Internet, technological developments, demands on time and the need for knowledge offer a number of challenges and opportunities, mothers alike need to have the tools and facilities to fulfil their needs, desires and dreams.

The role a mother has in keeping her family healthy and happy is very challenging and uncertain. There are many demands to be met, children to be taken and fetched everywhere, pack lunches to be made, food to be cooked, house to be cleaned and the list goes on... I believe technology can help us to do a better job.

Coming to the end of this process I can only be very thankful for this opportunity and all the help I got in the way. I feel I've been through a great journey and enjoyed it. I made great friends, learned more about an area I am passionate about and I hope with that I can be of some help.

The research faced a number of limitations and identified work that will be beneficial to be carried out in the future. These are discussed in the next section.

## **7.6.Limitations of the research and future work**

This research faced a number of limitations which affect it. The first limitation is associated to the researcher adopted philosophical paradigm, particularly with regards to the involvement of the researcher. The criticism to interpretive researcher's involvement resides in his/her inability to assume a value-neutral stance. To address this, the researcher acknowledges this issue and declares her involvement in breastfeeding support and consequent influences of that. As result, the interpretations of this studies are subject to the researcher own experience. This does not nullify the findings of the research, rather offers one view of the phenomenon.

Another limitation of the research was to recruit and interview of breastfeeding mothers. It was a challenge to interview these women as they are often busy with young babies. Once the researcher met them at the breastfeeding groups, to arrange to visit them at home at a convenient time was very difficult. Often the women had other commitments, other children to look after and were very busy at home. For this reason the researcher decided to conduct the interviews at the group settings. This proved to be challenging as well as those aren't quiet places and very easy to get distracted. Successful recruitment and interviews was therefore a difficult challenge and this is reflected in the number of interviews in the study. To address this issue, the researcher used in extension her conversations with women in the setting, observations and insights to discuss the findings of the studies. A further limitation is related to the fact that the breastfeeding women who took part in the study seemed to have a similar approach to breastfeeding and were committed to do it. Consequently the research was not able to explore the role of online social support amongst women who didn't succeed in breastfeeding their babies.

One other limitation in this research is that the study was conducted only in the UK amongst English speaking participants. Therefore the role of online social support to support breastfeeding women outside the UK and non-English speakers is not known.

Online social support for breastfeeding women is an area that needs further research to help to understand the phenomenon. The potential to use it to support breastfeeding women is recognised in this research. Further research can address some of the described limitations and discover new aspects of this phenomenon.

The use of videocalls to provide online social support is one area that can be further explored. This was mentioned by supporters and mothers in the research and it seems appropriated that breastfeeding organisations endeavour to explore this development.

Further research can also explore the delivery of breastfeeding support by doctors, midwives and nurses using online social support. This would contribute to create a holistic picture of online social support for breastfeeding mothers and inform policy and practice.

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## **Appendix I – Participants interview guide**

**Instrument Title: Interview Guide**

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**I. Introduction**

- Welcome participant and introduce myself;
- Explain the general purpose of the interview;
- Address the issue of confidentiality and hand in the consent form and interview information sheet;
- Explain the presence and purpose of recording equipment.
- Invite the participant to introduce herself:
  - Name, age, how long they have been doing breastfeeding support, any other relevant information.

**II. Interview**

*A semi-structured interview will be conducted. The following areas are to be covered during the interview*

- Explore the access and uses the participants have to Internet technologies:
  1. Emails, search engines
  2. Web 2.0 applications(social networking, blogs, wikis, video-sharing sites)
  3. Videocall (Skype, Windows live, video-chat websites)
  4. Personal digital assistants, Smart phones
  5. Move on to explore her use of Internet technologies to support women to breastfeed, if at all
- Ask the participant to talk about how using Internet support them with breastfeeding.
  1. Any particular application?
  2. Any concerns?
  3. Any visible advantages related
  4. Does it help with issues related to breastfeeding support?
  5. Who do they exchange online social support? Explore how they make contacts, decide who to add to their network and to exclude
- Ask the participant to describe in their experience how easy it is to use Internet technologies in their routine.
  1. How effort consume they find it
  2. Their perceptions of how difficult to understand and use it
  3. Explore any specific application used for supporting breastfeeding



- Explore the participant's views on how the use of Internet technologies is consistent with their values, needs and experiences.
    1. Who provides the facilities for the use of Internet facilities?
    2. Do they have control upon their use?
    3. Do they feel they have the necessary resources to use Internet applications?
    4. How about facilities to provide breastfeeding support?
- 

### III. Closing

*Thank the participant for her time and emphasize my appreciation for her time and willingness to contribute to the research.*

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### IV. After the interview

*Make notes about:*

- How the interview went
- Where the interview took place
- Any other perceptions about the course of the interview

## **Appendix II – Ethical approval for the studies in this research**

School of Information Systems, Computing and Mathematics  
David Gilbert, Head of School, Professor of Computing  
Jasna Kuljis, Head of Information Systems and Computing, Professor of Computing  
Tony Rawlins, Head of Mathematical Science, Professor of Mathematics

The use of e-learning to improve numeracy on Schools

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Date: 10<sup>th</sup> December 2010

### STATEMENT OF ETHICS APPROVAL

**Proposer: Ana Beatriz Santana Burman**

**Title: The use of internet technologies amongst breastfeeding supporters: an interview study.**

The school's research ethics committee has considered the proposal recently submitted by you. Acting under delegated authority, the committee is satisfied that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that you will adhere to the terms agreed with participants and to inform the committee of any change of plans in relations to the information provided in the application form.

Yours sincerely,



**Dr. Laurence Brooks, Chair of the Research Ethics Committee  
SISCM**

School of Information Systems, Computing and Mathematics  
David Gilbert, Head of School, Professor of Computing  
Jasna Kuljis, Head of Information Systems and Computing, Professor of Computing  
Tony Rawlins, Head of Mathematical Science, Professor of Mathematics

The use of e-learning to improve numeracy on Schools

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