Theorising breastfeeding peer support as intervention in a complex ecological system: lessons for implementation and evaluation in a Welsh context

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Publications arising from this research

- Trickey, H., 2013. Peer support for breastfeeding continuation: an overview of research. *Perspective*, (21), pp.15-20.

- Trickey, H., 2013. Could complex adaptive systems thinking reach the parts infant feeding policy is not reaching? Applying key concepts to policy making in Wales, [Conference Abstract]. *Maternal and Child Nutrition* 9 (Sup. 3) pp. 29-30.

- Thomson, G. and Trickey, H., 2013. What works for breastfeeding peer support? Time to get real. *European Medical Journal: Gynaecology and Obstetrics*, *2013*(1), pp.15-22.

- Trickey, H., 2016. Peer support: how do we know what works? *Perspective*, *31*, pp.44-49.

- Trickey, H., 2016. Infant feeding: Changing the conversation: ecological thinking. *Perspective,* 133

- Trickey, H., Thomson, G., Grant, A., Sanders, J., Mann, M., Murphy, S. and Paranjothy, S., 2018. A realist review of one-to-one breastfeeding peer support experiments conducted in developed country settings. *Maternal & child nutrition*, *14*(1), p.e12559.

Summary

Background and Aim: By international standards, breastfeeding rates in the UK are low, with social and geographical polarisation in feeding decisions. The evidence for breastfeeding peer support intervention is mixed. As an intervention, peer support is heterogeneously described and poorly theorised. Through this thesis, I explore and articulate theories of breastfeeding peer support and consider their potential to inform intervention design.

Methods: I use realist methods and an emergent fit approach to explore understandings about how peer supporters help mothers to breastfeed and what prevents them from doing so. The empirical research proceeds through three phases. I iterate between findings from Phase 1 (face-to-face interviews with 15 policy leads and infant feeding leads), from Phase 2 (realist review of 15 breastfeeding peer support intervention case study experiments), and Phase 3 (focus groups with parents, peer supporters and health professionals) to develop my conclusions.

Findings: Stakeholder experiences are consistent with an understanding that 'low breastfeeding rates' are a 'wicked problem' in a complex system of influences. The implementation landscape is contested and policy rationales shift. Personal feeding journeys have powerful feedback effects. There is partial dissonance between breastfeeding advocates' own motivation to improve women's experiences and formal policy goals to increase breastfeeding rates as a mechanism to improve health outcomes. I identified three registers for understanding how breastfeeding peer support works: these were, (i) improving the *health care pathway*, (ii) creating a sub-community of *mothers and sisters*, and (iii) diffusing the practice of breastfeeding like *ripples in the pond*. The realist review showed that the experimental evidence is heterogeneous but almost exclusively relates to interventions that seek to improve the care pathway. From the review, I developed 20 statements and a staged thinking tool to inform future intervention design, highlighting the need to consider a sequence of interactions beginning with interaction with existing social norms and with the existing health care pathway. These statements were extended and nuanced on the basis of discussion with parents, peer supporters and health professionals, resulting in a total of 39 statements to support future intervention design.

Conclusions: Theoretical approaches that rely on triggering mechanisms at the interpersonal level are likely helpful *as part* of intervention theory, but are insufficient, as they tend to be decontextualised. There is a need to explore new 'registers' for intervention development and evaluation that consider the potential for peer supporters to make a contextual difference. Furthermore, there is a need to explicate the relationship between maternal experience and health policy goals, to acknowledge the contested quality of the implementation context, to pay attention to the agency of mothers, and to develop a community-level theory of how change in infant feeding behaviour happens with which peer support can cohere. The thesis concludes by highlighting 18 points to support theory development for infant feeding interventions.

*A note on the use of the personal pronoun

My research is conducted within an underpinning philosophical framework of critical realism. Within this overall framework, my methodological approach is reflexive, participative and informed by principles of feminist research. I began this study with personal and professional prior experience of the topic of infant feeding and with a realisation that it was not going to be possible for me to exclude from the research all my own prior experience of feeding babies, of supporting other mothers, or of researching infant feeding policy (personal accounts are provided in the thesis). Furthermore, it felt wasteful to banish prior hunches and theoretical perspectives. I concluded that the impact of my subjectivity would need to be incorporated rather than excluded. My approach has been to link research participants and the researcher (me) in a process of understanding and describing the world (and how peer support intervention operates in the world), iterating between the existing evidence base and the frame of reference of research participants. This approach explains my decision to write up my thesis in the first person – a continual 'note to self' not to slide into complacently excising my own position in the research.

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1.1 Introduction and contribution to the thesis

The aim of this thesis is:

> To explore and extend theories of breastfeeding peer support and to consider their application in relation to a Welsh infant feeding context

In this chapter, I set the scene for breastfeeding support implementation in Wales. I describe patterns in infant feeding decisions and I introduce breastfeeding peer support as part of a policy response to improve breastfeeding rates as well as women's experiences of feeding their babies. This provides a backdrop for an overview of the literature on the evidence for breastfeeding peer support interventions, presented in Chapter 3 and for a literature review of influences on feeding decisions viewed through a complex-ecological systems lens, presented in Chapter 2. Taken together, these three chapters provide an initial basis for my research design, described in Chapters 4 and 5.

Chapter summary

The chapter is structured as follows.

- In Section 1.2, I set out the recent history of infant feeding in Wales. I describe the decline in breastfeeding as the socially normal way to feed a baby, so that now, by international standards, Wales has one of the lowest rates of breastfeeding in the world.
- In Section 1.3, I describe current patterns in infant feeding decisions and experiences, noting that the Welsh context is characterised by marked social and geographical polarisation in feeding decisions.
- In Section 1.4, I provide an overview of the emotional landscape for infant feeding decisions, noting that strong positive and negative feelings accompany the experience of feeding a baby, with UK women experiencing high rates of 'breastfeeding disappointment'.
- In Section 1.5, I describe public health policy relating to infant feeding in Wales. I describe the 'settings' approach that the Welsh Government has taken to improving breastfeeding rates.
- In Section 1.6, I describe the history of breastfeeding peer support provison in Wales.

- In Section 1.7, I introduce 'breastfeeding peer support' as an intervention form, noting that peer support interventions have been inconsistently defined and are underpinned by a broad range of theories of change.
- In Section 1.8, I present a chapter guide to the remainder of the thesis.

1.2   How did we get here?

Mothers across the UK have very low breastfeeding rates (Victora, 2016). To understand current patterns and experiences of infant feeding in the UK - and in Wales - it is helpful to start by considering historical trends.

Alternatives to breastfeeding have existed since the development of agriculture and the domestication of animals; however, until recently alternatives frequently resulted in the death of the baby (Van Esterik, 1995). In post-industrial Europe, regional variation in use of animal milks and cereal pap as an alternative to breast milk emerged, and use was associated with major increases in infant mortality in areas where artificial feeding was more common (Fildes, 1995). From the Enlightenment onwards, the practice of breastfeeding became increasingly medicalised, so that breast milk came to be viewed as a 'disembodied product', with the baby represented as consumer and the mother rendered increasingly invisible (Dykes, 2005a; Dykes, 2006). In the mid-18th Century, increased scientific interest in infant feeding led to the first chemical analyses of human and animal milk. From the mid-19th Century onwards chemists and manufacturers were beginning to reformulate nonhuman milk to better resemble human milk (Stevens et al, 2009). At the same time wet-nursing declined, and was actively discouraged by the medical profession (Dykes, 2006), and 'dry-nursing' (that is, caring for another woman's baby without suckling) increased (Fildes, 1995). By the end of the 19th Century, European mothers – particularly those living and working in manufacturing towns – became increasingly likely to supplement breastfeeding with other foods from early on in their baby's lives (Fildes, 1995).

The practice of breastfeeding began to decline in the UK, as in the Western world generally, from the late 1800s onwards, with a sharp fall after the Second World War (Fildes, 1986; Apple, 1987; Wolf, 2001). The growth of the dairy industry in the early years of the 20th Century, the concomitant development of milk surpluses and the cost of transporting whey bi-products from cheese manufacture for disposal led to milk manufacturers looking for economic solutions through production of powdered milk products for infant use (Dykes, 2006; Plamer, 2009). In 1921 Nestle introduced its breast milk substitute 'lactogene' to the market (Shubber, 2011). From the 1930s onwards breast milk substitutes were increasingly promoted, through a growing mass-media market (Dykes, 2006), and increasingly women began to combine breastfeeding and bottle feeding. The practice of artificial feeding grew rapidly as formulas evolved and manufacturers began to advertise directly to medical professionals. At the same time sexual portrayal of women's breasts to advertise a wide range of products became mainstream (Palmer, 2009) and breastfeeding became an increasingly private activity with a social emphasis on breastfeeding women being modest and discrete (Carter, 1995). This

context of breastfeeding being seen as a 'private' activity created additional barriers to breastfeeding among women living in cramped housing; while women from all socio-economic backgrounds came to associate artificial feeding with improved rights and conditions (Carter, 1995; Palmer, 2009).

By the 1940s, formula milk was familiar in the UK, was widely marketed to health care professionals and to the general public and was generally considered to be a safe substitute for breast milk. The National Dried Milk scheme was introduced in the autumn of 1940, provided dried milk intended for feeding children aged under a year. This milk continued to be available into the 1960s and early 1970s, after which it was discontinued and replaced by *'more acceptable and safer brands'* (Hansard, 24th February, 1976). Widespread availability of formula milk, combined with a growing belief that increased health professional oversight of mothers and babies was necessary, provided the context for the development of infant feeding policy within an incipient NHS.

Maternity care regimes from the 1950s to late 1990s tended to encourage separation of mothers and babies in the hours after the birth and to restrict breastfeeding to strict regimes. The natural 'ideal' of breastfeeding came to be perceived as fragile, with a focus on measurement of quantity, quality, time and spacing of feeds (Dykes, 2006). Increased observation and medicalisation of maternity care led to manualisation of feeding regimes and to maternity care professionals teaching mothers 'correct' feeding positions. Practices, ,which are now widely understood to undermine the establishment of breastfeeding, were institutionalised, and were re-enforced in midwifery training (Myles 1953; Myles, 1975; Myles, 1989).

Strict feeding regimes in the early days have been associated with disruption of mothers' milk supply, with failure to respond to a baby's feeding cues and with poor attachment at the breast associated with ineffective milk transfer. Colson (2010) argues that common practices in maternity care throughout the second half of the 20th Century would have led to displacing mothers' innate and instinctual ways of knowing about their baby's need to suckle, or about how to feed comfortably and effectively (Colson, 2010).

In Wales, a study of the experience of present-day grandparents, who themselves gave birth in the latter half of the 20th Century, illustrates the ways in which a combination of entrenched health service practices (that undermine the mechanics of breastfeeding and establish social norms that re-enforce breastfeeding as an invisible and embarrassing behaviour), have led to a lack of confidence and competence in terms of present day intergenerational support (Marzella et al, 2014; Trickey et al, 2017). For example, this story, taken from a conversation conducted as part of research with Welsh grandparents, describes a maternity ward experience from the early 1970s. The participant planned to breastfeed her baby, who was taken away soon after the birth and given a bottle. When the baby was brought back…

> Well, you were just sitting on the ward and you were expecting the baby just to
> latch on … there was no sort of forehand … no instructions, no classes. I had no

knowledge, they were all bottle feeding … I think I was the only one probably opted for breastfeeding … and just a lot of, you know, crying babies, so I thought, oh well … feeling, almost inadequate really."

<p align="right">Quote from Grandparent interviewed in Trickey et al, 2017, p.78</p>

There are no collated routine data for infant feeding decisions for the UK population until 1970. By the 1970s, at the time of the first Infant Feeding Surveys, only around 50 per cent of mothers in England and Wales were initiating breastfeeding (Martin et al, 1978).

Since the 1970s, there has been a resurgence of public health concern with low breastfeeding rates. Between 1975 and 2010 five-yearly Infant Feeding Surveys captured changes in the way that parents fed their babies providing comparable estimates of the prevalence of breastfeeding, formula feeding and feeding with solid foods of babies at different ages from birth (McAndrew et al, 2012). Welsh breastfeeding rates rose incrementally from 1975 in line with rises across the UK. In 2010 average UK initiation rates were at 80%, compared with 76% in 2005 and 69% in 2010. In Wales, initiation rates increased from 68% in 2005 (the first year in which a boosted Welsh sample enabled independent estimates) to 71% in 2010. By international standards these rates are low (Achterberg et al, 2009; OECD, 2009). For example, in Norway breastfeeding initiation rates were at 99% in the early-1990s (Lande, et al, 2003). For babies who are twelve months of age, UK breastfeeding rates remain among the lowest in the world, with fewer than one per cent of women still breastfeeding, compared to 35% in Norway (Victora et al, 2016).

1.3   Where are we now?

The current landscape for infant feeding decisions among Welsh mothers is marked by low continuation rates and by strong socio-geographical patterning.

The Infant Feeding Survey was cancelled after 2010 for cost reasons, so that for current UK breastfeeding rate estimates researchers and policy makers are reliant on data collated by health authorities and health boards. These administrative data are difficult to compare with the self-report Infant Feeding Survey (IFS) findings and definitions (for example, of recorded 'initiation') are not standardised across administrative boundaries. While Scotland has recently introduced an infant feeding survey, Wales, England and Northern Ireland have yet to follow suit.

Initiation and continuation rates

The 2010 Infant Feeding Survey found that breastfeeding initiation rates in Wales were around 71% (McAndrew et al, 2012). However, more recent routinely collected data indicate that initiation rates are lower. In Wales in 2015-16 routine data indicated that 59% of mothers intended to breastfeed their babies at birth, with a wide variation between health boards, ranging from just half of all mothers at Cwm Taf University Local Health Board to 84 per cent

of mothers at Powys Teaching Local Health Board (Welsh Government, 2017). It is probable that the discrepancy reflects different data collection methods and different definitions of 'initiation' used in routinely collected data as these are at lower levels compared to IFS data.

Categorising Welsh mothers as either 'breastfeeding mothers' or 'formula feeding mothers' is problematic as most babies breastfeed initially and nearly all receive formula milk. While the majority of Welsh mothers breastfeed their babies at least once, most mothers who do breastfeed tend to do so for short periods – so that breastfeeding prevalence levels are low. Recent Welsh data indicate that formula feeding – either exclusively or in combination with breastfeeding – continues to be the way that most Welsh mothers feed their babies beyond the early weeks (Welsh Government, 2017).

Survey and routinely collected data suggest that over the past decade gains towards UK policy goals have been made in relation to proportion of mothers breastfeeding their babies *at least once* and the proportion of women delaying introduction of solid foods. However, successive Infant Feeding Surveys indicate a rapid tail off in breastfeeding in the early days and weeks. Rises in initiation rates can be tracked through to rises in prevalence rates at time points between when the baby is born and when he or she is nine months old. The very steep drop-off in breastfeeding continuation rates over the early days and weeks after birth, that was evident in the data in 2000 had not been addressed by 2010, so that while the discontinuation curve was 'lifted' a little, it did not change its overall shape.

In Figure 1, I present infant feeding continuation rates for the UK as a whole taken from successive infant feeding surveys in 2000, 2005 and 2010. The area under the curve indicates prevalence rates; the continued steep drop-away indicates that small rises in initiation rates have only had a proportionate impact on overall prevalence of breastfeeding at time points after the birth.

Figure 1: Prevalence of breastfeeding in the UK 2000-2010
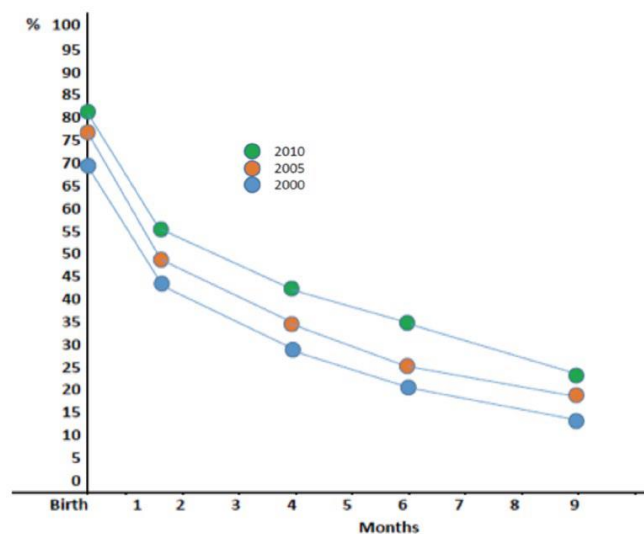
Based on IFS data; reproduced from Trickey, 2016a

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Overall, prevalence rates for breastfeeding have remained low, but rose slightly from a low base between 2005 and 2010. Increases in the prevalence of breastfeeding were observed in England (from 26% when the baby was aged six months in 2005 to 36% in 2010), while in 2010 under a quarter (23%) of Welsh mothers were feeding their babies *any* breastmilk at six months – a rise from 18% in 2005.

International comparison indicates that these very steep dis-continuation rate curves are not a universal feature of data collected in high income countries. Substantially higher continuation rates are found in Scandinavia, where around 80% of Norwegian babies (Lande et al, 2003) and 68% of Swedish babies (Sveriges officiella statistik och Socialstyrelsen, 2009) were receiving any breastmilk at six months. Continuation rates in Canada (Al-Sahab et al, 2010), Australia (Australian Institute of Health and Welfare, 2012) and Hungary (EUPHIX, 2009) are lower than this, nonetheless *'any breastfeeding'* rates at six months in these countries are more than double those of the UK.

Social and geographical polarisation

Mothers' infant feeding decisions are highly socially polarised. Across the UK mothers who are younger, from lower socio-economic groups and with less education have lower breastfeeding initiation rates, breastfeed for shorter durations, and are more likely to introduce formula milk and solid foods sooner (McAndrew et al, 2012). Parents with less education, who were themselves formula fed, are less likely to decide to breastfeed their own babies; a pattern that has been described as contributing to a cycle of nutritional deprivation (Dykes and Hall Moran, 2006; Williams, 2009).

In Wales, research based on routine initiation data indicates that Welsh breastfeeding rates are strongly negatively associated with area-based indices of deprivation (Brown et al, 2009). Routine health board data showing 'babies breastfed at birth' in Wales illustrate social patterning at local level, with a continuing pattern of low breastfeeding rates in low income areas, and social polarisation between mothers living in more and less deprived communities, particularly in the South Wales valley areas within Neath Port Talbot, Merthyr Tydfil, Blaenau Gwent and Caerphilly. Flying Start areas – areas subject to intervention including an intensive Health Visiting Service as part of a Welsh Government programme with a specific focus on improving the life chances of children in disadvantaged communities – have lower than average breastfeeding rates (Welsh Government, 2017). Younger mothers are less likely to intend to breastfeed than older mothers, with 46 per cent of mothers aged 20-24 initiating breastfeeding, compared to over 70 per cent of mothers aged 35-39 (Welsh Government, 2017).

1.4   How does it feel?

Routinely collected data provide a basis for information about breastfeeding rates, but tell us little about the experience of breastfeeding or about what women want. A unique strength of

the discontinued Infant Feeding Survey was that it also captured multiple aspects of maternal intention and experience. The survey gave some quantifiable measure of the emotional cost associated with infant feeding experience. In particular, it provided a measure of the proportion of women who stopped breastfeeding before they planned to do so – what I have termed '*the disappointment rate'* (Trickey, 2016a, p.5).

Successive infant feeding surveys indicated that overwhelmingly UK mothers, including Welsh mothers, stop breastfeeding before they plan to. Stopping breastfeeding in the early weeks is strongly associated with breastfeeding problems, which have a high prevalence. Indeed, in 2010 around a third of mothers report having experienced feeding problems. The most common reasons given by mothers for stopping breastfeeding were 'insufficient milk', 'baby rejected breast', 'painful breasts/nipples', and 'took too long/tiring' (McAndrew et al, 2012). These reasons are particularly important in the first week – the period during which decline in the breastfeeding rate is steepest – and indicate that many mothers who intend to breastfeed are not getting through the 'adjustment period' (Trickey and Newburn, 2014) when a breastfeeding relationship with their babies is being established. Stopping breastfeeding before ready has been associated with postnatal depression – although direction of causality is unclear (Brown et al, 2016). Repeated surveys have indicated that UK mothers do not experience a supportive context for breastfeeding (Bahavani and Newburn, 2010; Plotkin, 2017).

Mothers using formula milk also experience feeding problems. A third of UK mothers who formula feed initially experience problems with their baby not feeding enough or not being 'interested' in feeding. Compared to mothers who continued to breastfeed (exclusively or mixed feeding), these mothers were more likely to report problems with colic, vomiting or reflux, or with their baby being unwell. Mixed feeding (breastmilk and formula milk) is associated with breastfeeding problems, though the direction of causality is unclear and may be two-way (McArthur et al, 2012). Mixed feeding is often unplanned (Muller and Newburn, 2009). The National Institute for Health and Care Excellence (NICE) routine postnatal care guidance recommends that women who are giving their babies formula feeds are shown 'how to make feeds using correct, measured quantities of formula, as based on the manufacturer's instructions, and how to clean and sterilise feeding bottles and teats and store formula milk' (NICE, 2006). However, there is evidence that mothers using formula milk have been vulnerable to having their needs sidelined in an intervention culture that increasingly focuses on supporting mothers to breastfeed. A systematic review of studies that included mothers who were using formula milk (Lakshaman et al, 2009) found that they often reported receiving little information to help them carry out their feeding decisions in practice. The findings raise concerns that many parents may not be getting the support they need to develop a good understanding of how frequently or how much their babies should be fed, or the information they need to make up feeds safely so as to minimise risk of infection. Given that mothers who formula feed tend to be younger and poorer it can be argued that a focus that is primarily about

supporting decisions to breastfeed further marginalises disadvantaged mothers – creating a form of inverse care.

It is common for British mothers to feel pressured by others over their feeding decisions. This is true whether they breastfeed (Hoddinott and Pill, 1999; McFadden and Toole, 2006; Scott and Mostyn, 2003) or use formula milk (Lakshaman et al, 2009). Breastfeeding and non-breastfeeding women may experience judgement in their interactions with health professionals and with other mothers, leading to internalised feelings of shame, failure, inadequacy and isolation, and consequently to *'perceptions of inadequate mothering'* (Thomson et al, 2015). Lee (2008) argues that parents' experiences and interpretations of their feeding journeys and decisions are strongly framed within a '*paradigm of health and health care'*, underpinned by health policy and practice. One consequence of the professional validation of the health advantages of breastfeeding over formula feeding has been to leave mothers who use formula milk increasingly open to internal and external moral judgments, so that they may '*struggle hard to maintain a positive sense of themselves as mothers'* (Lee, 2007).

Highly polarised debate, in print and social media, centres on the extent to which public health policy, and the framing of breastfeeding as a public health issue is, itself, the primary cause of mothers' feelings of pressure and guilt. Even though most babies receive breast milk and formula milk, qualitative research into women's experiences of feeding suggests that mothers frequently feel the need to carry out significant *'identity work'*, justifying their feeding decisions to others (Faircloth, 2010). This seems to be especially true when a mother takes a feeding path that is divergent either from a path prescribed by health professionals – for example when using formula milk (Lee, 2007) – or from community or family social norms – for example, when 'long-term' breastfeeding (Faircloth, 2010).

Many mothers have relatively straightforward feeding experiences, and even feeding journeys that include problems usually include moments of closeness, comfort, and satisfaction. For example, Brown and Lee (2011a) note that, without exception, the women they studied who exclusively breastfed to six months postpartum reported that they *enjoyed* breastfeeding their babies. Many saw breastfeeding as part and parcel of the emotional connection they had with their baby, giving pleasure to both. Research with Welsh grandparents indicated that some who had breastfed remained nostalgic for the experience decades later (Trickey et al, 2017).

1.5 Infant feeding and public health policy in Wales

The decisions that parents take about how to feed their babies are a focus for global public health attention and concern. In this section, I provide an overview of the evidence underpinning public health policy and I describe the policy response to low breastfeeding rates at international, UK-wide and Welsh policy levels.

Infant feeding as a public health issue in developed country settings

Evidence reviews have indicated poorer health outcomes associated with formula feeding compared to breastfeeding across a broad spectrum of outcomes (Ip et al, 2007; Horta et al, 2007; Hoddinott et al, 2008; Renfrew et al, 2012a; Horta and Victora, 2013; Victora et al, 2016).

In developing countries, water contamination, low immunisation rates and malnutrition mean that the consequences of not breastfeeding are often fatal (Victora et al, 2016). In high-income countries, where children are better protected against disease, and where money and facilities more often available to enable mothers to make up artificial feeds according to manufacturers' instructions, public health concern has traditionally focused on morbidity rather than mortality. However, there is good evidence that breastfeeding does prevent infant and maternal mortality in a UK context – premature infants who are breastfed are significantly less likely to develop necrotising enterocolitis (NEC) and death from sudden infant death syndrome is less likely. For mothers, breastfeeding is associated with reduced mortality from breast cancer (Hoddinot et al, 2008; Renfrew et al, 2012a; Victora et al, 2016). Renfrew et al (2012a) found that, assuming a moderate increase in breastfeeding rates, if 45 per cent of women exclusively breastfed for four months, and if 75 per cent of babies in neonatal units were breastfed at discharge, over £17 million a year could be gained annually across the NHS in the UK by avoiding the costs of treating four acute diseases in infants: gastrointestinal disease, respiratory disease, otitis media, and NEC, and that increasing breastfeeding prevalence further would result in even greater cost savings (Renfrew et al, 2012a; Pokrel et al, 2015).

The Scientific Advisory Committee on Nutrition (SACN, 2018) reviewed the health benefits of breastfeeding, concluding that:

- By around six months of age, infants are usually developmentally ready to actively accept solid foods. There is, however, wide variation between individuals in the age at which fine and gross motor skills are attained as well as varying expectations between cultures;

- Breastfeeding has an important role in the development of the infant immune system through the provision of passive specific and non-specific immune factors;

- there is evidence that not breastfeeding is associated with a higher risk of infant hospital admission as a consequence of gastrointestinal or respiratory illness even in high income countries such as the UK;

- The introduction of solid foods or infant formula before six months of age is associated with greater risk of gastrointestinal, and lower and upper respiratory infections than continuing to breastfeed exclusively;

- There is evidence that not breastfeeding may be associated with disadvantages for certain neurodevelopmental outcomes during childhood, as shown in one large randomised controlled trial and a range of observational studies, but residual confounding cannot be ruled out;

- The available evidence indicates that breastfeeding is associated with improved maternal health. Women who breastfeed for longer are at lower risk of breast cancer and endometriosis. Breastfeeding is not associated with an increased risk of low bone marrow density or osteoporosis in later life;

- Exclusive breastfeeding is associated with greater postpartum weight loss, and the duration of any breastfeeding is associated with lower maternal body masss index in the longer term;

- Once solid foods have been introduced at around six months, continued breastfeeding alongside solid foods for at least the first year of life is also associated with improved infant and maternal health.

Infant gastrointestinal infection: Ip et al . (2007) found that for non-specific gastroenteritis, one systematic review identified three primary studies that controlled for potential confounders. These studies reported that there was a reduction in the risk of non-specific gastrointestinal infections during the first year of life in breastfed infants from developed countries. However, a summary adjusted estimate taking into account potential confounders could not be determined because the studies did not provide usable quantitative data. The authors reference a case-control study from England that took into account the role of potential confounders and reported that infants who were breastfeeding had a 64 per cent (95% confidence intervals (CI) 26% to 82%) reduction in the risk of non-specific gastroenteritis compared with infants who were not breastfeeding. Quigley et al . (2009), found that infants who drank only breast milk had a significantly lower risk of hospitalisation for diarrhoea (Odds Ration (OR) 0.37; 95% CI 0.18 to 0.78) compared with those not breastfed at all in the preceding month. Quigley et al (2009) estimated that if, in a west European context, all infants were exclusively breastfed, 53 per cent of diarrhoea hospitalisations could be prevented, while 31 per cent could be prevented by partial breastfeeding (Quigley et al, 2009). Renfrew et al, (2012a) modelled an increase to 45 per cent of women exclusively breastfeeding for four months, and if 75 per cent of babies in neonatal units were breastfed at discharge, this would result in an estimated 3,285 fewer gastrointestinal infection-related hospital admissions and 10,637 fewer GP consultations, with over £3.6 million saved in treatment costs annually.

Infant lower respiratory tract infection (LRTI): Ip et al . (2007) provide a summary estimate from a good quality meta-analysis of seven studies reported an overall 72 per cent (95% CI 46% to 86%) reduction in the risk of hospitalisation due to lower respiratory tract diseases in infants less than one year of age who were exclusively breastfed for four months or more. The results remained consistent after adjustment for potential confounders. Infants who drank only breast milk had a significantly lower risk of hospitalisation for LRTI (OR 0.66; 95% CI 0.47 to 0.92) compared with those not breastfed at all in the preceding month and that 27 per cent of hospitalisations for LRTI could be prevented with each month of exclusive breastfeeding, and 25 per cent by partial breastfeeding (Quigley et al, 2009). Bachrach et al, (2003) used a random effects model to show that infants exclusively breastfed for four or more months were

significantly less likely to be hospitalised as a consequence of respiratory disease than those not breastfed (RR 0.28; 95% CI 0.14 to 0.54). This finding remained statistically significant after adjusting for potential confounders (socio-economic status and smoking). Infants not breastfed were 3.6 times more likely to be hospitalised compared with those exclusively breastfed for a minimum of four months. For every 26 infants exclusively breastfed for four months or more, one hospital episode of secondary respiratory disease could be prevented. Renfrew et al, (2012a) modelled an increase to 45% of women exclusively breastfed for four months, and if 75 per cent of babies in neonatal units were breastfed at discharge would result in an estimated 5,916 fewer lower respiratory tract infection-related hospital admissions and 22,248 fewer GP consultations, with around £6.7 million saved in treatment costs annually.

Acute otitis media (AOM): Ip et al (2007) found through a meta-analysis of five cohort studies that breastfeeding was associated with a significant reduction in the risk of acute otitis media. Comparing ever breastfeeding with exclusive formula feeding, the risk reduction of acute otitis media was 23 per cent (95% CI 9% to 36%). When comparing infants exclusively breastfeeding with infants exclusively formula feeding, either for more than three or six months duration, the reduction was 50 per cent (95% CI 30% to 64%). These results were adjusted for potential confounders. Renfrew et al, (2012a) modelled an increase to 45 per cent of women exclusively breastfed for four months, and, if 75 per cent of babies in neonatal units were breastfed at discharge, it would result in an estimated 21,045 fewer AOM related GP consultations, with over £750,000 saved in treatment costs annually.

Necrotising enterocolitis (NEC): Ip et al (2007) in a meta-analysis of four randomised controlled trials (RCTs) of breast milk versus formula in comparing the outcome of NEC demonstrated that there was a marginally statistically significant association between breastfeeding and a reduction in the risk of NEC (P = 0.04). The estimate of the reduction in relative risk ranged from four per cent to 82 per cent. The absolute risk difference between the two groups was five per cent. Because of the high case-fatality rate of NEC, this difference is a meaningful clinical outcome. The wide range of the estimate reflects the relatively small number of total subjects in the studies and the small number of events. Renfrew et al (2012a) modelled an increase to 45% of women exclusively breastfeeding for four months, and if 75 per cent of babies in neonatal units were breastfed at discharge it would result in an estimated 361 fewer cases of NEC, with over £6 million saved in treatment costs annually.

Sudden Infant Death Syndrome (SIDS): Ip et al (2007) conducted a meta-analysis by including only studies that reported clear definitions of exposure, outcomes, and results adjusted for well-known confounders or risk factors for SIDS. Their meta-analysis of seven case-control studies found that a history of breastfeeding was associated with a 36 per cent (95% CI 19% to 49%) reduction in the risk of SIDS compared to those without a history of breastfeeding.

Atopic Dermatitis: Ip et al (2007) report one good quality meta-analysis of 18 prospective cohort studies on full-term infants reported a reduction in the risk of atopic dermatitis by 42

per cent (95% CI 8% to 59%) in children with a family history of atopy and exclusively breastfed for at least three months compared with those who were breastfed for less than three months.

Breast cancer: Ip et al (2007) report two meta-analyses on the reduction in maternal breast cancer risk was 4.3 percent for each year of breastfeeding in one study and 28 percent for 12 or more months of breastfeeding in the other. The Collaborative Group on Hormonal Factors in Breast Cancer (2002), concluded that the lack of or short lifetime duration of breastfeeding typical of women in developed countries makes a major contribution to the high incidence of breast cancer in these countries.

Other health outcomes: A good quality meta-analysis reported a moderate protective effect from breastfeeding in reducing childhood leukaemia while a good quality systematic review reached the opposite conclusion. Increased reduction in post-partum weight, reduced risk of postnatal depression and reduced risk of ovarian cancer are all cited as potential maternal health benefits, but this evidence was found to require cautious interpretation. (Ip et al, 2007)

Effect on intelligence and schooling: The relationship between breastfeeding and intelligence as measured in later life has been reported in many studies from high income countries. Horta et al (2007) assessed performance in intelligence tests, obtaining data from eight studies that controlled for intellectual stimulation at home and collected information on infant feeding in infancy, in which the duration of breastfeeding was of at least one month among breastfed subjects. Performance in intelligence tests was higher among those subjects who had been breastfed (mean difference: 4.9; 95% CI: 2.97–6.92). Regarding school performance in late adolescence or young adulthood, three studies showed a positive effect of breastfeeding. Observed relationships between infant feeding method and cognitive development may be explained by the confounding effects of related factors, such as differences in the quality of the home environment (Bradley and Corwyn, 2002; Hackman and Farah, 2009), and maternal factors including intelligence quotient (IQ) and responsiveness (Jacobson et al, 2014). However, the associations with breastfeeding are also seen in populations where patterns of confounding influences differ (Brion et al, 2011). Brion et al (2011) developed a standardised approach to compare a cohort from in high income countries (the Avon Longitudinal Study of Pregnancy and Childhood ALSPAC, UK) with a cohort from a low or middle-income country (the 1993 Pelotas cohort, Brazil). They reported that breastfeeding was positively associated with performance in intelligence tests in both the Pelotas and the ALSPAC birth cohorts. While breastfeeding was positively associated with family income in ALSPAC, it was inversely associated in the Pelotas cohort, suggesting that breastfeeding may have causal effects on IQ (Brion et al, 2011). In 2013, Horta and Victora published a systematic review on the long-term effects of breastfeeding, including performance in intelligence tests. A meta-analysis of 13 observational studies (providing 14 estimates) suggested that breastfeeding (defined as 'ever-versus-never' or by duration) was associated with higher performance in intelligence tests in childhood and adolescence, by an average of 3.45 IQ points (95% CI 1.92 to 4.98 IQ points). In studies that controlled for maternal intelligence, the difference was 2.19 IQ points

(95% CI 0.89 to 3.50 IQ points) (Horta and Victora, 2013). Horta et al (2015) is an updated systematic review with meta-analysis on the association between breastfeeding and performance in intelligence tests. It found that for children who had been breastfed there was an average difference of 3.44 (95% CI 2.30 to 4.58) IQ points. The difference remained, although attenuated, in studies controlling for maternal IQ (mean difference 2.62 (95% CI 1.25 to 3.98) IQ points.

Impact on maternal-infant attachment: Breastfeeding has been described as a facilitator for maternal-infant attachment, with studies inferring a link between increased levels of oxytocin from breastfeeeding and positive maternal behaviours (Unicef UK 2013, p93-94). This understanding, and indeed the expansion in use of the concept of attachment itself in relation to early parenting, is contested. For example, Faircloth (2014) frames it as an over-medicalisation of maternal emotion.

Limitations in the public health evidence

Breastfeeding is associated with a reduced risk of many diseases in infants and mothers from developed countries. While impact of publication bias is not thought to be an issue for studies included in systematic reviews (Horta et al, 2007), the studies included in reviews range widely in terms of study quality, and there is considerable definitional variation between studies. As for many public health problems, almost all the data in studies in this field are gathered from observational studies. Confounding is therefore likely, especially where causal pathways are behavioural as well as biological (Victora et al, 2004); disentangling breastfeeding out 'the decision to breastfeed' (and the possibillty of parents who breastfeed being more pro-health in other ways) is problematic (Wolf, 2007), and causality based on findings from individual studies cannot be inferred. It is not possible to rule out that the some of the associations outlined above may be explained, at least in part, by self-selection of breastfeeding mothers and a result of residual confounding.

International policy response

In 1981 at the 34th World Health Assembly (WHA) meeting The International Code of Marketing of Breastmilk Substitutes was adopted, to protect and encourage breastfeeding and to control inappropriate marketing of formula milk (World Health Organisation (WHO), 1981). The code has been strengthened through 21 subsequent resolutions at successive assemblies between 1981 and 2016 (IBFAN, 2017). In 1990, 40 participating governments, including the UK, signed the Innocenti Declaration, advising that infants should receive exclusive breastmilk from birth to 4-6 months of age (Unicef, 1990), and this was adopted by international agencies. Building on the declaration, the Baby Friendly Hospital Initiative (BFHI) was launched by WHO and Unicef in 1991 as part of a global effort to re-introduce maternity care practices that had been proven to protect, promote and support breastfeeding. Since its

launch, more than 152 countries around the world have implemented the initiative (WHO, 2017).

The UK Baby Friendly Initiative (BFI) aims to reform systems of maternity care to ensure that maternity settings meet a minimum standard. The UK BFI standards aim to enable breastfeeding and to help all mothers build close and loving relationships with their babies, irrespective of their feeding method (Unicef, 2017). The programme applies to maternity services, health visiting services, neonatal care and to university programmes for training midwives and health visitors. A study of mothers delivering in UK settings found that those delivering in accredited maternity units were more likely to start breastfeeding than those delivering in units without the award, but that there was no impact on breastfeeding duration (Bartington et al, 2006); US studies have found that a BFI designation can improve breastfeeding initiation rates and rates of exclusive breastfeeding (Munn et al, 2016; Patterson et al, 2018).

In the first decade of the 21ˢᵗ Century, international evidence began to suggest that a goal of increased breastfeeding prevalence in countries such as the UK was a realistic ambition; the experience of Scandinavia and Hungary (Achterberg et al, 2008) and of New Zealand (WHO, 2012), demonstrated that in the right circumstances an increasing number of mothers can be persuaded and enabled to breastfeed. This is even the case in countries where formula milk is an affordable, available and can be made up relatively safely. In 2002 WHO developed a Global Strategy for Infant and Young Child Feeding with the aim of refocusing attention on the impact that feeding practices have on infant nutrition and health (WHO, 2003). This included a recommendation that babies be exclusively breastfed until they are aged around six months, with continuing of breastfeeding until the age of '*two years and beyond*' (WHO, 2002, p.1). The Global Strategy built on the WHO code and subsequent resolutions, on the Innocenti Declaration and on the BFHI. The strategy included a recommendation that,

> The health and other relevant sectors protect, promote and support exclusive
> breastfeeding for six months and continued breastfeeding up to two years of age or
> beyond, while providing women access to the support they require – in the family,
> community and workplace – to achieve this goal.
>
> WHO 2002, p.15

The global strategy was intended as '*a guide for action'* to galvanise governments to develop and implement comprehensive policies on infant and young child feeding, and to consider how the issue of infant feeding might interpolate with their existing policies on nutrition, child and reproductive health, and poverty reduction. As a result, according to an analysis conducted by the World Breastfeeding Trends Initiative (WBTi) (Gupta et al, 2018), 64 out of 84 countries returning a report card now have a policy on infant feeding, in 42 countries more than half of hospitals have achieved BFHI status and 42 countries have comprehensive legislation based on the WHO code (WHO, 1981). Indicators of compliance with the Global Strategy, as developed by the WBTi, have been associated with improved rates of exclusive breastfeeding

and improved breastfeeding continuation rates in low and middle income countries (Lutter and Morrow, 2013).

UK policy response

In response to the Global Strategy, national strategies were developed in Northern Ireland (Department of Health and Social Services, 1999), Wales (National Assembly for Wales, 2001) and Scotland (Scottish Executive, 2006), and in most English regions. Policy co-ordinators were appointed in each of the four countries.

Over the next ten years, BFI was adopted as a minimum standard in NICE guidance (NICE, 2006) and funding for community-based breastfeeding peer support was recommended (NICE, 2008). Legislation around women's rights to breastfeed in public places were strengthened through the Scottish Parliament's Breastfeeding (Scotland) Act (2005) and the Equality Act (2010) in England and Wales. However, the EU and then-UK governments did not adopt the WHO International Code of Marketing of Breast Milk Substitutes in its entirety when they were revised during the late 2000s (Statutory Instruments 2007 and 2008). Whilst promotion of formula milk through the UK National Health Service is prohibited and advertising formula milk intended for babies under six months to mothers is illegal, advertising to health professionals, for example in professional magazines, is permitted and mass marketing of formula milk designed for babies over six months old remains legal in the UK.

Additionally, there has been a major investment in producing and disseminating evidence to identify successful interventions to improve maternal and infant nutrition (Fairbank et al, 2000; Renfrew et al, 2005; Dyson e al., 2006; Moreton et al, 2008; Renfrew et al, 2012b; McFadden et al, 2017). This informed the development of NICE guidance on routine postnatal care (NiCE 2006) and on improving the nutrition of pregnant and breastfeeding mothers and children in low-income households (NICE, 2008).

Welsh policy response

In 2001, The Welsh Assembly developed an explicitly 'settings based' strategy to improve the context for decisions to breastfeed (National Assembly for Wales, 2001). The strategy was congruent with a broader Welsh approach to public health, which has tended to embed public health improvement within the framework of the WHO's Ottawa Charter (WHO, 1986), advocating a holistic approach to health promotion by influencing multiple settings and health outcomes simultaneously. The Welsh Breastfeeding strategy set out to influence a wide range of social environments and organisational contexts that influence mothers' decision making, rather than focusing on influencing the behaviour of individual mothers alone. Relevant settings addressed by the Welsh Action Plan include: the hospital, the home and family, the wider community, schools, public places and the work-place (Table 1, p28).

Table 1: Welsh breastfeeding strategy: objectives and subsequent actions

Activity Setting	Strategic objective Constructed from strategic aims set out in All Wales Breastfeeding Strategy, 2001[a]	Actions taken forward from 2001.	Evaluation of action in Public Health Wales Health Improvement Review, 2013[b], and subsequent decision.
Health care services – maternity	Improve the quality of NHS Services for breastfeeding mothers and their babies through. professional education	Commitment to BFI accreditation in maternity settings	Health boards continue to work towards BFI for maternity care settings
Health care services – community	Easy access to good breastfeeding advice	Commitment to BFI accreditation in Health Visiting settings	Health boards continue to work towards BFI for community care settings
Home and breastfeeding	Promotion of a home environment that supports breastfeeding women	Unclear whether specific action was taken	Not considered
Community	A community environment that supports breastfeeding women	Breastfeeding peer support grant scheme was created	Following review[b] a decision was taken in 2016 to cease central funding for peer support training, unless as part of a research project
Schools	Stimulate consideration of infant feeding in early life	A school's education package was developed	No longer operational
Public places	Women have a choice of either somewhere private to breastfeed or the freedom to breastfeed in public places	A government run Breastfeeding Welcome Scheme	No longer operational
Workplace	An environment that supports breastfeeding women	Unclear whether specific action was taken	Not considered
Monitoring & evaluation	A framework for performance management	A framework for improved data collection discussed	Action planning group (2018) to look at data collection in line with policy goals[c]

[a]National Assembly for Wales, 2001; [b]PHW, 2013; [d]Welsh Government, 2018

The 2001 Welsh Strategy aimed to increase initiation and continuance of breastfeeding, encourage joint working and co-operation between health professionals, voluntary groups, and mothers, reduce inequalities and narrow the gap between lowest and highest local area rates, ensure support from employers for breastfeeding following returning to work and promote cultural acceptance of breastfeeding. Breastfeeding rate at 10 days was a key outcome indicator for the strategy, this measure being chosen for convenience rather than for theoretical reasons as it is a measure that is supposed to be routinely collected by midwives.

Lead agencies for implementation of the Action Plan were NHS Trusts and Local Authorities. The implementation of the Action Plan was monitored and supported by an All Wales Breastfeeding Forum (AWBF). This forum is open to anyone with an interest in implementation of the strategy, but is most frequently attended by health professionals and by voluntary agency representatives. In line with the global strategy, breastfeeding policy has been integrated into policy documents aimed at tackling inequalities in health (Welsh Assembly Government, 2011a). The current strategic vision for Maternity Services in Wales re-iterates the Welsh Government's understanding of the impact of infant feeding behaviours on future population health (Welsh Assembly Government, 2011b).

Further action needs to be taken to increase the number of women who breastfeed and innovative ways in which services are provided should be developed to further increase breastfeeding initiation and continuation.

Welsh Assembly Government, 2011, p.5

In 2012, the policy and delivery functions relating to Welsh infant feeding policy were split, whilst responsibility for policy remains with Welsh Government, delivery is now led by Public Health Wales (PHW). In 2013, PHW commissioned a Health Improvement Review of current public health strategies and initiatives, with a focus on their ability to produce intended large-scale change in health outcomes, to improve co-ordination of budgets, clarify targets and outcomes, make better use of existing assets and incorporate practices of co-production (PHW, 2013). The Health Improvement Review found that the evidence base for initiatives to promote breastfeeding outside of a health service context was disappointing and the reviewers suggested a need for further pilot programmes (PHW, 2013; p.20). The authors concluded that The BFI programme in Wales should be continued, but that the wider breastfeeding strategy needed to be considered with the possibility of disinvestment from key components.

By January 2018, all Welsh health visiting settings were BFI accredited, 10 out of 13 Welsh maternity settings were accredited (with two having had their accreditation suspended), and only 3 out of 12 neonatal care setting were on the pathway to accreditation. Meanwhile, BFI accreditation for Welsh Universities providing midwifery and health visiting training lagged considerably behind, with only one out of seven universities having received accreditation (Unicef UK, January 2018). Within these settings, a workforce analysis conducted for the AWBF demonstrated that maternity and community health visiting settings in Wales were not meeting the NICE recommendation for staffing to drive change (Breward, 2017).

The Welsh Government has continued to integrate a goal of improving breastfeeding rates with early years programmes. In 2007 the Welsh government introduced Flying Start, a geographically targeted Early Years Programme with a specific focus on improving the life chances of children in disadvantaged communities. Flying Start incorporates childcare, an intensive health visiting service, access to parenting programmes and referral support for speech and language issues (National Assembly for Wales, 2014). Integrated Children's Centres (ICC) were also set up in each local authority to provide integrated education, care, family support and health services for families.

In 2015, PHW produced a strategic plan with key outcomes around reducing childhood obesity explicitly linked to an intention to increase breastfeeding rates (PHW, 2018). In 2016, PHW launched '10 steps to reducing childhood obesity', which included a focus on breastfeeding (PHW, 2016a) and in July 2017 launched the Every Child Wales website (NHS Wales, 2018).

Since 2016, PHW has continued to provide strategic leadership to the breastfeeding agenda at a national and international level. An alternative approach has been developed at a population level to scale up breastfeeding protection, promotion and support in line with the

latest evidence. This has included leading the process to re-align Wales infant feeding professionals into a more co-ordinated group as part of a UK affiliated network; promoting breastfeeding as part of the 10 Steps to a Healthy Weight Programme and through the Every Child Wales programme; co-ordinating work in support of National Breastfeeding Week in Wales. In 2017 PHW commissioned the development of a programme of work led by Cardiff and Swansea Universities to look at normalising breastfeeding in low prevalence communities.

Taking a whole systems perspective, the WBTI oversaw an evaluation of policy and programmes for Wales, which reported in 2016 (WBTi, 2016). The report found several areas for improvement, including that there was *'no time-bound expectation'* linked to implementation of BFI and considerable variation in provision of breastfeeding education and support, with '*little integration of community services'* (WBTi, 2016). The report found room for improvement around outcomes for breastfeeding continuation, based on a median duration of breastfeeding of two weeks, and for breastfeeding exclusivity, based on an estimated 13 per cent of babies being exclusively breastfed up to six months. In April 2018, PHW announced that it is collaborating with the international Becoming Breastfeeding Friendly programme (Pérez-Escamilla et al, 2012). This programme is based on assessing and then making recommendations to improve 'gears' in the system of influences on infant feeding decisions. The work engages national governments and key stakeholders in assessing progress in terms of 'advocacy', 'political will', 'legislation', 'funding', 'training', 'breastfeeding promotion', 'research and evaluation' and 'co-ordination and monitoring of goals'. The results of the baseline assessment and recommendations for improvement will be available in 2019. Alongside this, in 2018, the Welsh Government constituted a Task and Finish Group, comprising key stakeholders including infant feeding leads and academics, and policy makers built on the group's discussion to develop recommendations to improve strategic leadership for infant feeding within the health service (Welsh Government, 2018a).

1.6 Peer support provision as part of the Welsh policy response

Despite the Welsh Government's settings-based strategy for improving breastfeeing rates (National Assembly for Wales, 2001), the focus for implementation was the health service and the implementation of Baby Friendly. Outside of a health service setting, community-based interventions tended to be more piecemeal, with responsibility falling to service professionals to deliver community-based aspects of the strategy.

The most substantive community-based aspect of the strategy was the decision in 2006 to release ring-fenced funding to train breastfeeding peer supporters. Other community-based elements included infant feeding leads training peer supporters to promote a Breastfeeding Welcome Scheme; an intervention which aimed to identify and promote public places where breastfeeding is welcomed and a schools education package that was developed to raise awareness of breastfeeding among school age children. It is unclear what, if any, new actions

were taken under the strategy to address the identified settings of 'workplace' and the 'home' (see Table 1, p28).

The idea of enabling people with experience of a condition or life event to feel confident to help one another, drawing on their own experience, has been applied across health care settings and underlies the core work of many voluntary organisations. Dennis (2003) suggests that interventions involving created peers have become increasingly attractive as a health promotion tool in the context of shorter hospital stays and reduced opportunities for personal interaction between healthcare professionals and their clients.

In 2006, the Welsh Government initiated a Breastfeeding Grant of £70,000 via which Local Health Boards could develop breastfeeding groups and peer support programmes. This funding was intended to help Infant Feeding Leads recruit and train peer supporters to provide extra help to breastfeeding mothers throughout Wales. An 'Agored Cymru' qualification was developed by the Welsh Government to provide educational credits for breastfeeding peer supporters and to ensure a consistent standard of training.

Across Wales, 130 peer supporters were trained between 2010 and 2012 (National Breastfeeding Programme 22/11/2012). However, the peer support programme did not encompass a strategic approach to ensuring peer support was directed to particular Welsh communities, rather training was offered on the basis that peer supporters were willing to be trained and that a health professional with a specialist background in infant feeding was available to train them. Furthermore, there was no official system for keeping track of the activity of peer supporters once they *had* been trained. Conversations with infant feeding leads indicate that from 2012 onwards most of the peer support that was provided in group settings, with many groups supported by infant feeding leads. In Wales, provision of one-to-one breastfeeding peer support in the early postnatal period was (and remains) uncommon.

A survey of infant feeding co-ordinators conducted in 2015 demonstrated considerable variability in provision of breastfeeding peer support in Wales (Paranjothy et al, 2017). The survey found that none of the models in use had an explicit theoretical basis and interventions being used in Wales had not been subject to evaluation for clinical or cost-effectiveness. The UK-wide survey highlighted key considerations for implementing breastfeeding peer support, including a need for greater clarity about the peer-supporter role and responsibilities, about professional boundaries and about integration with existing local health-care services and with health-care professionals (Grant et al, 2018).

The empirical work for this thesis was conducted in Wales from 2013-2016. This was a time of significant shift in approach to breastfeeding peer support in Wales. The Transforming Health Improvement in Wales Review (PHW, 2013) placed the Welsh Breastfeeding Peer Support Programme under review and from 2016 onwards, PHW was longer prioritising the development of breastfeeding peer support approaches, other than as part of a research and development initiative. A statement issued by PHW in 2016 stated:

Public Health Wales has become aware of concerns regarding the future of work to promote the uptake of breastfeeding in Wales […]. We are no longer prioritising the development of peer support approaches, other than as part of a research and development initiative. Health Boards across Wales may decide to continue to use peer supporters as part of their local support structure and clear guidance exists to support this work.

<div align="right">PHW, 2016, p.1</div>

In practice, since 2016, in some Health Boards the infrastructure for sustaining a peer support function has fallen away, while in others Health Boards Infant Feeding Leads have continued to work in partnership with third sector organisations, applying directly to the Health Board for funding to deliver training or specific interventions. For example, in the Betsi Cadwaladr University Health Board in West Wales, the Infant Feeding Lead has worked with the Association of Breastfeeding Mothers (ABM) to continue to deliver training for community based peer support; in Abertawe Bro Morgannwg University Health Board funding has been obtained for NCT to train ward-based peer supporters. Meanwhile, some peer support groups have continued across Wales in spite of difficulties in accessing ongoing training and supervision. In Aneurin Bevan University Health Board, from 2016 there has been a shift towards training using the Solihul approach to training peer supporters (Thelwell et al, 2017), an approach to training that is based on relationship and reciprocal responsive models, this approach has been adopted as it is considered to be evidence-based, relationship-focused and to have a good fit with BFI standards. Currently there is no overall strategy for targeted delivery of peer support in Wales.

1.7   Peer support – definitions and theoretical perspectives

'Peer support' is recognised as an under-theorised intervention form and has been described as an intervention form '*in search of a theory'* (Turner and Shepherd, 1999, p.235). This thesis does not set out to identify and adjudicate between contender theories. Rather, the purpose is to explore and extend emergent understandings about how peer support works that arise from case studies and from the understanding of relevant stakeholders (parents, peer supporters, health professionals and policy makers). However, it is helpful as a starting point for that exploration to identify key landmarks in the existing theoretical landscape for peer support intervention.

How has peer support been defined?

Existing definitions of peer support are very loose. In a public health context, peer support interventions are often understood as a complement to professional health services that work by extending and enhancing individuals' existing social networks, by putting individuals in touch with created 'peers' who have similar background or experience. In her concept analysis

of peer support interventions delivered in a health care setting, Dennis (2003) defines peer support in a health care context as,

> The provision of emotional, appraisal and informational assistance by a created social network member who possesses experiential knowledge of a specific behaviour or stressor and similar characteristics as the target population.

<div align="right">Dennis, 2003, p.329</div>

Dennis notes that peer support intervention occurs along a continuum from 'lay' to 'professional' support. She makes a distinction between: supportive relationships arising from *embedded social networks*, including family and friends or from natural lay helpers (such as church members, co-workers or neighbours); supportive relationships that arise from *created social networks* including self-help groups without professional involvement; and support groups including professional involvement and paraprofessional support (which she categorises as 'created peer support'). Dennis's concept analysis suggests that peer support bridges a gap between support from family and friends and the health service, and perhaps implicitly recognises that some forms of help are more acceptable and/or more effective when the relationship is not a professional one and that not everyone can find the informal help they need from within their existing networks.

In her review of UK-based breastfeeding peer support interventions, Dykes describes breastfeeding peer support schemes as,

> recruiting a group of local women, who have breastfed their babies, to undertake a short programme of training … who are then engaged in supporting breastfeeding women within their local communities in a range of ways and via a number of access points.

<div align="right">Dykes, 2005b, p.1</div>

While Dennis suggests that peer supporters are integrated to different extents with existing systems of care, Dykes' very broad definition may broaden out Dennis's definition, incorporating interventions that are not directly related to professional caregiving or to an existing care pathway. Both definitions suggest that peer support sits somewhere along a spectrum, and both leave room for considerable variation in intervention form and in theoretical underpinning.

In the remainder of this section I set out key theories that have been applied to peer support and that relate to the relationship between supported individuals and peer supporters. I then draw on a realist review of peer support interventions to promote health literacy and reduce inequalities (Harris et al, 2015) to introduce some understandings that involve mechanisms

operating at other levels within a system of influences on decisions and to highlight differences in epistemological stance.

Theories pertaining to the mother-peer relationship

Several theoretical concepts or approaches, pertaining to the relationship between the supported individual and the peer supporter, have been considered to be relevant to peer support interventions.

Key to peer support is *The Principle of Homophily:* This is the idea that information will be more credible and be more acceptable if the recipient perceives the giver as being similar to themselves (McPherson et al, 2001). This means that (health education) messages will be more credible and support offered more acceptable because the peer delivering the message and offering the support is perceived by the recipient as being someone who is experiencing or has experienced the problem being addressed and is someone who shares the same frame of reference in terms of wider social and cultural norms and values. Closely related to this idea is *Social Learning Theory*. Social Learning Theory suggests that individuals compare themselves with others who occupy a social position that they aspire to occupy, and that they learn through mechanisms of observation, imitation, and modelling (Bandura, 1986).

The Theory of Social Support, is commonly understood to underpin peer support intervention; providing a framework for explaining the ways in which social networks help individuals manage stressful events (Barnes, 1954; Cassel, 1976). Four types of social support have been distinguished: *informational support* involves advice and suggestions; *emotional support* comes from sharing life experiences and providing empathy, love, and care, built on relationships of trust; *instrumental support* consists of providing practical tangible aid and services; and *appraisal support* facilitates self-evaluation through constructive feedback (House, 1981). Intervention theorists distinguish between *perceived support*, the sense a mother has that the help will be there if she needs it, and *received support*, the help that occurs as a direct result of interaction (Dennis, 2002a). Dennis argues that instrumental (or practical) support is not a common feature of peer support interventions. However, recent research suggests that practical help can be a key component of peer support interventions delivered to disadvantaged women, with this form of help acting as *'an expression of caring and a means of building trust'* (McLeish and Redshaw, 2015, p.12).

Dennis notes that peer support interventions may be expected to work because created peers '*understand the target population's situation in a way that naturally embedded social networks may not*' (Dennis, 2003, p.326). She identifies three levels of impact of peer support on behaviour change which, she argues, underpin peer support interventions. First by *Direct Effect,* Dennis suggests that impact may occur as a consequence of the peer support directly influencing outcomes, for example by enabling social integration, access to information or through provision of informal health care. Direct effect is achieved through dimensions of social support (House, 1981). Dennis characterises emotionally supportive interactions as

including 'caring, encouragement, active listening, reflection and reassurance'; informational support is 'the provision of knowledge relevant to problem-solving', while appraisal support enables self-evaluation, providing affirmation of emotions, thoughts and behaviours. Second, Dennis considers that peer support can provide a *Buffering Effect* – the impact occurs because the peer support protects individuals from potentially harmful influences or stressors. Finally, Dennis proposes that peer support can have a *Mediating Effect* – the peer supporter indirectly influencing health outcomes by changing emotions, thoughts and behaviours.

Other theories operating at the level of the individual, or the peer-to-participant relationship have been identified as being used to underpin peer support interventions (Harris et al, 2015, p34). For example, *The Health Belief Model* is underpinned by an assumption that people will change a health-related behaviour if they believe negative consequences can be avoided, or that the recommended action will help avoid consequences and if they believe they can take the recommended action – in other words, if the barriers to implementing the behaviour are not too severe (Glanz et al, 2002). *The Theory of Planned Behaviour* (or reasoned action) is based on an understanding that an individual's behaviour is determined by their intention to carry out that behaviour. Intention is subject to three categories of influence; by a person's own attitude to the behaviour, by their beliefs about how the people they care about will respond to their taking up the behaviour, and by their own perceptions of their ability to perform the behaviour (Ajzen, 1991). The *Stages of Change* model focuses on the decision-making process of the individual, proposing that people change gradually, and cyclically, moving through stages of pre-contemplation, contemplation, preparation, action, and maintenance (Prochaska et al 2002). *Models of Health Literacy* suggests that addressing fundamental health literacy, science literacy, civic literacy and cultural literacy will make a difference to participants' ability to make use of information. *Carkhuff's Helping Model* provides a framework through which to examine the nature of the helping relationship, emphasising qualities of empathy, respect, concreteness, genuineness, immediacy, confrontation and appropriate self-disclosure (Lloyd and Mass, 1983), an approach that has strong overlaps with a Rogerian counselling approach (Mearns and Thorne, 2013)

Theories operating above the level of the mother-peer relationship

While Dennis notes that interactions with a peer supporter can be one-to-one, group based, or virtual, the mechanisms of action that she identifies in concept analysis focus primarily on the impact of peer support on mothers at an individual level (or at the level of the peer-recipient relationship). However, underpinning theories of peer support that operate at the level of organisations, community and society have also been identified and applied in the context of peer support intervention (Harris et al, 2015). For example, *Diffusion of Innovations Theory* was developed to explain how an idea, a product or a behaviour spreads through a social system as people perceive an innovation and begin to adopt the idea, product or behaviour (Rogers, 2010). *Control Theory* considers how weak bonds between individuals and their

peers enable people to deviate from social norms, while strong bonds make deviance more costly (Hirschi, 1969). Peer support interventions are also occasionally underpinned by a *Social Action Model* or *Community Activation Approach, which* involves empowering oppressed groups and communities, so that disenfranchised citizens are able to access opportunities and resources to make a valuable contribution to society (Zastrow and Kirst-Ashman, 2006). *Socio-ecological Frameworks* place individuals in their broader social context and advocate that interventions should reflect this context by intervening at multiple levels (Stokols, 1996). They point to the interactive effects of personal and environmental factors in determining behaviours and are intended to lead to the identification of leverage points for health promotion (Rayner and Lang, 2012).

Epistemological perspective

Theories underpinning peer support interventions can be understood to be contained within one or the other of two competing epistemological stances (Harris et al, 2015). On the one hand, interventions underpinned by an *epidemiological health systems perspective* are characterised as taking epidemiological data as a starting point, and as being designed to reflect the values, goals and theories of causation held by public health professionals with outcomes of interest that reflect health system values. In contrast, Harris et al (2015) identify another set of interventions underpinned by a *community-based social perspective* as beginning with the experience of people living in the community, designed to reflect the values, goals and lay understandings of causation gained from experience in the community setting, with outcomes of interest aligned with community values.

1.8   A guide to the thesis

Through this thesis I take an ill-defined and variously theorised intervention form – breastfeeding peer support – and set out to explore and articulate understandings about how that intervention form might be configured to work in a Welsh context. It is important to note from the outset that the intention is not to identify a single 'winner' theory. Informal theories, based on stakeholder experience, and relating to various theories discussed above, should not be seen as being mutually incompatible. This exploration starts with an understanding that it is possible for several theories to be worth trying – some operating at the level of the mother-peer interaction and some operating at other places within a system of influences. It is possible for theories to be nested within a single intervention.

My method of exploration has been to take the evidence for breastfeeding peer support as a starting point (see Chapter 2). I contextualise this evidence within a complex landscape of influences on infant feeding decisions. I relate this landscape to a socio-ecological framework and also to ideas drawn from complex systems thinking (see Chapter 3). Thereafter, working within an overarching epistemological framework of critical realism (see Chapter 4), I iterate

between lay understandings drawn from stakeholder experience and case studies of published peer support experiments across three research phases (see Chapter 5) to highlight '*what works, for whom, in what circumstances and in what respects, and how?*' (Pawson and Tilley, 2004, p.2). Findings from each stage of iteration are presented in four empirical chapters (Chapters 6-9). Finally, I bring the findings together to develop recommendations for intervention design and evaluation in a Welsh context (Chapter 10).

The remainder of the thesis is structured as follows –

Chapter 2   I present an overview of the literature relating to breastfeeding peer support intervention, relevant to delivery in a UK context. I describe key findings from systematic reviews of the experimental evidence, from process evaluations and from qualitative syntheses. I make the case for a realist approach to considering the evidence from experimental studies.

Chapter 3   I consider the wider context of influences on infant feeding decisions into which peer support is inserted. I explore low breastfeeding rates through an ecological systems lens. I consider the limitations of existing ecological models as a basis for understanding how peer support operates, and the potential for complexity thinking to operationalise an ecological approach, in particular by incorporating the agency of mothers and peers. I conclude by setting out my four thesis research questions.

Chapter 4   I set out my epistemological framework of critical realism, introducing context-mechanism-outcome (CMO) relationships as a key analytical tool. I describe my methodological approach, and key underpinning principles, incorporating reflexivity and drawing on principles of feminist research, as well as on participative approaches.

Chapter 5   I describe my methods of data collection and analysis as conducted through three over-lapping Phases. These are: Phase 1 - semi-structured interviews with professional advocates, including policy makers and infant feeding leads and co-ordinators; Phase 2 – a realist review of the experimental evidence for peer support in high income country settings; and, Phase 3 - a realist qualitative study of the experiences of parents, peer supporters and health professionals in a Welsh context.

Chapter 6   I report the first part of my findings from Phase 1 of my empirical research. I explore the context for peer support implementation concluding that a framework for investigating peer support intervention that is informed by ecological and complex systems thinking is justified.

Chapter 7   I report the second part of my findings from Phase 1 of my empirical research. Through my conversations with Welsh professional advocates I elicit three registers – voices, or half-articulated beliefs – about how peer support

interventions 'work'. These broad groups of understanding are characterised by different degrees of mutuality and different degrees of ecological reach.

Chapter 8   I report my Phase 2 findings from a realist review of breastfeeding peer support experiments conducted in OECD countries. This leads to the development of an ecologically layered model, illustrating that peer support operates as a 'chain of mechanisms' and to the conclusion that published experiments of breastfeeding peer support tend to have poor ecological reach and have an incomplete fit with the registers of understandings about how peer support works identified in Phase 1.

Chapter 9   I take the three Phase 1 clusters of understandings, along with the 'chain of mechanisms' that I identified in Phase 2, as a starting point. Applying an emergent fit approach, I draw on the experience of parents, peer supporters and health professionals, to extend, contradict and nuance ideas about what works for breastfeeding peer support in a Welsh context.

Chapter 10   I discuss some of the broader implications of the findings of this research, in relation to the overall aim of the study to explore and extend theories of breastfeeding peer support and to consider their application in a Welsh context.

Chapter 2: The evidence context for breastfeeding peer support intervention – conflicting evidence and theoretical heterogeneity

2.1 Introduction and contribution to the thesis

I closed Chapter 1 by introducing breastfeeding peer support as a recommended intervention form to address low breastfeeding rates and by highlighting that peer support takes multiple forms and is variously theorised. In this chapter, I summarise findings relevant to breastfeeding peer support interventions delivered in high income country settings, particularly the UK, drawing primarily on existing reviews of the evidence. I highlight the importance of contextual influences on outcomes from peer support intervention and make the case for a focused realist synthesis of the experimental evidence for breastfeeding peer support.

Chapter summary

➢ In Section 2.2, I describe the experimental evidence for breastfeeding peer support, looking at impact on initiation, continuation and on exclusive breastfeeding, concluding that there is currently no good RCT evidence to suggest that peer support interventions can improve breastfeeding continuation rates in a UK setting, though there is evidence from other developed country contexts to indicate that breastfeeding peer support interventions can be effective.

➢ In Section 2.3, I describe evidence from qualitative studies and process evaluations. Qualitative research suggests that women value an empathetic and relational approach to support giving, while process studies indicate that failure to anticipate how interventions will interact with the contexts into which they are inserted can make or break the implementation process.

➢ In Section 2.4, I consider findings from a realist review of peer support interventions to improve health literacy and reduce health inequalities, and make the case for a focused realist review of the experimental evidence base for breastfeeding peer support to complement this work and improve understanding about 'what works'.

➢ In Section 2.5, I summarise the evidence base and suggest that conflicting findings indicate a need to consider breastfeeding peer support in the context of a landscape of influences on decisions.

2.2 Reviews of experimental studies

Experimental studies are used to ask the question, *'Did it work?'* On the face of it, this is the question that those designing and commissioning interventions most want answered.

Syntheses of experimental evidence compare outcomes across studies of people who have been randomly allocated to intervention or to study control groups. The aim is to determine whether there is an independent effect from the intervention on pre-specified outcomes. Syntheses can be narrative or can include statistical combination methods. A finding across several studies that intervention X is (or is not) associated with outcome Y will help to build a picture of intervention strength and generalisability. Researchers look across studies to explore whether an intervention tends to be more successful when it has particular components (e.g. a model of training, or a way of selecting peer supporters, or a given frequency of contacts) or when delivered in certain contexts (e.g. to low income populations, or against a background of high breastfeeding rates, or where there is a professional support infrastructure already in place). However, it is difficult to break down statistical analyses beyond a few categories without losing statistical power.

In this section, I summarise findings from the three most relevant systematic reviews relating to breastfeeding peer support intervention in a UK context and discuss findings from an additional UK-based experiment published after these reviews were completed.

Impact of peer support on breastfeeding initiation

In 2010 a systematic review of experiments, including RCTs, quasi-randomised or cohort studies explored the impact of breastfeeding peer support on breastfeeding *initiation* in developed country settings (Ingram et al, 2010). This review included studies in which peer-support intervention was provided in the antenatal period, regardless of whether it was also provided postnatally. Peer support was defined as '*support offered by women who had themselves breastfed, who were usually from the same socioeconomic background and locality as the women they were supporting and who had received appropriate training'* (Ingram et al, 2010, p.1740). Peer supporters could be providing help on a voluntary basis or in receipt of basic remuneration or money for expenses.

The review included 11 randomised controlled trials (RCTs) which considered the impact of breastfeeding peer support on breastfeeding initiation. These included four studies conducted in a UK setting, three of which provided support to all women regardless of feeding intention McInnes et al, 2000; Muirhead et al, 2006; MacArthur et al, 2009) and one delivered to women '*considering breastfeeding, not having breastfed a previous child for six weeks (women who are likely to breastfeed again*', but which excluded '*women who had planned to contact a [breastfeeding] counsellor*' (Graffy et al, 2004, p.1).

The authors concluded that interventions targeting women with a prior intention to breastfeed were more likely to lead to increases in breastfeeding initiation rates compared to universal breastfeeding peer support interventions.

Impact of peer support on exclusive breastfeeding and on breastfeeding continuation

In 2012 a systematic review of RCTs which explored the impact of breastfeeding peer support on exclusive breastfeeding and on breastfeeding continuation rates was published (Jolly et al, 2012a). The review considered 17 studies that included *exclusive breastfeeding* or *breastfeeding continuation* as an outcome measure. These included four studies from the UK (Graffy et al, 2004; Muirhead et al, 2006; Watt et al, 2009; and Jolly et al, 2012b). Two of these, (Graffy et al, 2004; Muirhead et al, 2006) had been included in the systematic review of impact on initiation (Ingram et al, 2010), discussed above. Fifteen studies were judged to have data suitable for quantitative synthesis through meta-regression including three UK-based studies (Graffy et al, 2004; Muirhead et al, 2006, and Jolly et al, 2012b). Quantitative synthesis was achieved through meta-regression – a technique that is intended to be hypothesis generating (Baker et al, 2009). Effects were estimated for the 15 studies grouped according to (i) three broad categories of 'country-level income', (ii) whether the intervention included antenatal contact as well as postnatal contact, and (iii) two categories of 'intensity of intervention' (more/fewer than five planned contacts between mother and supporter). The authors concluded that:

- In low or middle-income countries, breastfeeding peer support interventions were associated with an increase in breastfeeding continuation, especially exclusive breastfeeding (where they have the potential to make a major contribution to improving key health outcomes), but showed less impact in high-income countries, and had no significant impact in the UK.

- Postnatal-only breastfeeding peer support interventions were associated with improved breastfeeding durations, but interventions that combined antenatal and postnatal breastfeeding peer support contacts were not.

- Low-intensity interventions (involving fewer than five planned breastfeeding peer support contacts) had no significant impact on breastfeeding duration.

The authors hypothesised that the existing routine postnatal care services to support breastfeeding in a UK context may have made it difficult for 'additional' peer support interventions to demonstrate impact. Certainly the UK has a considerably more developed infrastructure to enable postnatal care than middle- and low-income countries included in the review. However, this conclusion does not sit comfortably with findings from UK-based studies that indicate a lack of adequate postnatal support (Bhavnani and Newburn, 2010; Plotkin, 2017) or with the finding that 80 per cent of UK mothers who discontinue breastfeeding in the first six weeks after the birth stop before they plan to do (McAndrew et al, 2012).

Other factors may have contributed to negative findings from UK-based breastfeeding peer support studies in this review. They note that the UK studies tended to involve relatively few planned contacts between supporter and mother, and since 'low intensity' is also associated

with non-significant outcomes, indicate that '*some confounding of setting by intensity of support may exist*' (Jolly et al, 2012a, p.4). Furthermore, the UK studies included in the systematic review are different from each other in many ways; including in relation to intervention goals – two interventions were intended to influence initiation rates as well as continuation rates (Muirhead et al, 2006; Jolly et al, 2012b). First contact with mothers in the Watt study was not until babies were around *three months old*. Given the steep rate of unplanned cessation in the early days after the birth there must be some considerable doubt as to whether this intervention has much to contribute to scientific understanding of interventions to support breastfeeding continuation.

Further to publication of the Jolly et al (2012a) review, in 2017, findings of a natural experiment pertaining to the introduction of a breastfeeding peer support service for mothers aged under 25 years in Nottingham were published (Scott et al, 2017). A segmented regression analysis was used to quantify the impact of the introduction of new breastfeeding peer support service on prevalence of breastfeeding at birth, at two weeks and at six weeks, accounting for underlying trends. This study suggested that peer support was having an impact in terms of encouraging women to continue for two weeks, however, impact was not sustained at six weeks post-partum.

Impact of *any* 'additional support' (lay and/or professional)

Breastfeeding peer support is usually considered to be an 'additional' intervention; one way of providing extra encouragement or support over and above that contained in the usual package of care. Disentangling the impact of 'being a peer' from the impact of 'being an additional source of support' is problematic, not least because the 'usual care' offer varies widely from context to context.

A Cochrane international systematic review, updated in 2012, looked at the impact of *'additional support'* on breastfeeding duration and exclusivity compared it to 'usual maternity care' (Renfrew et al, 2012b). The additional support (compared with usual care) was *provided by professionals or lay supporters*; the review used a wide definition of 'support' including staff training to improve supportive care as well as direct support to the mother from an additional person with a designated support role.

The review considered 52 RCT's and quasi-randomised controlled trials conducted in both high- and low-income country settings. The authors concluded that:

- Support from lay supporters and professionals had a positive impact on breastfeeding outcomes.

- Support is likely to be more effective in areas with high initiation rates.

- Strategies that rely mainly on face-to-face support are more likely to succeed.

- Support that is offered reactively is unlikely to be effective.

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- Women should be offered ongoing visits on a scheduled basis so they can predict the support that will be available.

- Support should be tailored to the needs of the population group.

The results of the Cochrane review are not analysed separately according to country setting. Thirty-seven studies were conducted in high-income countries, including three UK studies involving peer support for breastfeeding (Graffy et al, 2004; Muirhead et al, 2006; and Hoddinott et al, 2009). Two of these studies (Graffy et al, 2004; and Muirhead et al, 2006) are also included in the reviews undertaken by Ingram et al, (2010) and by Jolly et al (2012b) discussed above.

The third UK study involving peer support that was included in the Cochrane review was a cluster-randomised trial of a policy to provide breastfeeding groups in Scotland and was intended to achieve 'population coverage' in intervention areas (Hoddinott et al, 2009). While highly relevant to organisations who train created 'peers' (including breastfeeding counsellors) to run groups, this study was excluded from aforementioned systematic reviews of the impact of peer support as it does not describe a created peer support intervention, since the groups were run by health professionals. The 'peer' element in this study is the direct mother-to-mother interaction within the groups – the mothers themselves having received no formal training.

The Hoddinott et al (2009) study is unusual in pre-specifying intended intervention mechanisms. Intended mechanisms extend beyond changing individual behaviour to include: increased inter-disciplinary working at local level; and sharing of experiences at group level; and inter-personal and inter-group mechanisms operating through social networks. The study found that the intervention to provide breastfeeding groups did not improve breastfeeding rates at six-to-eight weeks, and in some areas, rates declined. The authors suggested possible factors that may have contributed to negative findings, including insufficient women attending the groups in pregnancy and in the early weeks after the birth, and failure to attract groups of women beyond older, higher-income mothers, who are already more likely to breastfeed.

Summary of UK based experiments

International reviews of the experimental evidence base provide some clues as to the kinds of interventions that are more likely to be effective. In particular, they suggest that proactive support and support provided intensively work better (Jolly et al, 2012a and Renfrew et al, 2012b) and that target populations who are already minded to breastfeed are more likely to be encouraged by peer support to initiate breastfeeding (Ingram et al, 2010). The finding that additional support seems to be more effective in contexts with high background initiation rates may indicate that interventions do better at improving breastfeeding rates when they are not

working against a wider culture with a pre-disposition against breastfeeding (Renfrew et al, 2012b).

There is no good RCT evidence to demonstrate that breastfeeding peer support interventions can lead to clinically important improvements in breastfeeding initiation rates or continuation rates in a UK setting, though there is evidence from other high income country contexts to indicate that breastfeeding peer support can be effective. As Hoddinott et al (2010a) note, the negative findings from the small number of UK based trials need considerable unpicking. UK-based one-to-one peer support interventions evaluated as part of the meta-regression were low intensity and predominantly reactive. Furthermore, nearly all the UK intervention trials struggled with achieving take up and with delivering the intervention as intended.

2.3 Qualitative studies and process evaluations

Qualitative studies associated with interventions can be useful in answering the question, '*how was the intervention experienced?'* This question can be considered in relation to anybody touched by the intervention (for example, parents, peer supporter or trainers).

Process studies of interventions tend to consider implementation, take-up, idiosyncrasies and unintended effects, and to ask, '*what happened in practice?*'. Process studies can tell us what went wrong in terms of take up and delivery, and indicate what might be done to improve the impact of the intervention another time.

Syntheses of qualitative and process studies draw together interview, focus group, or observational data, sometimes combined with survey data or with intervention monitoring information to tell us about the experience of those effected by the intervention and to identify factors that have contributed to good or poor experiences or that have helped or hindered delivery. Such studies can contribute to theory building because they reflect how an intervention actually works in practice.

In this section, I summarise findings from the two most relevant syntheses of the qualitative and process evidence relating to delivery of breastfeeding peer support interventions in a UK context (Schmied et al, 2011 and Dykes, 2005b). I also highlight additional material from key UK-based studies not included in existing evidence reviews.

How is the support delivered and experienced?

An international metasynthesis of mothers' perceptions of support looked at mothers' experiences of receiving breastfeeding support from paraprofessionals and from professional health workers (Schmied et al, 2011). The review included findings from 31 primary research qualitative and survey studies identified through a systematic search methodology. The metasynthesis included 11 studies based in the United Kingdom (Bowes and Domokos, 1998; Hoddinott and Pill, 1999; Gill, 2001; Raine and Woodward, 2003; Scott and Mostyn, 2003;

Bailey et al, 2004; Baker et al, 2005; Dykes, 2005b; Ingram et al, 2005; Graffy and Taylor, 2005).

The findings of the Schmied et al (2011) review provide insight into the aspects of breastfeeding support that mothers associate with a positive *experience* of support. The findings indicated that support is experienced along a continuum from '*authentic presence'* at one end (perceived as effective support) to '*disconnected encounters'* at the other (which were perceived as ineffective). Support characterised by authentic presence comprised '*a trusting relationship or connectedness and rapport between the woman and her caregiver, supporter, or both'* (p.51). In contrast a 'disconnected encounter' was characterised by '*limited or no relationship and a lack of rapport'* (p.56).

Themes underpinning a disconnected encounter were '*undermining and blaming*', '*feeling pressured'*, '*communicating temporal pressure'*, not giving time and '*insensitive or invasive touch*'. The authors further distinguish between different styles of support, with a '*facilitative style*' (one that enables people to draw on a range of information and experience and learn for themselves) perceived as effective, and a '*reductionist approach'* ('*oversimplifying*' and providing information and advice in a '*dogmatic or didactic style'*) perceived as ineffective. Peer supporters were more likely than professionals to be described as 'being there' for mothers, sharing the experience, and having a relationship. The authors note that women talked less about feeling rushed when they received care from peer supporters or home-based postnatal care than when they talked about care from professionals in hospital. The authors found that peer supporters have the potential to act as role models, particularly for young mothers and for mothers from socially disadvantaged backgrounds; though they note that support which can offer time, continuity, and the encouragement of a 'peer' may be helpful for many women and not just those from demographic groups that are less likely to breastfeed. Overall, the authors suggest that mothers appreciate a 'person-centred' (Rogers, 1951) approach to support. They argue that a model of support that emphasises continuity of caregiver is more likely to deliver authentic and facilitative support.

Further UK-based qualitative studies have emphasised that women themselves perceive benefit in being part of a supportive community of peers sharing experiences (Hoddinott et al, 2006; Brown et al, 2011a) and that peer supporters can be instrumental in helping them to make a realistic assessment of their situation, to set goals, prepare for negative outcomes and assess their resource landscape, create supportive social networks and enable women to endure difficult times (Thomson et al, 2012). Group-based settings for breastfeeding support provide spaces in which decisions to breastfeed are valued and rewarded with emotional warmth (Hoddinott et al, 2006).

What helps and hinders peer support operationalisation?

A synthesis of process evaluations of primarily group-based breastfeeding peer support projects in areas with low breastfeeding rates, funded for one year by the UK government, was conducted to identify aspects of the intervention or wider delivery context that tended to support successful delivery and factors that tended to lead to implementation failure (Dykes, 2005b).

The review considered process evaluations relating to 26 peer support projects. The evaluation identified a series of steps required for successful operationalisation of breastfeeding peer support schemes relating to ensuring congruence between the intervention and local contextual factors and achieving project credibility and sustainability, ensuring good administrative practices and smoothing pathways for care. It was important that the intervention was developed with an understanding of local cultural norms, and was connected to existing schemes and projects. Dykes concluded that when the identified steps are followed, peer support schemes have the potential to support breastfeeding women and to have an impact on initiation and continuation rates. I have summarised the identified steps in Table 2 (p.47).

A strength of the Hoddinott et al (2009) cluster randomised controlled trial of health professional led group-based support is that this trial was embedded within a qualitative process evaluation (Hoddinott et al, 2010a) which was based on principles of realist investigation (Pawson, 2006). The authors set out to understand how the implementation context itself interacted with the intervention to influence outcomes. The authors identified that a wide array of obstacles relating to the context into which the intervention was inserted tended to limit opportunities for change. They found that areas where breastfeeding rates declined were characterised by,

> deprivation, unsuitable premises and geographical barriers to inter-professional communication; personnel resources including staff shortages, high workload and low morale; and organisational change

In contrast, in areas where breastfeeding rates rose,

> there was more evidence of leadership, focus on policy, multi-disciplinary working and reflective action cycles

> Hoddinott et al, 2010a. p 768.

A further UK study found that peer supporters experienced barriers to integration with professional health care services, including managing their restricted time, increased anxiety around meeting targets as well as hostility from some health professionals and a need to negotiate gatekeeping practices (Aitken and Thomson, 2013).

Table 2: Nine steps required for successful operationalisation of breastfeeding peer support schemes developed form an evaluation of twenty-six projects (constructed from Dykes 2005b)

Step	Description
Cultural awareness	Develop an in-depth understanding of the local culture, e.g. via teams working and living in the target area and interviews and focus groups with community members
Infrastructure building	Become aware of existing schemes and projects, facilitate interconnection and experience-sharing.
Comprehensive planning	Involve key representatives (health boards or trusts, local initiatives such as Sure Start/Flying Start, breastfeeding support organisations, infant feeding specialists, health visitors and midwives). Ensure funding and time for a co-ordination role.
Engaging peer supporters	Develop clear guidelines on engaging, training and supporting peer supporters. Ensure the times and format of the courses are flexible with adequate provision for accompanying children. Education should be delivered on a 'rolling' basis.
Peer-professional interface	Fully inform health professionals about the scheme so that women are appropriately referred. Address health professionals' educational needs alongside developing peer support.
Marketing the programme	Ensure ongoing publicity to enable peer supporter recruitment and make women aware that support is available.
Supportive infrastructure	Ensure multiple access points for referral across the hospital-community interface (e.g. antenatal clinics, health centres, postnatal wards and drop-in centres). Ensure peer supporters have a designated place in which to work when in hospital. Include peer-led support groups and drop-in centres as these facilitate supportive relationships within and between groups. Ensure drop-in centres are in venues that are acceptable and accessible to the target group of women and run at least weekly. Link timing to other activities (e.g. baby clinic). Develop a workable telephone and home visiting system, ensure payment of expenses, support with childcare and ongoing support for peer supporters. Ensure a peer support administrator is available.
Comprehensive evaluation	Have a clear evaluation strategy from the outset, involving a continual cycle of evaluation and improvement.
Obtaining and maintaining funding	Identify key funders to enable existing projects to be sustained and expanded.

Table included in Trickey, 2013a, p.18

2.4 The case for attention to context and for realist review

Realist research methods focus on questions like, 'how did the intervention work in this context, with this population and in relation to these observed outcomes?' and 'what are the transferrable lessons?'

Realist approaches to evidence synthesis and evaluation are based on an insight that it does not make sense to separate out a complex intervention, such as breastfeeding peer support, from its delivery context. Because contextual impact is considered important, realist syntheses do not combine studies to look at overall strength of effect. Instead, realists try to understand what the underlying processes of change actually are in any given context and *why* they are triggered in some contexts but not in others. In trying to understand why things worked out (or didn't work out) as they did, realist researchers look to identify changes in the thinking of the individuals who are touched by an intervention; these changes in thinking are the 'generative mechanisms' that cause them to act in ways that they would not otherwise have done, thereby changing the context and so leading to different outcomes. Realist evidence synthesis occurs through realist review, which incorporates studies of all methodological types to develop and test theories about which sorts of generative mechanisms tend to be triggered in which sorts of contexts – to understand,

> What works, for whom, in what circumstances and in what respects, and how?

> Pawson and Tilley, 2004, p.2

Findings from a realist review of peer support to improve health literacy

In 2015, Harris et al published a realist review of community-based peer support interventions to increase health literacy and reduce health inequality (Harris et al, 2015). Findings of this review contributed to the discussion of theories of peer support set out in Chapter 1 (Section 1.7) of this thesis. The synthesis found that a *public health epidemiology informed epistemological stance* tended to drive an authoritarian design for peer-support programmes and that this approach tended to limit the ability of peer supporters to exercise autonomy and use their experiential knowledge to deliver culturally tailored support. The review also indicated that a negotiated approach to co-designing programmes might enable peer supporters to have more meaningful relationships with those in socially vulnerable groups. Harris et al call for more explicit empirical research is to establish clearer links between peer-supported interventions and health inequalities (Harris et al, 2015).

The Harris et al (2015) review highlighted inconsistencies in the definition of peer support across a range of studies addressing a variety of health topics. However, the review did not encompass the 'one-to-one' breastfeeding peer support experiments that have contributed to influential systematic reviews discussed above. Furthermore, the mechanisms identified in the review were generalised across a range of public health topics and it is unclear the extent to

which these apply to breastfeeding peer support or indeed whether there are additional mechanisms that apply to breastfeeding support. Evidence from the Harris et al review that the top-down authoritarian approach to intervention design that tends to be associated with experimental studies may have downsides (Harris et al, 2015) suggests a need to also consider the influential experimental evidence base for breastfeeding peer support through a realist lens.

Case for a realist approach to interpretation of experimental evidence

The conclusion that breastfeeding peer support is *'likely to be ineffective for increasing breastfeeding rates in high income countries, in particular in the United Kingdom'* (Jolly et al, 2012a, p.4) seems premature given the small number of experimental studies that have been conducted in a UK setting; the fact that peer support interventions have been effective in other developed country settings; and the fact that intervention designs have tended to have components that may have compounded lack of effectiveness, including being of low intensity (Trickey 2013a). Further RCTs to assess the effectiveness of breastfeeding peer support have been recommended (Jolly et al, 2012a) and in the UK this recommendation has been taken up by the National Institute of Health Research, with funding having been made available for two feasibility trials of individualised breastfeeding peer support interventions, the first based on a motivational interviewing approach to support giving (Paranjothy et al, 2017) and the second based on an approach of assessing local assets (Jolly et al, 2018).

Qualitative studies suggest the quality of the relationship between the mother and the peer impacts on delivery of various of aspects of social support, particularly emotional support (Schmied et al, 2011), while process studies consistently indicate that the context into which the intervention is inserted can have a powerful independent impact on breastfeeding outcomes, indicating a range of mechanisms operating above the level of the peer-mother relationship which ought to be taken into account in intervention design (Dykes et al, 2005b). However, these insights from qualitative and process studies appear to have been poorly integrated into the design of UK-based experiments – including those that were initiated after these findings were published. Findings from key reviews included in the discussion of the existing evidence base above, are summarised in Table 3 (p.51).

Inconsistent evidence from systematic reviews and the wide range of definitions of peer support that are used across peer support interventions led Dr Gill Thomson and myself to conduct a scoping review of breastfeeding peer support RCTs (Thomson and Trickey, 2013). Our review indicated that intervention designs were varied and complicated in ways that category-based analysis in systematic reviews had failed to fully address. We concluded that a challenge in understanding the varied and often apparently contradictory findings of breastfeeding peer support trials was a lack of clarity concerning the study context, the components of the intervention itself and the mechanisms through which the scheme was intended to operate. The discussion sections of several study papers hinted at complex

interactions between health professionals, peers, and mothers that may have influenced outcomes. Given this complexity, we recommended that realist principles be applied to the evidence base to enhance the potential for findings from studies to inform intervention design (Thomson and Trickey, 2013).

2.5 Evidence summary

It appears over-simplistic to think of peer support as single intervention form which either 'works' or 'does not work' (Thomson and Trickey, 2013; Harris et al, 2015). The experimental evidence for peer support is contradictory. A preliminary investigation of models of peer support intervention studied in the various reviews discussed in this chapter suggests that multiple and varying change mechanisms in are potentially in play across the range of breastfeeding peer support interventions currently operating in the UK (Thomson and Trickey, 2013). Change mechanisms tend to be poorly theorised, so that theory is rarely integrated into design. Further theory development work prior to further intervention testing is indicated, in line with Medical Research Centre (MRC) guidance on intervention development (Craig et al, 2008).

> A key early task is to develop a theoretical understanding of the likely process
> of change by drawing on existing evidence and theory, supplemented if
> necessary by new primary research.

Craig et al, 2008, p.589

There is a need to re-examine the experimental literature with a focus on intervention theory and interaction with the context into which interventions are inserted. There is also a need for further primary research to build a stronger theoretical basis and to identify active ingredients for change in a Welsh context. Theory development needs to take account of wider contextual influences on decisions and should be based on an evidenced understanding key interactions. Work to identify the aspects of context that aid successful implementation is likely to be critical to intervention success.

What's next?

In Chapter 3, I consider the biopsychosocial ecology of influences on infant feeding decisions. This ecological landscape provides a basis for my empirical investigation, which draws on experience to improve the basis for theory and intervention design for breastfeeding peer support a Welsh context.

Table 3: Insights arising from different forms of evidence synthesis

Type of evidence synthesis	Purpose and scope	Key insights for peer support delivered in a UK context
An international systematic review of experimental studies of peer support for breastfeeding, impact on initiation rates Ingram et al, 2010	To examine the effect of antenatal peer support on rates of breastfeeding initiation.	The findings primarily relate to studies of peer support delivered to individual mothers on a one-to-one basis. Universal antenatal peer support did not seem to improve rates of breastfeeding initiation, though *targeted* antenatal peer support may be beneficial.
An international systematic review and meta-regression analysis of experimental studies of peer support for breastfeeding, Jolly et al, 2012b	To examine the effect of intensity (frequency of contacts), timing (antenatal or postnatal) and country-level setting on peer support for breastfeeding.	The findings primarily relate to studies of peer support delivered to individual mothers on a one-to-one basis. Breastfeeding peer support interventions of low intensity (fewer than five contacts) tend not to be effective. Peer support with a postnatal component tended to be more effective. Five experimental studies in the UK have failed to demonstrate positive findings for breastfeeding peer support (at least three were low intensity).
An international systematic (Cochrane) review of experimental and quasi experimental studies, Renfrew et al, 2012b.	To examine the impact of 'extra support' on breastfeeding duration and exclusivity compared to 'usual maternity care'	Combined lay and professional breastfeeding support can improve outcomes. However, findings were not broken down to country-level. Other insights: face-to-face and ongoing and predictable contacts may be more effective; reactive interventions may not work; tailoring to local needs may help.
An international metasynthesis of qualitative and survey studies to explore perceptions and experience of professional and peer support for breastfeeding. Schmeid et al, 2011	To examine women's perceptions and experiences of breastfeeding support, either professional or peer, to illuminate the components of support that they deemed 'supportive'.	The type of support perceived to be most effective was that characterised by an 'authentic presence' – a trusting relationship and rapport between the woman and her caregiver – and with a 'facilitative style' – enabling people to draw on a range of information and experience and learn for themselves.
A UK-based review of process evaluations of community-based peer support interventions in low-income settings. Dykes, 2005b	To synthesise common themes across peer support projects, highlight innovative ways of delivering services, develop best practice, and illustrate issues related to sustainability.	Primarily relating to group-based peer support, the results indicate that projects will be more successful if they are: aligned to local culture and facilitate local networking; address the needs of health professionals and make time for co-ordination; have clear guidelines for selection, training and supervision of peers and provide training on a rolling basis; market the peer support well and have multiple access points for mothers; embed evaluation; work towards a sustainable funding basis.
A UK-based realist review of peer support to improve health literacy across a range of health topics (including breastfeeding). Harris et al, 2015	To understand the potential of community-based peer support in order to help people understand and act on health information.	Peer support is more effective when local people are involved in design and peers use their autonomy to deliver culturally tailored support. Peers should have ongoing supervision. Peer support works better to promote health literacy when peers have something in common with participants, get participants involved in social networks to discuss problems, and allow participants to discuss a range of topics, not just health.

Adapted from Trickey, 2016b

Chapter 3: Introducing ecological and complex systems thinking – implications for theory investigation

3.1 Introduction and contribution to the thesis

In this chapter, I contextualise peer support intervention within a complex ecological system of influences on feeding decisions. I draw on ecological approaches and complex systems thinking in public health to describe a landscape of influences on infant feeding decisions, which come together to form the context for intervention. I highlight the potential for mothers themselves to act to change the context for infant feeding decisions, including by becoming peer supporters themselves. I develop a preliminary visual conceptual model of influences, incorporating these ideas of human agency. This provides a thinking tool for my subsequent empirical research.

Chapter summary

➢ In Section 3.2, I describe influences on infant feeding decisions from an ecological perspective; considering the circumstances of the infant-mother dyad, the views and experiences of family, social network and local community members, in relation to mothers' living and working conditions, as well as in relation to influences arising from general socio-economic, cultural and environmental conditions.

➢ In Section 3.3, I describe ways in which ecological framing has been used to identify components of an enabling environment for breastfeeding and suggest that an ecological framework is insufficient to make sense of the complexity of interactions between influences on decisions.

➢ In Section 3.4, I introduce components of complex systems thinking and suggest that these can be helpful in operationalising an ecological framework for the purposes of theory development. I make the case that features of complex systems – including multiple interacting components, open systems, system history, wicked problems, feedback loops, self-organisation, criticality and emergence, context and human agency – are relevant to understanding peer support intervention to change infant feeding decisions.

➢ In Section 3.5, I propose an enhanced visual model, informed by an ecological framework and by elements of complex adaptive systems thinking, as a thinking tool for exploring and discussing theories of peer support intervention.

➢ In Section 3.6, I set out my research questions for the thesis and introduce my epistemological and methodological approach to addressing these.

3.2 A changing conversation: Infant feeding in an ecological frame

Ecological approaches to health promotion target multiple environmental influences and often involve long-standing changes to physical, legal, economic and social environments so that they are strong and enduring (Crosby et al, 2013). They are consistent with an approach to health promotion set out in the WHO Ottawa Charter (1986). They recognise that programmes that focus on educating and persuading individuals may fail to produce long-term behaviour change because of a countervailing account of the impact of the wider environment on individual health. Since the 1980s ecological conceptual models, and the principles that underlie them, have been increasingly influential providing policy makers with a framework through which to interpret public health issues and to identify policy solutions that address influences in human behaviour at multiple levels (Hancock and Perkins, 1985; Bronfenbrenner, 1977; McLeroy et al, 1988; Dahlgren and Whitehead, 1991). Ecological conceptual models are typified by visual graphics which place an individual at the centre of the model, with influences presented as being more or less proximate in terms of the extent to which individuals directly interact with them (Raynor and Lang, 2012); as for example presented in Dahlgren and Whitehead's classic model (Dahlgren and Whitehead, 1991), shown in Figure 2.

Figure 2: Dahlgren and Whitehead's 'rainbow' model of influences on an individual's health

Source: Dahlgren and Whitehead, 1991
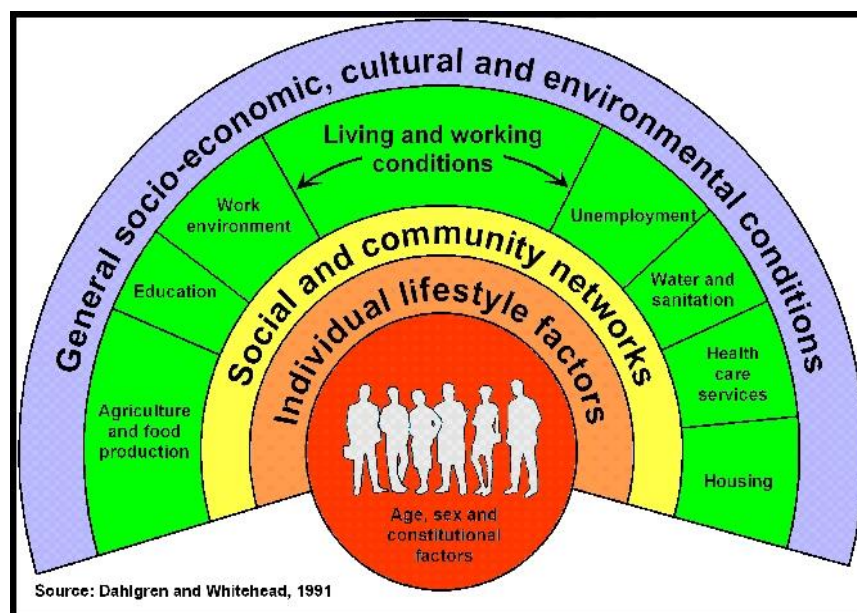
Over the past decade, there has been a growing recognition of a need for a shift of direction in infant feeding policy towards a more ecologically informed approach. Academics, policy makers and third sector organisations are reconsidering the efficacy, sufficiency, and ethical foundations of a health education approach to breastfeeding promotion. In 2011, NCT (the UK's largest charity for expectant and new parents) has called for an approach to breastfeeding promotion that moves away from '*communicating in order to influence*' and towards '*enabling people to increase control over, and to improve, their health through social*

and environmental intervention' (Trickey et al, 2011 p.2). A 2016 Lancet series on breastfeeding and public health concluded that shifts in the breastfeeding rate and consequent health gains were unlikely to be achieved while public health attention remains focused on educating expectant mothers about the benefits of breastfeeding (Rollins et al, 2016). This message forms the basis for Unicef Baby Friendly UK's recent Call to Action (Unicef UK Baby Friendly, 2016). This Call to Action is intended to galvanise commitment from health authorities to,

> Establish a new normal of breastfeeding, where every woman can expect to breastfeed, and to receive every support she needs to do so.

The call aims to achieve this by,

> […] stopping laying the responsibility for this major public health issue in the laps of individual women and acknowledging the role that politics and society has to play at every level. The goal of our Call to Action is not to put pressure on women to breastfeed, but to remove the barriers that currently stop women who want to breastfeed from doing so.
>
> <div align="right">Unicef UK Baby Friendly, 2016, p.1</div>

The call asked the four UK nations (England, Wales, Scotland and Northern Ireland) to develop National Infant Feeding Strategy Boards, to ensure that breastfeeding promotion was embedded with other public health issues, that the BFI was implemented across maternity care settings and that breastfeeding was protected from harmful commercial influences, including through full implementation of the WHO code.

An ecological approach begins with outlining influences on decisions at different ecological levels. Dahlgren and Whitehead's ecological framework (Dahlgren and Whitehead, 1991) provides a starting point for summarising the literature on influences relating to a UK context.

Influences at the level of the mother-infant dyad

A recent review highlights the association between not breastfeeding and high risk pregnancies, assisted delivery, long hospital stays, maternal illness, and pre-term, ill, or low-birthweight new-born babies (Rollins et al, 2016). Several maternal health conditions, including polycystic ovary condition, can affect maternal milk supply and capacity to exclusively breastfeed a new baby; however these are rare and in no way correspond to self-reported levels of 'insufficient milk' (McAndrew et al, 2012). In fact, most self-reported seemingly constitutional factors leading to breastfeeding cessation, including having painful breasts or nipples and the baby 'rejecting' the breast suggest that many mothers have not been supported to establish breastfeeding and do not have a good understanding of what's 'normal' either in terms of feeding patterns or of new-born sleep in the early weeks.

In the general population, studies of differences between mothers who continue to breastfeed and those who stop indicate that maternal confidence and high levels of self-efficacy are important factors (Blyth et al, 2002). Qualitative research has identified key themes relating to mothers own perceptions and understandings surrounding decisions to formula feed; these

are seeing formula feeding as normal, negative body image relating to breastfeeding, formula feeding as more convenient, breastfeeding as difficult and anxiety about breastfeeding (Brown et al, 2011b). Research into the characteristics and experiences of young mothers who decide to breastfeed (Brown et al, 2011a) and with mothers who breastfeed for at least six months (Brown and Lee, 2011) indicate that *determination* is a key characteristic, enabling mothers to resist pressure to introduce formula milk or solid foods. These mothers often breastfeed despite experiencing feeding difficulties, and negative attitudes of others, rather than in the absence of these problems. Long-standing intention to breastfeed (Hoddinott and Pill, 1999), plus strong ingrained beliefs that breastfeeding is normal and healthy appears to help young mothers who chose to breastfeed and mothers who breastfed for at least six months to overcome the problems they encountered. Rationales for breastfeeding among those who choose to breastfeed despite social norms tend to go beyond a narrow focus on 'health'. Brown et al (2011a) found that women talked about *enjoying* breastfeeding for its own sake, and about the importance of breastfeeding to the developing relationship between themselves and their babies. These mothers also related a sense of pride and achievement at having breastfed alongside a sense of sadness at the lack of support for others.

Family, community and social network

The impact of the views of the baby's father on a woman's decisions to breastfeed varies. Several studies suggest that the father's role is crucial (Giugliani et al, 1994; Arora et al, 2000; Sherriff et al, 2000; Swanson and Power, 2005); one study found that fathers' views have an influence on breastfeeding initiation and on duration (Swanson and Power, 2005) while a 1990s study found that the father's opinion was a more important correlate for infant feeding method than maternal age, education level, ethic group or marital status (Giugliani et al, 1994). A more recent study found that fathers tended to view breastfeeding as 'natural' but 'problematic' while tending to consider formula feeding as convenient and safe; participants tended to believe that breastfeeding involved public exposure and to associate breasts with sexuality (Henderson et al, 2011).

Maternal grandmothers play a key role in supporting the infant feeding practices of their daughters (Grassley and Eschiti, 2007; Ekstrom et al, 2003) and inevitably bring their own infant feeding experiences and beliefs into their offers of support, including promotion of cultural practices that may work against decisions to breastfeed (Grassley and Eschiti, 2011; Reid et al, 2010; Mauch et al, 2012, Trickey et al, 2017). Mothers whose own mothers used formula milk are less likely to breastfeed (McAndrew et al, 2012). Mothers who introduced solid foods before 17 weeks have been found to be predominantly influenced by advice from their own mother or grandmother (Moore et al, 2012), Grandparents are often a key source of practical and childcare support and this form of support seems to be negatively associated with breastfeeding (Emmott and Mace, 2015). A qualitative study of Welsh grandmothers found that while those who had themselves breastfed felt able to support their own daughters or daughters-in-law to breastfeed, others who had not breastfed sometimes felt that

breastfeeding would interfere with their own relationship with the baby or would be incompatible with shared childcare arrangements (Trickey et al, 2017).

Beliefs, behaviours and attitudes of family and social peers makes a difference to mothers' feeding decisions – in communities where formula feeding is less common, women who plan to breastfeed often need to rely on sporadic practical and emotional support from professionals to enable their decisions (Hoddinott and Pill, 1999; Scott and Mostyn, 2003; Bailey, Pain and Aarvolod, 2004; McFadden and Tool, 2006; McInnes et al, 2013). As Harris et al (2015) point out,

> Health-related behaviours are recognised as being shaped and constrained by collectively negotiated identities rather than individual decisions. It can also be argued that health-related behaviour is influenced by community norms about what is possible. These norms are negotiated in group settings through dialogue.
>
> Harris et al, 2015, p.11

Women who are encouraged to breastfeed by key social network members are more likely to start and continue for longer (Avery et al, 2009) and women who have friends who have breastfed are more likely to breastfeed their own baby (McAndrew et al, 2012). Negative or mixed messages from partners, family, friends and health professionals can undermine breastfeeding decisions (McInnes et al, 2013; Larsen et al, 2008). Feeding intention and breastfeeding self-efficacy interrelate with social support (Meedya et al, 2010).

Even though breastfeeding is promoted by public health policy, UK breastfeeding women can feel marginalised in the public sphere and may feel that they are expected to act to maintain the comfort of other members of the public by hiding the fact that they are breastfeeding, risking censure if they fail to do so (Boyer, 2012). The impact of this 'process of intersubjective affective practice' (Boyer 2012, p.553) may be stronger in some community settings than in others. For example, research conducted in a low-income Welsh valley town community indicated that ambiguous or negative attitudes to breastfeeding in public places remains a major barrier to decisions to breastfeed in this area (Cork, 2013; Cork, 2014).

Living and working conditions (organisational settings)

Organisational settings considered influential in a UK context include the NHS, the workplace and schools.

The health service: Certain health care practices increase the likelihood of breastfeeding becoming established. These include early mother-baby skin to skin contact (Moore et al, 2007), frequent and unrestricted feeding (Renfrew et al, 2005) and help with positioning and attachment (Renfrew et al, 2005). In a UK context, a lack of skills and knowledge about breastfeeding among maternity care workers has been identified as contributing to low breastfeeding rates (Hall-Moran et al, 2005; Renfrew et al, 2005) and implementation of the BFI to improve this situation in line with guidance is occurring in a context of a trend towards shorter hospital strays. A recent survey of mothers found that one in five women were not able to see a midwife as much as they needed to in the post-birth period, a third of whom reported

that this resulted in a delay in a health problem being diagnosed in them or their baby (Plotkin, 2017). NICE has recommended one full-time equivalent co-ordinater per 3,000 births in each hospital setting (Unicef UK, 2013, p.131) and Department of Health commissiong guides have recommended that whole-time-equivalent support should be available for every 250 breastfeeding mothers (Department of Health, 2009); in Wales recent data indicate that all but one of the seven health boards fall short of the NICE recommendation for maternity services, with all health boards falling short with regard to health visiting services (Breward, 2017).

The workplace: Women who plan to return to work following childbirth are less likely to initiate breastfeeding (Hawkins et al, 2007). While mothers who stop breastfeeding after several months do sometimes cite returning to work as a factor in their decision to stop, the 2010 infant feeding survey did not find a clear association between timing of return to work and the duration of breastfeeding – this lack of association may reflect significant extensions to rights to leave from work for new parents in the UK (McAndrew et al, 2012). Protection for rights and facilities to breastfeed at work in the UK fall short of those set out in the International Labour Organisation (ILO) Maternity Protection Convention (ILO, 2000; ILO, 2013); UK law protects a right to maternity leave, but does not give a specific right to time off work for breastfeeding or to facilities to store and express milk, though some employers do comply with the ILO recommendation.

Education: There is evidence that school children are already beginning to form ideas about how they will feed their baby when they become parents (Swanson et al, 2006). This has led to the suggestion that future parents might be more inclined to breastfeed if infant feeding education were specifically included in the school curriculum (Renfrew and Hall, 2008) although it has also been noted that further research is necessary to determine whether and how such an intervention might be effective (Russell et al, 2004).

General socio-economic, cultural and environmental conditions

There is evidence to suggest that levels of deprivation and access to resources, commercial pressure, the legislative context, media portrayals and popular parenting guidance all influence parents' infant feeding decisions.

Local socio-economic conditions: As noted in *Chapter 1*, low breastfeeding rates correlate with higher indices of deprivation (Brown, 2009) and socio-economic status is known to be a significant confounder of the relationship between parenting and child health outcomes (Taylor et al, 2000). Conditions and poverty and consequent stress are known to impact on parenting decisions, so that parenting styles,

> cannot be understood, and neither can interventions to support effective
> parenting and successful childrearing be planned, unless it is placed within its
> economic, social, historical, and political context.
>
> Taylor, et al, 2000, p.113

In terms of infant feeding decisions, it may be that middle-class parents, who tend to be more socially mobile and less likely to live close to their birth families, have exposure to a broader range of infant feeding approaches within their social networks, as well as access to a wider spectrum of paid and unpaid support – with these assets may enabling them to experiment and parent in ways that are different from those of previous generations in their own families – including making a decision to breastfeed – while for parents living in the context of wider conditions of deprivation the resources to experiment may be lacking.

Commercial influence: Formula milk provides parents with an alternative to breastfeeding their babies. Internationally, availability of formula milk, and formula milk marketing have been shown to be associated with increased rates of bottle-feeding. Global sales of baby formula milk are estimated to reach $70.6 billion by 2019, and sales seem to be resilient to economic down-turns (Rollins et al, 2016). Internationally, the baby food industry has been found to use similar tactics as the tobacco industry to influence public health, promote their products and expand their markets (Granheim et al, 2017). The EU and UK governments did not adopt the WHO International Code of Marketing of Breast Milk Substitutes in its entirety when this was revised in 2007 and 2008 respectively. There has been a growth of television advertising of formula milk, which was not common prior to the 1997 Infant Formula and Follow-on Formula Regulations (The Infant Formula and Follow-on Formula (Amendment) Regulations 1997). Companies manufacturing formula milk have continued to effectively promote, rebrand and invent new versions of their products.

Legislative context: Contradictions between any perception that breastfeeding is not acceptable in public places, and public health messages that babies should be exclusively breastfed for six months with continued breastfeeding up to two years and beyond, have a direct impact on mothers' experiences. Artificial imposition of times when it is acceptable or unacceptable to feed is likely to prevent mothers from feeding their babies 'on cue' – when they begin to make signs that they are hungry. Mothers may feel they can only go out between feeds or may introduce formula milk before they planned to so that they don't have to breastfeed when they are out (Brown et al, 2011b). Policy makers have sought to tackle barriers around attitudes to breastfeeding in public places in two main ways, through legal action and through public campaigns. In terms of legal action, in 2005, the Scottish parliament introduced the Breastfeeding Act (Breastfeeding etc. (Scotland) Act, 2005), giving children under two years old the right to be fed milk (breast or formula) in a public place, which achieved a great deal of publicity for breastfeeding as a normal activity, while in England and Wales the 2010 Equality Act clarified the law about protection for a mother's right to breastfeed in public places in Great Britain (Equality Act, 2010). Public campaigns included various premises schemes, such as the Welsh Government's 'Breastfeeding Welcome Scheme', whereby business owners and local authority facilities advertise their support for mothers who breastfeed on their premises.

Media portrayals: Studies of UK Media portrayals of bottle and breastfeeding have found that in the media breastfeeding is presented as problematic and associated with middle-class or celebrity women and that portrayals tend to re-enforce an association between breasts and

sexuality (Henderson et al, 2000; Scott, 2011). In the UK, it is widely acknowledged that reporting and discussion of any new research findings to do with breastfeeding in social and mainstream media is often divisive and emotionally charged (Unicef UK, 2016; Trickey, 2016a).

Parenting gurus: Parenting manuals and new parenting approaches have continued to proliferate and sell in large quantities during the decade, while web-based information and mother-to-mother networking sites have become more and more important sources of lay information and mutual support for new parents. At present it is unclear how such media interact with infant feeding outcomes. Information sources often conflict in their guidance about when and how their babies should be fed, with some authors advocating adherence to feeding routines and others arguing for baby-led approaches. A recent study found that baby books that promote strict routines tend to be percieved as unhelpful, and that their use was associated with increased depressive symptoms and stress and lower self-efficacy (Harries and Brown, 2017).

3.3. A need to operationalise ecological thinking

There have been several attempts to formally describe influences on infant feeding in ecological terms. For example, drawing on women's accounts, Tiedje et al, (2002) proposed a simple ecological framework in which influences on breastfeeding outcomes are divided into five levels explicitly based on Brofenbrenner's human ecology model. Labbok (2008) presented influences in the form of a visual graphic comprising concentric rings, placing the mother-infant dyad at the centre. In 2016, Rollins et al presented a conceptual model for '*the components for an enabling environment*' for decisions to breastfeed, based on an international review of interventions at different ecological levels (Rollins et al, 2016, p.492). This model is predicated on ecological thinking and an understanding that a public health approach is needed to facilitate collective societal responsibility for improving breastfeeding rates.

The Rollins et al, model goes beyond those proposed by Tiedje et al and Labbok in that it incorporates interventions intended to modify influences and attempts to describe interaction between the ecological levels and various 'activity settings', suggesting multi-level entry points for intervention. The conceptual model is presented as a diagram in Figure 3 (p.61).

Figure 3: Components of an enabling environment for breastfeeding
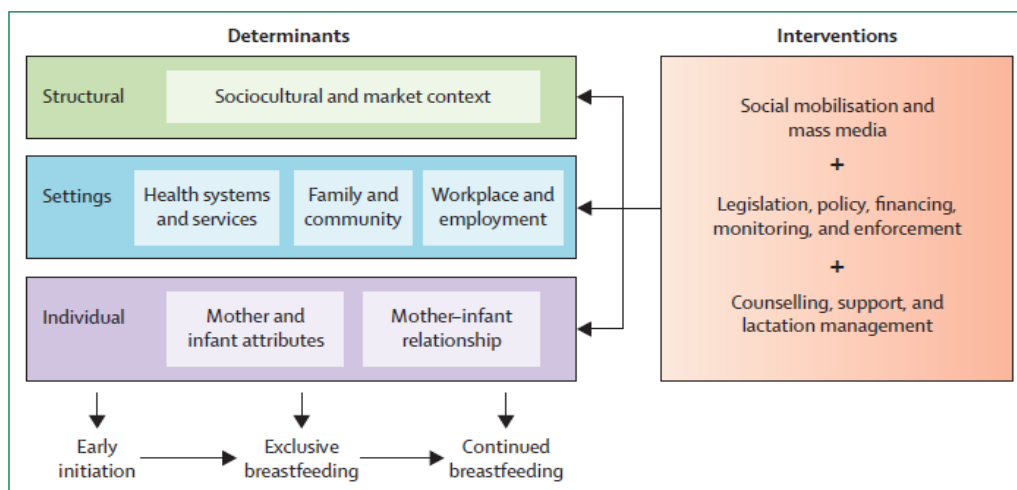
Conditions at the level of overarching social factors – for example legislative and commercial frameworks – are understood to condition the context for conditions at the next level down – key settings where infant feeding behaviour is enacted – such as the health services, the community and the workplace. These in turn impact on each mother's interpretation of her infant feeding experience. Rollins et al (2016) propose three levels of intervention to correspond to the identified three levels of determinants; (a) social mobilisation and mass media campaigning to address structural issues, (b) changes to legislation, policy, financing, data collection and enforcement to address key 'settings', and (c) infant feeding expertise and support to address individual level feeding issues. The authors conclude from their review that *'the best outcomes are achieved when interventions are implemented concurrently through several channels'* (Rollins et al, 2016, p. 491).

Marked social and geographical patterning in infant feeding rates in the UK population (and when viewed in international perspective) confirms that we need a conceptual framework for infant feeding decisions that accepts that that individual mothers' feeding journeys are not simply a matter of individual biology. Infant feeding behaviour appears to result from a complex nexus of influences where the interactions across the system are likely to be as important as the impact of each factor in isolation, so low breastfeeding rates arise from factors working together.

Despite long-standing (Dyson et al, 2006) and more recent (Rollins et al, 2016) ecological framing of the problem of low breastfeeding rates in academic and policy circles, in public discourse the idea that decisions to breastfeed are the responsibility of individual mothers and are actionable by individual mothers – who make feeding 'choices' in line with health advice or with their individual preferences – remains mainstream. The influence of wider contextual and historical influences on decisions is largely omitted (Pérez-Escamilla, et al, 2012; Trickey, 2016a; Brown, 2017). That social and geographical patterns persist alongside widespread maternal disappointment in feeding outcomes, and in the context of a polarised discourse

about how women 'should' feed their babies, tells us that an ecological understanding of infant feeding at policy level has not, so far, been effective in facilitating a qualitative change in maternal experience at population level.

The idea that the wider legislative, policy and cultural context and the settings within which we live and work are influential in determining individual mothers' decisions about breastfeeding can be seen to have underpinned policy level understanding at international, UK-wide and Welsh Government policy level for several decades. The WHO's global strategy for breastfeeding cites the need for an '*integrated comprehensive approach',* the need for high-level political buy-in and explicitly identifies structural causes for low breastfeeding rates (WHO, 2003, p.4). The global strategy recognises the impact of commercial pressure from formula milk manufacturers, building on the WHO Code of Marketing of Breast-milk Substitutes and subsequent resolutions, calls for mothers to have access to skilled professional and lay support in their communities, and for governments to legislate to enable mothers to continue breastfeeding once they return to work (WHO, 2003). At the UK level, the influence of an ecological conceptual framework can also be clearly seen in the framing of a NICE summary of the evidence for interventions to promote breastfeeding, which sets out influences as impacting on infant feeding decisions as being 'international and national', 'national and regional', 'individual macro socio-economic', 'individual micro socio-economic', and 'individual' (Dyosn et al, 2006).

The failure of the ecologically informed Welsh 'settings based' approach to achieve breastfeeding normalisation in low income Welsh communities could be put down to lack of investment, or to patchy and insubstantial policy implementation – as Table 1 (p.28) indicates, in practice, implementation outside of a health service setting has been weak, with interventions delivered outside of a health service context having been evaluated as under-theorised and unproven (PHW, 2013). However, it is worth considering whether these problems (including problems of poor implementation and under-theorisation) have not been compounded by a conceptual framework that is not fit for purpose. A key criticism of ecological thinking is that when it comes to public health problems an ecological understanding of the problem frequently fails to incorporate an understanding of the *relationships between components* (Hawe et al, 2009). Certainly, a 'naming of parts' approach to identifying influences on infant feeding decisions has not be sufficient to enable policy makers to operate the necessary levers to generate behavioural change as a result of their ecological understanding of this public health problem. Without an ecological approach to theory development, and an appreciation of interaction between influences at different ecological levels in any given setting, there is a danger that a 'settings based' approach can become conflated with the implementation of individual-focused interventions within specific settings (such as hospitals or schools). In consequence, the intervention may fail to address influences operating at the level of the whole system. As these types of interventions do not engage with or disrupt the system functioning, they are likely to '*wash out'* of the system, with the status quo resuming (Hawe et al, 2009, p.270).

In view of the potential for interaction between multiplicities of influences common for public health issues, as described in ecological frameworks, it has been argued that public health interventions ought to be understood as attempts to change the functioning of complex adaptive systems (Hawe et al, 2009).

3.4 Infant feeding decisions through a complex systems lens

Complex systems have been described as,

> … highly composite [and] built up from very large numbers of mutually
> interacting sub-units (that are often composite themselves), whose repeated
> interactions result in rich, collective behaviour that feeds back into the
> behaviour of the individual parts.
>
> Rickles et al, 2007, p.933

It is argued that conventional forms of problem framing, action planning and evaluation often exclude or ignore the adaptive and dynamic aspects of complex systems that make public health challenges so formidable (Leischow et al, 2006), so that through feedback mechanisms within the system, complex systems adapt to change, even when parts of the system are removed (Rickles et al, 2007) – solve one aspect of a problem and it will re-emerge in a new form elsewhere. Complex Adaptive Systems (CAS) thinking provides a construct for understanding the *dynamic and spatial* nature of the range of influences within which public health problems are embedded, Albrecht *et al,* argue that,

> Health problems emerge as expressions of complex interacting systems […] the
> culmination of multiple variables, ranging from genetic and physiological to the
> social, ecological and political *acting over time and space.* [Italics mine].
>
> Albrecht et al, 1998, p.57

Midgely (2006) points out that CAS thinking presents a natural extension to approaches to public health – including ecological thinking – that are founded on 'systemic insight', while others have suggested that complexity thinking can help public health planners to move away from reductionist accounts, providing a framework for thinking about temporal and spatial aspects of health inequality (Gatrell, 2005). Complexity thinking highlights that components such as those identified through the 'levels' analysis inherent to an ecological approach outlined above are interactive and adapt to one another, and that they are continually evolving, with new conditions emerging as a result of the interaction (Keshavarz et al, 2010). Perez-Escamilla and Hall-Moran note that,

> The complex adaptive system framework is well suited for guiding and scaling up
> of breastfeeding programmes as it fully acknowledges the complex web of
> influences and need for local adaption of effective large scale programmes
> targeting infant feeding behaviours.
>
> Perez-Escamilla and Hall-Moran 2016, p.375

Features of complex systems have been described in various ways. It has been noted that the concepts underpinning complexity theory have been loosely translated by health scientists from their origins in mathematics and physics (Rickles et al, 2007).

In the sections that follow, I consider characteristics of a CAS as they might apply to infant feeding policy and to breastfeeding peer support interventions. The intention is to consider the potential for concepts drawn from complexity thinking to extend existing understandings about how peer support works – to provide a starting point for theory development. In discussing aspects of complexity thinking, I draw on Rickles et al 's '*simple guide'* and I have also drawn on features of complex systems applied to a social science context as described by Byrne (2005) and on two theoretical papers that have particular relevance to the problem of socially and geographically polarised feeding decisions. The first paper is a discussion of the relevance of complexity theory to the geography of health behaviours and outcomes (Gatrell, 2005). The second paper is a discussion of the relevance of complexity and critical systems thinking to the Canadian government's attempts to tackle obesity (Alvaro et al, 2010). I also draw on descriptions of characteristics of 'wicked problems' within complex systems as described by Rittell and Webber (1973) and Wexler (2009).

Many interacting components, with relations across networks

The analysis of influences by ecological level, presented earlier in this chapter, confirms the presence of multiple influences on infant feeding decisions. A complexity approach emphasises the interactions – the relationships between those influences. These relationships involve policy, technology and components of individual biology; in a complex social system they also always involve *people*. Breastfeeding itself can be (reductively) described as a biological process of *milk transfer* from mother (or another lactating woman) to baby. In its essence breastfeeding is *relational*; involving a dyad, a mother (and/or carer) and a baby. At higher ecological levels we see relational mechanisms – social support, encouragement – operating at the level of mothers' relationships with significant others. This includes with family and friends, health professionals, employers, policy professionals, formula milk marketing representatives and so on… It is important to remember that all these actors relate not just to the mother but also to each other. For example, when it comes to infant feeding, agreements and conflicts constitute an important part of these relationships (Larson et al, 2008; Schmied et al, 2011).

Complex systems are also characterised by hybrids – a fusing of biological and non-biological components, caused by interaction between material and social worlds. The decisions a mother takes today about how to feed her baby need not merely be biologically determined; biology, society and technology work together to produce outcomes that are greater than the sum of their parts. For example, technological innovations such as breast pumps, nipple shields and, indeed, the ability to freeze and store milk enable mothers to feed their babies breastmilk in circumstances when they might otherwise be unable to do so. Our use of this technology is also partially determined by factors such as social norms, acceptability, interactions with health workers and a mother's own milk production.

Cultural over-layering and technological advance do not always work in the direction of improvements in health and wellbeing. For example, the concept of 'insufficient milk' is an example of a socio-biological hybrid. A very small proportion of women are physiologically constrained to the extent that they cannot produce enough milk to feed their babies (Tully and Dewey, 1985), well below that of the 17% of UK women who understand themselves to have had 'insufficient milk' to feed their babies (McAndrew et al, 2012). Physiological constraints are compounded by social meaning (Gatti, 2008); a mother's lack of confidence in her ability to supply sufficient milk may impact the biological mechanisms related to supply, perhaps as her cortisol levels (associated with feelings of stress) increase, these mechanisms themselves impacting on the hormone system involved in milk production. Or possibly as her lack of confidence in her ability to satisfy her baby causes her to fail to respond to feeding cues. In either case, the social construct of 'insufficient milk' itself re-enforces the likelihood that milk supply will be insufficient.

An attempt to map influences on infant feeding, along the lines of work to inform tobacco control policy (Richardson et al, 2006) would produce a complicated web of inter-relationships. However, this 'complicated' map would fall short in capturing all the complexity of interactions between system components. This not just a question of the danger of missing key relationships; Rogers's (2008) points out that 'complicated' systems, involving multiple agencies and simultaneous and multiple causal strands do have predictive stability, in other words … if I press this lever, my complicated map tells me what consequence to predict.

In contrast, As Rickles et al (2007) describe, when it comes to complex adaptive systems, a small change in component or interaction in one part of the system – for example resulting from a public health intervention – cannot necessarily be expected to result in a proportionate impact across the system as a whole. Because of the complex nature of interactions – including the operation of accelerating and dampening system feedback, to be discussed later – the whole system behaves in ways that are greater than the sum of its interacting parts.

> Inputs are not proportional to outputs: a small (large) change in some variable or family of variables will not necessarily result in a small (large) change in the system. This kind of behaviour is well known to those involved in intervention research: large interventions, in some variable, do not necessarily have a large effect on some outcome variable of interest. Likewise, a small intervention can have large, unexpected outcomes.

> Rickles et al, 2007, p.934

Potential relevance for peer support intervention: At the level of human actors, human relationships are central to breastfeeding support interventions (Dykes and Flacking, 2010). Breastfeeding peer support schemes tend to bring together volunteers, health professionals, local authorities, community facilities managers, parents and babies, working across a range of physical and social settings.

Open systems

> A system is open if it is not or cannot be screened off from its environment. In closed systems, outside influences (exogenous variables) can be ignored. For open systems, this is not the case. Most real-world systems are open, thus this presents problems both for modelling and experimenting on such systems, because the effect of exogenous influences must be taken into account.
>
> <div align="right">Rickles et al, 2007, p.935</div>

Social and organisational systems tend to be open, with large numbers of elements interacting across networks (Gatrell, 2005). The review of influences on decisions, set out earlier in this chapter, describes the landscape for infant feeding as comprising numerous interconnecting open systems – government, the health service, formula companies, communities, families, the mother-baby dyad, and the individual's own body. Actors operating within these systems are empowered to reach across and influence each other to different extents.

As I described earlier, in practice maternity care settings have been the system focus for government directed infant feeding policy intervention and the health service represents the system identified by the breastfeeding strategy through which the most tangible evidence of progress is available (via implementation of Baby Friendly). From a complex adaptive systems perspective this makes sense. Maternity settings are open systems. While staffing, training, procedures and resources associated with the implementation of the BFI are largely within the control of hospital managers, there are many factors, including external commercial pressures, government policies, and the influence of wider societal norms that remain 'open'. Outside of a hospital setting the system of influences on decisions becomes still more open, and ability to standardise and control contextual influences decreases and so the relevance of understanding wider contextual factors for intervention needs to increase.

Potential relevance for peer support intervention: Breastfeeding peer support interventions are located at the intersection between many diverse supra-systems and sub-systems, the health service, the family and social network, the mother and baby. And of course, the work of breastfeeding peer supporters involves indirectly engaging with the biological system of milk transfer. An intervention needs to work with or alongside systems functioning at all these levels to achieve change.

System history matters

The insight here is that history creates a path to the present, and decisions made along the way constrain potential for future decisions.

> A dynamical system is a system whose state (and variables) evolve over time, doing so according to some rule. How a system evolves over time depends both on this rule and on its initial conditions - that is, the system's state at some initial time.
>
> <div align="right">Rickles et al, 2007, p.933</div>

In other wods, as Gatrell (2005) points out, the history of any given system is 'co-responsible' for it's present day behaviour.

Thinking about patterns of infant feeding, we see critical paths through the system operating at different ecological levels and along overlapping temporal planes. Reflecting on the description of infant feeding in the UK, it becomes clear that the legacy of low breastfeeding rates in the 1960s and 1970s continues directly to influence feeding patterns today. Maternity regimes that developed around a norm of formula feeding in the latter half of the 20th Century in turn informed the experience, knowledge and training of newly recruited health professionals, so that local policies, practices and norms developed and became embedded around styles of care-giving that work against decisions to breastfeed. Over the same period, generations of mothers had poor or discouraging experiences of breastfeeding, leading to an inter-generational exchange of beliefs, knowledge and experience of feeding babies, which in turn become embedded into sub-cultures of parenting and intergenerational help in some communities, which have a poor fit with new generations making decisions to breastfeed.

Looking over a much shorter time-frame, we see that static factor models cannot explain how interactions build upon one another to compound or undermine one another's impact along a mother's own pregnancy and feeding journey. For example, unrestricted feeding soon after the birth is a predictor of breastfeeding continuation (Dyson et al, 2006), so birth circumstances which result in separation will have an impact on initiation. Similarly, a baby who has been affected by pethidine or an epidural in labour may find it more difficult to self-attach to her mother's breast in the hours following the birth (Colson, 2010), which may in turn pre-dispose the mother-baby dyad to later problems with positioning and attachment, possibly leading to ineffective milk transfer, to breast engorgement and, possibly mastitis.

Potential relevance for peer support intervention: At the level of the health service system, a history of working with the voluntary sector, and an infrastructure of policies and practices may make a difference. For health professionals, having a good personal relationship with members of volunteer agencies, and perhaps a history of having trained as breastfeeding supporters themselves, might make implementation of a peer support intervention more straightforward. A peer supporter's own personal experience of feeding a baby – whether straightforward or difficult – will be likely to make a difference to her approach to support. At the level of each individual mother-baby dyad supported, the mother's personal history of seeing babies being fed, her own experience of pregnancy, birth and postnatal support, and the health of both mother and baby post-birth will be significant influences on the encounter between the mother and the peer supporter. It is therefore important to understand the history of a system in order to design, implement and evaluate appropriate interventions and to enhance the likelihood of achieving system change.

Characterised by wicked problems

Issues that relate to complex systems are described as '*wicked'* – that is they are intractable. Rittell and Webber first made a distinction between 'tame' and 'wicked' problems in the early 1970s in the context of social planning (Rittell and Webber, 1973). They noted that certain

types of policy problem tended to persist in the face of repeated policy initiative. They also noted that the attempt to solve one aspect of a policy problem by following a rational process of identifying the problem, identifying alternative solutions, making a rational decision as to a way forward based on outcome information and undertaking subsequent evaluation would often lead to other more complex problems being revealed (Devaney and Spratt, 2009). A description of the differences between 'wicked' and 'tame' problems, adapted from Wexler (2009) is provided in Table 4.

Table 4: Tame-wicked problem distinction

Tame problems	Wicked problems
Easy to define and separate from other problems	Difficult to define and not easily separated
Information is available, well-structured and easy to use	Information is ill-structured and difficult to use
Consensus about the best solution, problem-holders accept and agree with legitimate problem solvers	No consensus among problem solvers, legitimacy of problem solvers is challenged by problem-holders
Information needed to solve the problem is readily available, well-structured, and easy to put into use	Information needed to solve is ill-structured changing and difficult to put into use
Precedents to learn from	Unique and changeable problem. Attempts to solve make learning difficult and progress toward a solution erratic
Stakeholders defer to problem-solver expertise	Stakeholders have conflicting views

Constructed from dimensions set out in Wexler, 2009

Wicked problems are often poorly defined, information pertaining to the problem may be ill-structured and difficult to use. Problem solvers may lack a consensus about the way that the problem should be addressed, while intended recipients themselves may disagree with those implementing the policy about the best way to address, or indeed whether the problem is worth addressing at all.

Potential relevance for peer support intervention: Approaches to intervention and programme theory development within complex systems may need to incorporate the conflicting values of multiple agents within the system.

Feedback loops

Rogers (2008) describes 'complex' systems as those that subsume the characteristics of complicated systems – multiple agencies, multiple interacting levels – *and* are characterised by recursive causality, tipping points and emergence (these components of complex systems are discussed below). Relationships within complex systems do not remain stable over time,

the system itself evolves and adapts, new connections are made, and old connections are broken.

Following an intervention in a system (changing the value of some variable), it takes a little while for it to either settle into established pattern or to find a new pattern. Sometimes trajectories are governed by key overriding variables within the system (control parameters). However a change that impacts on one of these key variables has the potential to produce non-linear change in the whole systems' trajectory. This occurs through system feedback relationships, which operate either to lock in existing behaviours or to drive change.

- *Negative feedback* effects describe the way in which existing conditions operate to stifle change – effectively locking in a system behaviour.

- *Positive feedback* arises where intervention connects with existing conditions in a way that self-perpetuates further change.

System-wide organisation

An individual mother is focused on the immediate context for her decisions and does not (usually) question the wider context in which those decisions are made. Were she able to draw back the lens and to see the system as a whole, social and geographical patterns of association would be revealed (Trickey, 2016a). This system-wide organisation can be understood as a function of conditions of the current or historical context that strongly influence any trajectory resulting from an interaction between system components at the level of the individual. As communities become increasingly divergent in their child-rearing practices or in their responses to public health intervention new social norms become reinforced as a wider set of social practices become aligned to the new behaviour.

Potential relevance for peer support intervention: Intervention planning will need to take account of more than the intervention itself. Planners will need to consider the role of countervailing forces in the wider context that will be likely to work against the aims of the intervention. Negative (stabilising) feedback loops can be observed as formula milk manufacturers amend and adapt their messages to counteract the influence of public health information campaigns (Faircloth 2007; Berry 2011). In contrast, the concept of 'positive feedback' allows for the possibility that new structures may emerge because new types of interactions between elements cause the structure of the system to change, leading to new forms of behaviour as relationships shift and change. For example, in theory, successfully enabling one woman to breastfeed might be expected to have a knock-on effect within her social network as a result of her sharing her knowledge and experience. Dynamic feedback properties also operate at the level of the human hormone system – the ongoing relationship between mother and baby has dynamic feedback properties. Milk production within a mother's body is activated by hormones, primarily oxytocin and prolactin, which are stimulated by her baby's sucking (or by expressing milk from her breast) and is inhibited by other hormones produced when milk is not removed from the mother's breast (Knight et al, 1998).

Critical points, emergence and the potential for non-linear change

The very intractability of wicked problems is understood to be a function of their location within a complex adaptive system. A complexity perspective suggests that wicked policy problems prove difficult to solve because 'negative' (or stabilising) feedback relationships between components and agents in a complex system tend to return the system to an 'attractor state'. The reversion towards these attractor states following intervention is understood to be a function of conditions of the current or historical context (control parameters) that influence any trajectory resulting from an interaction between system components.

Hawe and colleagues have noted that much current public health intervention is implicitly based on the assumption that change will eventually be achieved through an *additive process* of 'aggregating up' individual level intervention outcomes over time (Hawe et al, 2009); whereas, as Byrne (2005) notes it is 'big', *multiplicative*, self-sustaining, population level change that policy makers are primarily interested in. The search for 'generative mechanisms' within complex systems, combined with an understanding that individuals can be reflexive in relation to their social worlds, enables complexity thinkers to be optimistic about the possibility of 'big change'. A complexity frame can seem to offer hope to policy planners facing a seemingly unsolvable – or 'wicked' problem - suggesting that despite a history of repeated failure, with the right combination of ingredients latent potential within the system can be harnessed through intervention, leading to change. Wexler (2009) reminds us that this hope may not always be well-founded and that the very 'wickedness' of problems can make it difficult ot discern solvable problems from problems that cannot be solved.

A complexity approach involves seeking out conditions for *'phase shifts'* – that is, the conditions for a *qualitative and transformational change* in outcomes (Byrne, 2005). Because complex adaptive systems are 'far from equilibrium', complexity theory suggests the *right* relatively small change in key control parameters at the *right* point in the system – a critical point or bifurcation point – may cause a switch from a negative (stabilising) feedback relationship between components to a 'positive' (re-enforcing or accelerating) feedback situation. In theory, the system can *flip* towards a new attractor state. 'Critical points' present an exciting possibility for intervention planners, opening out a possibility for substantive change. There is a need to understand system functioning in order to identify these 'critical points' and inform intervention design.

Small perturbations in the system at 'bifurcation points' may be able to achieve transformation of the system as a whole towards a 'better of two alternatives' (Byrne, 1998) flipping the system from a trajectory of stabilising (negative) feedback in which current patterns are 'locked in' and change is stifled, towards re-enforcing or accelerating (positive) feedback, whereby small alterations are amplified leading to transformational change. Complex systems respond to perturbation by organising into emergent forms that cannot be predicted in advance from knowledge only of the system parts, system-wide properties and patterns emerge. These patterns themselves reflect on the emergence of whole sub-parenting culture or service provision sub-systems. This form of self-organising complexity emerges as systems co-evolve

with their environment, through local interactions and re-enforcing feedback loops (Wu and Marceau, 2002), and often occur many years after intervention implementation, highlighting the need for long-term follow-ups to be undertaken and supported and for short and medium term process indicators of system change to be monitored.

Potential relevance for peer support intervention: A full systems analysis may enable an intervention planner to theorise an intervention and then deploy breastfeeding peer support in such a way as to stimulate latent potential towards a critical point for change.

Local context matters

Complex systems operate as a dynamic network of agents (people) and resources. The configuration of resources will be being differently conditioned in different localities, causing agents to act and respond, in turn causing other agents to act and respond, and causing new configurations of conditions and new adaptions to emerge, which in turn exert influence on the behaviour of agents.

Over recent years, public health specialists have become more conscious of the relevance of contextual factors to intervention success or failure. Realist evaluation methods, which explicitly seek to investigate and explain 'where, why and for whom' interventions work (Pawson and Tilley, 1997), have been increasingly incorporated into evaluation design so that issues of context can be addressed and MRC guidance to support intervention design that takes account of contextual factors has been produced (Craig et al, 2008). For example, the importance of context for community-based peer support interventions has been explored in the UK via a methodology, informed by realist approaches, which embedded process evaluation within a cluster randomised controlled trial (Hoddinott et al, 2010a). This study concluded that whilst the intervention itself had failed to demonstrate effect, 'environment, resource shortages, organisational change, competing demands and leadership' could be shown to have an important relationship with outcomes.

Potential relevance for peer support intervention: The relevance of an ecological conceptual framework may be hampered by the convention of centring multiple levels of influence about an individual mother (or a mother-baby dyad). In fact, a policy goal of 'normalisation' of breastfeeding is more appropriately understood and measured in relation to a community or social network, than in relation to an individual mother. An individual mother initiates breastfeeding or continues to breastfeed – but a community normalises or marginalises her behaviour. The wider community that mothers and others inhabit is the relevant unit of interest for *cultural change*.

A refocus on locality may cause us to reconsider the way that traditional ecological frames centre influences on the individual mother or the mother-infant dyad (as proposed by Tiedje et al, 2002 and Labbok, 2008). A conceptual framework, which places mothers or mother-infant dyads at the centre of multiple influences, may be failing to adequately capture the levers for *community level* shifts. In contrast, a conceptual framework that places locality or community at the centre may better capture the relationships between individual-level experiences and

community level social norms, and may enable researchers to explore feedback relationships between individual mothers and the communities they inhabit. This may better address a policy objective to normalise breastfeeding in settings where breastfeeding rates have traditionally been very low. Moreover, this highlights the need to design interventions that can be adapted to different settings or contexts, without compromising intervention logic.

Human agency matters

Complexity thinking emphasises the role of human beings as reflexive agents within a system. Because of this, complexity thinking is often considered to provide a basis for optimism about the potential for transformational change resulting from human action. Complexity thinking can be said to be congruent with an emancipatory approach to public policy (Midgley, 2000).

Society can be understood to be the sum of social relationships between agent-agent and agent-structure; whilst present generations are largely born into a pre-given social world, human agents (including researchers) have the capacity to engage reflexively with identified mechanisms to maintain, reproduce or change the society they are born into (Connelly, 2001). Actions taken by individuals and organisations will be influenced by their own understanding of the wider context and history relating to the policy problem (Eppel et al, 2011).

Existing ecological models of influences on infant feeding decisions, including Rollins' model tend to minimise the role of *people* as actors in the system – bracketing human agency as part of 'influences' – or else they tend to emphasise the agency of policy makers rather than policy recipients. For example, the conceptual model advanced by Rollins et al (2016) indicates points of entry for policy makers to influence infant feeding outcomes at macro levels and to change the configuration of organisational settings. Rollins's model is strikingly hierarchical, with the most important influences assumed to be set at the highest levels. This top-down understanding tends to conceptualise mothers as passive recipients of their context and does not really take account of an understanding that mothers themselves might act as agents for change and that constant interactions will occur between these two groups to re-enforce or stabilise system functioning.

Potential relevance for peer support intervention: Peer support is an intervention form fundamentally predicated on mothers themselves acting as agents of change – the decision a mother makes to become a peer supporter is an assertion of agency. A conceptual framework for influences on infant feeding decisions that accommodates the potential for maternal agency to change the context, whilst accounting for their interactions with the wider system, may enhance our understanding of theories of peer support.

3.5 Introducing a 'complexity enhanced' ecological thinking tool

The focus of this thesis is exploring theories of breastfeeding peer support, with a view to understanding how peer support interventions can be better theorised to contribute to change in infant feeding outcomes.

If we accept that influences on feeding decisions can be identified at different ecological levels, it follows that the exploration of peer support undertaken through this thesis needs to be understood in an ecological frame. But we also need to accept that peer support interventions are inserted into existing contexts in which other influences are already in a state of continual interaction with one another. This exploration needs to consider how peer supporters themselves interact with those wider influences to bring about change given localities (recognising that different localities will be subject to different sets of influences to different extents) and over given periods (recognising that temporal factors, and the sequencing of influences may be important).

Our current limited understanding of the interaction between individual-level feeding experiences and community level social norms – and failure to take on the concept of feedback – may be limiting policy makers who seek to identify interventions that might diminish socially polarising effects or amplify a breastfeeding culture over time. The concept of feedback may facilitate a new perspective on recognised barriers. For example, non-acceptability of breastfeeding in public places is recognised as a factor which contributes to decisions to stop breastfeeding (Smyth, 2008). If a mother feels she can only go out between feeds this may have a direct impact on her milk supply as she is less able to breastfeed 'on cue' – when her baby begins to make signs that she is hungry, she may feel she needs to introduce formula milk for use when out and about. However, there may also be *longer term feedback effects* from mothers into the wider *social network* resulting from a need to 'be discrete' about breastfeeding. Vicarious experience of breastfeeding is positively associated with breastfeeding intention (Hoddinott et al, 2010b), suggesting that increased breastfeeding in public places may increasingly enable future parents to consider breastfeeding as an option for themselves. Such a change of perspective may lead to a community-level focus on interventions that facilitate dissemination of vicarious experience, as opposed to an individual-level focus on enabling mothers to breastfeed whilst out and about. Another is to facilitate thinking about how mothers themselves can operate as agents in the system of influences. I hypothesise that these dynamic aspects of complexity are key to theory building for breastfeeding peer support, which, by definition, is an intervention that builds on past experience to change outcomes for others in the future.

One challenge, for those engaged in developing and delivering interventions to support infant feeding policy, is to identify a conceptual framework that succinctly captures essential aspects of complexity relevant to that intervention form, without losing sight of the cumulative impact of influences over individual feeding journeys.

Building on the consideration of complexity components discussed, and their potential application for peer support, I developed a preliminary visual model that could be used as a conversation tool with participants considering theories of peer support intervention. This is presented in Figure 4 (p.74). This simple visual is intended to signal to the viewer;

1. Interacting influences emanating from different ecological levels within a system;
2. The cumulative effect of those influences over the prior life-history, pregnancy, birth and postnatal experience of the mother;

3. The centrality of locality and the impact of local conditions; and,

4. The importance of mothers themselves as agents in their own context, potentially diffusing knowledge, attitudes and experience within a wider community or social network – including by becoming peer supporters themselves.

Figure 4: Complexity enhanced ecological model
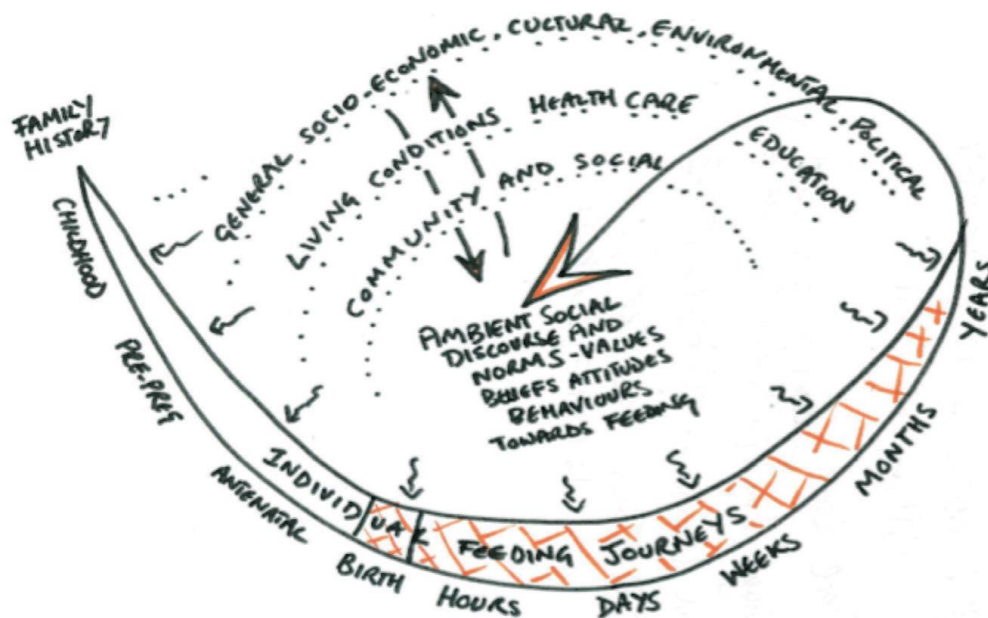
Trickey, 2016a

The curve along the bottom of Figure 4 describes mothers' journeys running through a landscape of influences, with 'levels' taken from Dalgren and Whitehead's ecological model. The curve is intended to signify a dynamic understanding of women's experiences of these influences over time. The curve ends with a feedback arrow; this provides a prompt for thinking about maternal agency and the ways that mothers' experiences – positive and negative – change the context for subsequent cohorts of mothers.

3.6 Thesis research questions

This thesis aims to explore and extend theories of breastfeeding peer support and to consider their application in relation to a Welsh infant feeding context. The purpose is to provide an improved basis for intervention development and evaluation.

Over the past three chapters I have reviewed the literature. In Chapter 1, I described the past and current policy and feeding-decision landscape in Wales and I identified a range of theories that have been considered in relation to peer support intervention. In Chapter 2, I presented an overview of the evidence for breastfeeding peer support, highlighting that this evidence is contradictory and proposing that a realist lens should be applied to the experimental evidence base. In Chapter 3, I described the landscape for infant feeding as an ecological system of influences on decisions and I argued that the complex nature of the intervention landscape

needs to be taken into account when theorising breastfeeding peer support interventions and that there may be a need to consider the maternal journey in our thinking about underpinning theories.

Chapters 1-3 of this thesis are the basis for my empirical investigation, which begins with an exploration of the implementation context from the perspective of Welsh professional advocates for infant feeding policy. Thereafter, I iterate policy advocate understandings about how peer support works with findings from a realist review of breastfeeding peer support experiments and with the experiences of parents, peer supporters, and health professionals.

My investigation is guided by four Research Questions, set out in Box 1.

Box 1: Four thesis Research Questions

AIM: To explore and extend theories of breastfeeding peer support and to consider their application in relation to a Welsh infant feeding context

Research Questions:

1. Is a complex-ecological-systems approach to the development and implementation of breastfeeding peer support interventions justified in a Welsh delivery context?
2. How do professional advocates for Welsh infant feeding policy understand breastfeeding peer support to work?
3. How can case studies drawn from the experimental literature extend professional advocates' understandings about how breastfeeding peer support works?
4. How does the experience of Welsh parents, peer supporters and health professionals, extend the understandings about how breastfeeding peer support works, which were gathered from professional advocates and through realist review?

What's next?

In the next two chapters, I describe the epistemological framework for investigation. I set out the principles underpinning my methodological approach (Chapter 4) and describe in detail the combination of methods I have adopted to address each of these research questions (Chapter 5).

Chapter 4: A critical realist framework – epistemology and methodology

4.1 Introduction and contribution to the thesis

I concluded Chapter 3 by setting out four research questions that underpin my research aim, which is to explore and extend theories of breastfeeding peer support and to understand their application with relevance to the infant feeding context in Wales. In this chapter, I set out the epistemological framework for my study and the key features of my methodological approach. This leads directly into a more focused discussion of methods of data collection and analysis in Chapter 5.

Chapter summary

➢ In Section 4.2, I introduce a critical realist epistemological framework and explain how this is compatible with a complex-ecological-systems perspective on the social world.

➢ In Section 4.3, I describe the methodological principles that underpin the research and set out my intention to maintain reflexivity, and incorporate principles drawn from feminist and participative approaches.

➢ In Section 4.4, I set out my decision to take a mixed methods approach to data collection, incorporating qualitative methods and evidence review.

A glossary of realist terms referred to in this thesis is provided in Appendix A.

4.2 A critical realist framework

Critical realism has its roots in 'transcendental realism' and 'critical naturalism' as set out by Bhaskar (Baskar, 1978), as described by Archer et al, (2013). Critical realists integrate an ontological realism – the belief that there is a real world out there in which human agency interacts with other aspects of context to bring about change – with epistemological constructivism – holding that our understanding of the world is socially constructed, that these constructions will inevitably influence any attempt to model or describe reality and that several competing constructions of reality may have some value as working models.

Critical realists are interested in opening the black box between conditions and outcomes and reject a Humean view of causation – we can only know that observed variable X is consistently associated with observed outcome Y – this view denies that we can have any knowledge of causality beyond observation of the conjunction of variables or events (Maxwell, 2004; Pawson and Tilley, 1997). Instead, critical realists argue that scientific endeavour should seek to identify and understand the underlying processes or causal mechanisms, the,

> underlying entities, processes, or [social] structures which operate in particular
> contexts to generate outcomes of interest and change.

<div align="right">Astbury and Leeuw, 2010, p.368.</div>

Sayer (1992) has argued that this critical realist focus on mechanisms, rather than on repeatedly observed coincidence, is especially pertinent in the social sciences where law-like regularities between variables and outcomes are often absent due to the highly complex interactions generated by the social world, wherein a reliable constant conjunction between observable variables and outcomes is rare.

Critical realists contend that social programs (including complex interventions, such as peer support) may change the macro social context (for example, by introducing legislation). They may also change the resources or opportunities available to participants and, in that sense, change the meso- or micro-level context for those participants (Wong et al, 2013). A critical realist perspective, therefore, has implications for intervention development and testing in the social world.

Those responsible for commissioning, designing or implementing programmes will have some notion of how they are intended to work, even if this is not articulated as an explicit programme theory. As such, interventions are understood as *'theories incarnate'* (Pawson et al, 2004, p.3). Hence, personal experience of an intervention provides material for considering implicit intervention theory.

Critical realism and complex-ecological-systems thinking

Critical realism has been recognised as a useful framework for the field of public health, wherein practitioners seek to identify opportunities and levers for change – in the form of policy or public health 'interventions' – that will have a 'real' impact on health outcomes whilst maintaining respect for individual meaning-making as an integral part of the landscape. As Oliver (2011) points out, a critical realist perspective will tend to critique understandings of social problems that are dependent on 'individual pathology' explanations, contextualising these within wider structural and organisational causes. This draws on Bhaskar's understanding of reality as multi-layered, and multi-causal,

> […] in our complex social world, multiple causal mechanisms, including the
> interpretations of each situation made by each individual, constantly interact
> with, negate and reinforce each other.

<div align="right">Oliver, 2011, p.374</div>

A critical realist framework is compatible with a complex-ecological-systems perspective on the social world (Byrne, 1998; Gatrell, 2005; Midgley, 2000; Urry, 2003) and the ecological and complexity frameworks that I have used as a lens to describe current trends in infant feeding outcomes and policies in Chapter 3. Both highlight the importance of the 'local' and emphasise the ways in which interactions between components in a specific context in which phenomena occur are interdependent.

A complexity approach adds to the critical realist focus on generative mechanisms with a focus on conditions for *'phase shifts'*; that is, on identifying the context-mechanism configurations that can lead to a *qualitative and transformational change* in outcomes associated with long-running, intractable – or wicked – problems (discussed in Chapter 3). The prospect of conditions for 'phase shifts' is enticing to public health practitioners. As Hawe and colleagues have noted, much current public health intervention is implicitly based on the assumption that change will eventually be achieved through an *additive process* of 'aggregating up' individual level intervention outcomes over time (ahwe et al, 2009); whereas, as Byrne (1998) notes it is 'big', *multiplicative*, self-sustaining, population level change that policy makers are primarily interested in.

Context-Mechanism-Outcome (CMO) configurations

The reviews of studies of peer support (Chapter 2) and influences on infant feeding decisions (Chapter 3) underlined a need to consider interaction between context and mechanisms for action in understanding the outcomes of peer support intervention. Critical realists understand changes from intervention to result from interaction between people's own reasoning and the context in which that reasoning occurs.

Context: Critical realists contend that understanding differences in intervention setting is key to explaining why the same manualised intervention can lead to different outcomes in different kinds of places; while the layered nature of context is key to understanding why there will be different outcomes for different people within the same intervention setting – at the individual level each of us being subject to a unique set of conditions and influences. Attention to distinguishing between aspects of an intervention setting that are important in explaining outcomes across different settings is an important part of the development of intervention theory (Pawson and Tilley, 1997).

In Chapter 3, I looked at influences on infant feeding decisions at different ecological levels and described how these influences varied across settings. Realists understand that there is an interdependency between influences in a given setting and the phenomena that arise from intervention in that setting. For breastfeeding peer support, the *context* for intervention comprises the surrounding social, economic and political structures, the organisational context, existing social networks, and the geographical and historical context into which the intervention is embedded. The 'context' encompasses the resources introduced by any intervention designed to change the context; so, for a peer support intervention, the participants, staffing, funding, timing, frequency of planned contacts and so on, which alter the pre-existing context become part of that context. In developing portable descriptions of how change occurs in different settings, some realist researchers find it helpful to distinguish between the pre-existing context and the intervention context, comprising resources introduced through intervention.

Mechanisms: Critical realists understand interventions as being intended to trigger 'causal mechanisms', through processes of interaction that generate outcomes by changing the decisions that subjects make, thus causing things to happen (Pawson and Tilley, 1997). The

term 'subjects' here potentially refers to any person who encounters the intervention; in relation to breastfeeding peer support this might be the mother, the peer supporter, a health professional, a family member, a local public health commissioner, a venue manager and so on. Interventions operate through multiple mechanisms, with different sorts of reasoning occurring in the heads of different subjects. So, for example, a mother may feel emboldened to ring up the hospital's lactation consultant to arrange a referral for her baby's tongue-tie because of a conversation she had with a peer supporter who visited her, confirmed her sense that something was wrong and gave her information about who to contact. A health professional may decide not to refer a mother to a local peer support group because she is unsure what day it meets or whether it is still running. A commissioner may withdraw funding for training breastfeeding peer supporters because she has read an article that led her to believe that peer support is not effective. Realists highlight that some of these mechanisms may correspond to the intervention designer's intentions, while others not.

For critical realists, the goal of scientific enquiry is to develop the best available empirically supported account that renders intelligible more of the phenomena than competing explanations (Oliver, 2011). Critical realists recognise that mechanisms (which occur inside people's heads) are not directly accessible to the observer and that the formal and informal models of reality held by different agents within a system (including those of the researcher) are inevitably inferred and socially constructed (Byrne, 1998; Pawson, 2013). However, they hold that because observable outcomes are a consequence of real processes, the models and metaphors we use to describe reality must be closer or further away from the 'real' explanation. The task of critical realists is to come up with increasingly explanatory accounts of real causal processes. These accounts should be refutable, so that it is possible for those coming after to identify instances which do not cohere with the explanations that have been previously advanced (Collier, 1994). Collation and triangulation of evidence to support this process of inference is key to understanding the story of the intervention.

Outcomes: Critical realists understand 'outcomes' to be the intended and unintended consequences of an interaction between mechanism and context – hence an 'outcome' is not merely the outcome of interest as set out in the research design of an evaluation study. Consideration of outcomes (O) provides a way to test theories about the way that configurations of context (C) and mechanism (M) work together. Outcomes may or may not be intended and can relate to any change in any individual or part of the system touched by the intervention.

Realist evaluators look for interactions among the opportunities or resources provided by the setting to identify 'generative mechanisms' that cause people to act in ways that they would not otherwise have done (Wong et al, 2013, p.6). Aspects of context trigger or modify the behaviour of the mechanism to generate outcomes. Pawson and Tilley (1997) describe this relationship using the formula:

Mechanism (M) + Context (C) = Outcome (O).

For the purposes of illustration, I have taken a CMO relationship arising from Phase 3 of this research (stakeholder focus groups):

> When midwives are under pressure to free up beds (C) and there is a usual hospital practice of observing that the baby is being effectively fed before discharge (C) midwives may be motivated to encourage mothers who are struggling with breastfeeding to introduce formula milk (M) with the consequence that many mothers who planned to breastfeed leave hospital formula feeding (O).
>
> CMOs extracted from Group B Peer Supporters (See Section 5.6, p.118),

Causal relationships are described as Context-Mechanism-Outcome relationships; where the Context is the existing resources plus the new resources provided by the intervention; the Mechanism is the reasoning or response of the participants; leading to Outcomes, which are the intended and unintended consequences. Within any intervention setting, multiple CMO interactions will take place. CMO configurations may be embedded inside one another, or temporally ordered in CMO-chains, so that an outcome becomes the context for the next interaction (Jagosh, 2012).

For the purposes of illustration, I have taken an example of CMO extraction arising from Phase 2 of this research (realist review):

> Against a background of very low breastfeeding rates (C) an intervention focused on promoting and supporting breastfeeding (C) delivered to a whole population target group (C) was seen as irrelevant by many intended participants who had already made a firm decision to formula feed (M) leading to a high drop-out rate after the initial antenatal contact (O) → When participants decided to formula feed (C) this led to peers feeling despondent and demotivated (M), meanwhile peers felt valued by the breastfeeding mothers they supported (M) leading peers to direct time above and beyond the intervention protocol towards motivated mothers who were struggling (M). This experience of dissonance (M) led peers to collectively decide to adapt the intervention goals and refocus support towards meeting the needs of mothers who wanted to breastfeed, especially those who were not already determined to do so (O).
>
> Extracted from realist review (Case Study 1, McInnes et al, 2000:
> (See Section 5.5, p.115)

This formularised understanding of theories of change as context-mechanism-outcome (CMO) configurations provides an analytical tool for empirical investigation in this thesis.

Demi-regularities and transferability

The identification of causal mechanisms that depend upon the complexities of context does not restrict relevance of the relationship between inferred mechanisms and observed findings to studied localities or cases. Generalisable and transferrable generative mechanisms, through which the social world is maintained or changed, are sought (Connolly, 2001). In any given context these generalisable mechanisms may be active (triggered by some aspect of context) or 'latent' (remain un-triggered).

Detailed case-by-case studies of phenomena (including forms of public health intervention) lead to the identification of demi-regularities – patterning that makes it possible to discern broad lessons about the kinds of contexts in which certain mechanisms seem to be triggered. This patterning, plus the close investigation of how the mechanisms operate in cases which either confirm or disconfirm the patterns, are the basis for 'mid-range theories' about how and where and for whom change happens. These theories are themselves portable across contexts and can also be linked back to grand theories confirming or disconfirming their relevance to intervention design.

The empirical work for this thesis involves identifying demi-regularities, employing a constant comparative approach across three phases of research, as described in Chapter 5.

4.3 Underpinning methodological principles

Within the overall framework of critical realism, I have taken a methodological pathway that intends to maintain reflexivity, integrate principles of feminist research, and incorporate a participative approach, seeking to be transparent with participants about the research agenda and evolving findings. In this section I justify these methodological decisions.

Incorporating reflexivity

All constructivists acknowledge the interpretive processing of the researcher as integral. Hence, for constructivists it is necessary for the researcher to explore her own being in the world. However, constructivists differ as to the purpose of this exploration.

Traditionally, qualitative researchers in the social sciences have been urged to identify prior understandings, experience and emotions so that they can be bracketed out from the research process. As Oakley (1981) discusses, research methods, including qualitative interview methods, have tended to be understood as tools for the researcher to obtain detached and objective scientific data. In contrast, Heideggerian phenomenologists view the researcher's own experiences and emotions as inseparable from the research process. The researcher is expected to assess how their own position, experiences and emotions relate to the research topic and the understandings that are identified; the researcher's responses are a source of insight to be examined and valued as part of the research (Johnson, 2009). Withholding personal experience and description of personal reaction as part of the research process is

considered *partial* or even *dishonest* because the researcher is failing to show how the outcomes of the research are affected by the way that the researcher has interacted with their data.

Critical realists reject the notion of researcher objectivity *and* argue that attempts to separate out the objectivity of the researcher are likely to be futile. There is an assumption that the researcher inevitably interacts with the data she or he collects, particularly if this involves engaging with human subjects (Maxwell, 2012). The idea that it is impossible, and undesirable, to try to eliminate observer influence is also congruent with the standpoint of authors writing from a complex ecological systems perspective (described in Chapter 3), who argue that because everything is interconnected, it is impossible for the researcher to independently observe a system without simultaneously affecting that system (Midgely, 2000; Byrne, 1998).

From within a framework of critical realism, examined subjectivity is understood to be a valuable resource, whilst unexamined subjectivity is seen as a potential cause of distortion. Reflexive attention on the part of the researchers to thoughts and feelings aroused through engagement with the research process can contribute positively to the process of understanding (Maxwell, 2012):

> The interpreter's perspective and understanding initially shapes his interpretation of a given phenomenon, but that interpretation is open to revision and elaboration as it interacts with the phenomenon in question, and as the perspective and understanding of the interpreter, including his biases and blind spots, are revealed and evaluated.
>
> Tappan 2001, Quoted in Maxwell, 2012, p.98

Qualitative researchers using a constructivist epistemology believe that two sorts of reflexivity are important; personal reflexivity and epistemological reflexivity. Personal reflexivity involves attention to the influence of beliefs, interests, experiences and identities of the researcher. Epistemological reflexivity involves examining assumptions about the world that are made in the course of the research (King and Horrocks, 2010).

Exploring phenomena through application of a prior theoretical frame – in this case drawn from a complex-ecological systems approach – as a lens for qualitative research has benefits and risks. On the one hand a prior theory can help to unify seemingly disparate components in the data (say, experiences of research participants that seem to correspond to different ecological levels of influence on decision-making) and can illuminate relationships that would otherwise go unnoticed. However, a study that makes use of existing theory can also leave aspects that do not seem to fit the theory in the dark, or worse, if the theory is used uncritically, can lead the researcher to misshape the data by squeezing into a prior conceptual frame. It is important for the researcher using prior theory to be open to identifying the insights that the theory can provide as well as the limitations and blind-spots (Maxwell, 2013).

In common with many engaged in social sciences research (Las Bochner, 1997), I have chosen to study a topic connected to my own personal history; I am not only the researcher but could

also (as a mother, a former peer supporter and a breastfeeding counsellor) be one of the participants. The theoretical framework that I have developed through the research cannot be said to have emerged cleanly from the empirical data that I have gathered. Rather it has iterated between the data and considerable prior thinking about the issues that affect mothers and the peer supporters and breastfeeding counsellors who try to help them.

To explore my own position in the research landscape, I drew on Maxwell's suggestion of making up a researcher identity memo near the beginning of my research process, using this to develop accounts of my prior personal experience and epistemological stance (Maxwell, 2012). I subsequently revised and added to these accounts in response to feedback from family, friends and research colleagues. An account of my prior personal experience is contained in Box 2 (p.85). In Box 3 (p.86), I have described my prior theoretical leanings. I have 'boxed' these accounts to help the reader locate them within the thesis, however, my intention is not to 'contain' or separate them from the research process. As will be seen, several hunches and ideas touched on in these personal accounts are explored through empirical data collection and data analysis and are discussed in the findings chapters.

The account of my personal prior experience of the topic of breastfeeding (Box 2, p.85) demonstrates that it was never going to be possible for me to exclude from the research my personal experience of feeding babies, voluntary experience of supporting other mothers with feeding and professional experience of researching infant feeding issues. Furthermore, it seemed wasteful to attempt to exclude the hunches and theoretical perspectives I had already begun to develop (described in Box 3, p.86), which had led me to want to consider the applicability of a complex-ecological systems frame to understanding infant feeding policy implementation. I concluded that the impact of my subjectivity would need to be incorporated rather than excluded. A reflexive approach requires transparency in reporting the messiness of the research process and demands that researchers record mistakes, dead-ends and false paths (Green and Thorogood, 2018). To manage my subjectivity and to ensure transparency, I have sought to integrate reflexive practices, including keeping field notes relating to formal and informal encounters and writing up memos in notebooks following each formal research encounter.

Power relationships with respect to the different stakeholders who participated in this study were mediated by my 'insider/outsider' status as part of the breastfeeding world. Insider researchers share key characteristics, a role or experience in common with research participants (Dwyer and Buckle, 2009). My prior experience of feeding several babies, in an infant feeding policy-making role, as a peer supporter and as a breastfeeding counsellor conferred on me an 'insider' status in relation to my participants to different extents during different phases of the research. For example, I could be categorised a 'peripheral member' (Adler and Adler, 1987) of the group of professional advocates I interviewed in Phase 1 of the research, belonging to the same loose community of volunteers, health professionals, policy professionals and researchers who are known to one another because of a shared interest in infant feeding and in infant feeding policy.

Box 2: Personal and professional experience of feeding babies – a reflexive account

Over an eight-year period (from 2001-2009) I breastfed four children with varying levels of comfort and 'success'. During this time, I personally encountered a gamut of feeding-related problems, including: a struggle to attach my baby to the breast, poor milk transfer, sore nipples, engorgement, mastitis, thrush, low weight gain (baby), sleep deprivation, anxiety and low mood (me). I received (sometimes conflicting) advice from midwives, lactation consultants and breastfeeding counsellors, and from my GP.

With my first two babies I sometimes felt embarrassed feeding with extended family members present, or when out and about … and simultaneously foolish because I believed that a politically aware grown-up woman *should not* be embarrassed. I experienced a roller coaster of delight and amazement that my body was 'making food' chased with despair that my body wouldn't work as it should. Supplementing my first three babies with formula felt like failure and I received no professional support for this aspect of my feeding journey. As a result, I was often very casual about making up bottles – mixing approximate amounts of powder with tap water and sometimes propping the bottle between the baby's mouth and the bars of the cot.

I also experienced many moments of intense closeness, joy, comfort, relaxation, satisfaction and meaning from breastfeeding – feelings that have rather a lot to do with 'love'. I would take my babies into the bath with me or lift them still-sleeping from their cots for the pleasure of suckling them. I remember, with my last baby, being conscious that sometimes I fed her to meet my own need for comfort, for the sound and pull of her, for the feel of milk drawing down, or just because I could still do it, and this might be the last time. There didn't seem to be a shared every-day language for these more intimate, sensual or even 'selfish' feelings, which were somehow *private* and inappropriate for general conversation among family and friends, in a way that 'bleeding nipples' were not.

All those emotional peaks and troughs must explain the subsequent surges of empathy towards other women who were trying in different ways to negotiate their feelings and decisions about feeding, who clearly needed less judgment and more support. I was prompted to train first as a peer supporter, through funding provided by Welsh Government, and then as an NCT breastfeeding counsellor. I began my training in 2009 and received my Diploma in 2014, an education which has involved de-briefing my own mixed experiences, improved my understanding of the physiology of feeding, taken me into new territory with an introduction to person-centred counselling skills and brought me into contact with mothers facing physical and social challenges I'd not previously been aware of. In addition, from 2008-2010 I became involved as a volunteer in promoting the (now discontinued) Welsh Government's Breastfeeding Welcome Scheme, a register of cafes and shops where women could be confident that staff were comfortable with breastfeeding.

Concurrent with this personal and voluntary experience, between 2004 and 2012 my main paid employment was as a Research Manager for NCT, the UK's largest charity for expectant and new parents. I continue to be employed by NCT on a casual contract basis and I currently represent NCT and Cardiff University on Unicef UK's Designation Committee, the body which accredits health and community services as having met 'Baby Friendly' standards (Unicef Baby Friendly UK, 2016). From 2008-2012 the focus of my NCT work was to develop a programme of qualitative and participative research to inform the charity's infant feeding policy. The research programme I developed sought to bring together the perspectives of mothers, fathers, practitioners and volunteers to identify and address long-running unresolved issues facing the charity. These included ensuring that the needs of parents using formula milk were met, communicating the challenges that breastfeeding can present and adequately preparing parents for a context in which accessing feeding support might be difficult (Trickey and Newburn, 2014). This research resulted in a position framework (Trickey et al, 2011) and a plan of action. A further outcome of this research was that it led me to apply for this PhD studentship on infant feeding, which has been joint-funded by NCT and by the Medical Research Council (MRC).

By the time I started my PhD studies it was no longer a surprise to me that the topic of feeding babies routinely engages at an emotional level, even in circumstances where this might be least expected. When I mention that I am studying the ways that babies are fed it is entirely ordinary to find myself plunged into a personal narrative, or the story of a partner, sister or friend (in the last few days, one casual conversation with a single male taxi driver and another with my elderly female

neighbour – a mother and grandmother). I'd already learned that qualitative research about infant feeding can sometimes feel like an extended and exhausting exercise in gaining trust and maintaining personal congruence. That conversations often carry as an undercurrent the sense that one is being 'checked out'. For some people, talking about breastfeeding triggers positive emotions associated with closeness or unconditional love. For others there are feelings of regret or anger or disgust. It is common (as in my own case) for feelings to be mixed.

The 'identity work' that mothers engage in when relating the accounts of their feeding decisions to others (Faircloth, 2010; Lee, 2008), is in my experience mirrored by a fair amount of 'identity' work on the part of researchers themselves, who need to make themselves safe and acceptable recipients of participants' own views and stories, while simultaneously not falling into a trap of being seen to align with 'pro' or 'anti' breastfeeding positions. This balancing act is a reflection of an acutely polarised public discourse in which mothers often feel 'blamed if they do and blamed if they don't' (Thomson et al, 2015). I began my PhD research with a hunch that the wariness and discomfort I and others experienced when talking about breastfeeding – either in a personal context or in the context of qualitative research – might somehow be related to the 'impact' problem; might have something to do with why achieving change is so difficult.

Box 3: Prior theoretical leanings – a reflexive account

A point of departure for the PhD was the consistent finding from survey research and from routine data that, despite over a decade of formal public health policy to promote breastfeeding in Wales, little had changed in terms of the decisions that parents were making. Over the early months of my PhD I discussed this lack of impact informally with policy leads, midwives, health visitors and with voluntary sector practitioners, many of whom I already knew through my paid and voluntary work roles, some of whom were personal friends. They tended to express frustration, sometimes mixed with a level of resignation about the lack of progress towards improved breastfeeding rates. Like them, I wanted to understand more broadly why so little had changed.

For the duration of my PhD I have been based within the Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer), a Public Health Research Centre of Excellence, which spans Cardiff, Bristol and Swansea universities. Over recent decades colleagues at Cardiff have refined and promoted a socio-ecological perspective as a framework for studying complex public health problems. My own academic background is geography (at undergraduate level), epidemiology (masters), and social policy (subsequent research experience) and perhaps this is why I had been particularly drawn to consider the strong geographical and social patterning in infant feeding outcomes. It was a natural next step to apply a socio-ecological-systems lens to influences on feeding decisions, rather than, for example, conducting a phenomenological study of feeding experiences of individual mothers.

Further reading brought me to the literature on systems and complexity thinking in the social sciences and to an 'Aha!' moment as I encountered the then new-to-me concept of a 'wicked problem' (Leischow and Milstein, 2006) – a problem that persists in the face of repeated attempts to change and whose very intractability is understood to be a function of its location within a complex system of competing influences. I recognised this as a potentially useful way of viewing the policy failure that fascinated me. I therefore began my quest to understand the apparently intractable policy problem of low breastfeeding rates with an explicitly ecological and complexity informed lens.

The draw towards a critical realist stance is partially intuitive. I am uncomfortable with a relativist assertion that reality is dependent on our individual constructions, and I tend to align with attempts to adjudicate between different constructions of social phenomena on empirical as well as ethical grounds – believing that some accounts are closer to reality than others (Moya, 2001). Perhaps because I am primarily an applied researcher, my intuitive sense has coincided with a more instrumental rationale for working from a critical realist stance to explore different forms of public health intervention.

The clear need for reflexivity with respect to my own experience and agenda also informed my decision to write up my research in the first person. I have also sought to be honest about the messiness of the phases of data collection and analysis, to incorporate my own thoughts and feelings and to clarify the ways in which my own positions have changed as the research has progressed.

It took me some time to be disciplined about memo-keeping and note-taking. In part this is because I did not establish from the beginning a system of memo-keeping that I could readily maintain, but it also it reflects my prior qualitative research training from which I had learned to regard the interview or focus group transcript as *The Product* of data collection. I was some way into my PhD research before I began to slip into a more fluid way of thinking about data gathering. I gave up keeping a notebook because I never seemed to have it with me when I needed it. Instead, on the advice of a poet friend, I kept a glass jar and shoved dated bits of paper inside. I became more confident and creative in my note-taking, including proto-poems and drawings as well as notes with post-interview thoughts and impressions. Judging by the insights I gained from re-considering these scraps as part of data analysis – the way reading them back has helped me to trace shifts in focus and has provided insight into issues of power, ethics and expectation that arose from my interactions with participants – I regret that I did not engage with this aspect of the fieldwork sooner.

Incorporating principles of feminist research

The decision to integrate principles of feminist research within my empirical investigation was not difficult. In terms of approach, I had entered the research with a prior personal commitment to breastfeeding support as an issue strongly interrelated with a feminist social activist agenda needed a methodological approach that enabled me to integrate my subjectivity and personal commitment to advocating for a more supportive context for new parents. Furthermore, as a topic, breastfeeding peer support clearly impacts predominantly on women, both as recipients and as providers.

A feminist approach recognises that the power dynamic inherent in all human interaction also relates to research interactions (Collins, 2002). This understanding requires the researcher to takes steps to ameliorate power dynamics, whilst at the same time recognising that the dynamic cannot be entirely erased. Feminist approaches seek to flatten hierarchical relationships between researcher and participant and often take a participative approach to unfolding the research agenda. Feedback and challenge from participants is integrated into the process of the development of emergent themes from multiple perspectives, so that participants are part of an iterated process of theory development.

The conversation between feminist theory and critical realism remains embryonic; indeed, Gunnerson et al, argue that the field of critical realism has remained decidedly 'masculine', noting that,

> Despite thematic alignments [between critical realism and feminist theory] and
> the fact that both critical realism and feminist theory are inherently critical-

emancipatory, the critical realist approach continues to occupy a marginal role within both feminist and gender studies debates.

<div align="right">Gunnarsson et al, 2016, p.433</div>

Nonetheless, there are clear overlaps. Feminist theory shares with critical realism a challenge to positivist assumptions about the correspondence between reality and knowledge, and both critical realism and feminist theory acknowledge the importance of situated knowledges, calling for the coming together of a range of points of view so that reality can be better understood. Furthermore, a strand of feminist research has tended to be critical of a positivist philosophical framework, of the elevation of quantitative methods and the detached and objectified treatment of research subjects which is sometimes understood to be inherent to such methods (Reinhartz and Davidman, 1992).

Just as there is no one definition of feminism, feminist research is defined in a variety of ways (Reinhartz and Davidman, 1992). Researchers who claim to use feminist approaches need to be prepared to say what it is about their methodology that makes it distinctively so (DeVault and Gross, 2007). What do I mean? Which principles I have sought to embed and why? And are there ways in which my approach has been incongruent with feminist methodology?

A key tenant of feminist research is the foregrounding of women's experiences, achieved by creating space in which women's voices can be heard. The discussion of challenges to infant feeding policy and a 'Changing Conversation' set out in Chapter 3, are indicative of a growing understanding in the infant feeding policy world that progress will not be made towards achieving public health goals (for example, increasing breastfeeding rates) without attention to the impact of existing public health activity on women themselves. I have used semi-structured interviews (Phase 1) and focus groups (Phase 3), in ways that are intended to enfold perspectives and experiences of mothers, peer supporters, health professionals and paid professional advocates into the development of theories of change for intervention, seeking to make these voices more audible in public discussion of infant feeding policy implementation and peer support. By applying methods of realist review to an exploration of the experimental evidence I have sought to re-integrate women's experiences of receiving and providing support into a narrative about effectiveness that often prioritises behavioural outcomes over those experiences (Phase 2). By elevating the importance of women's experiences throughout the research, I seek not only to produce a fuller understanding of how and why breastfeeding peer support operates across different settings but also to facilitate a re-focus on what '*it works'* means for women themselves.

Feminist approaches to research are marked by empathy and attentiveness to the perspective of the research participant and seek to break down barriers between the researcher and the person or people being researched. Methods tend to be chosen to maximise the space for the participants' voices to be heard. For this reason, unstructured interviews and non-directive discussion groups are strongly associated with a feminist research approach, these methods

providing researchers with opportunities for participants to fully engage in a process of meaning making (Warren, 2002).

Incorporating participative methods

A feminist approach to research often incorporates participative methods as part of an agenda to flatten the hierarchical relationship between researcher and the person or community being researched. Participative approaches tend to be transparent and flexible (participants need to know what the agenda is and to be able to contribute to shaping the agenda), collaborative (enabling participants to influence the direction of the research agenda), incorporative of diverse perspectives (counteracting a hegemonic perspective on the topic being addressed and challenging researcher assumptions). Outputs are often intended to be emancipatory (for example, used in a way that promotes change that is beneficial to the researched community).

Transparency: In this study, I have taken an approach to gathering data from stakeholders (in Phase 1 and Phase 3) that explicitly intends to enable participants to engage with the research aims and to question and challenge emerging themes. For example, in Phase 3, I embedded the research focus groups in stakeholder events that were designed to encourage reflection on the direction of the research and emergent themes.

Collaborative: In my stakeholder work, in Phases 1 and 3, I incorporate visual prompts and participative activities into interviews and focus groups. Visual tools have been found to enhance the depth of responses from research participants (Harper, 2002) and can lead to more collaborative conversations, reducing power imbalances in interview settings by shifting the focus of shared attention to a third object and drawing away from a focus on the individual and towards wider conceptualisations (Collier, 1957). In the field of pregnancy and parenting, methods of visual data production have been shown to be useful for understanding the lived experience of participants in small-scale qualitative projects when opportunities for direct observation are lacking (Mannay et al, 2017a).

Diverse perspectives: Inclusion of multiple and competing perspectives is considered key to understanding complex social phenomena. Midgley (2006) notes that,

> If a complex issue is defined from only one limited perspective without reflecting on issues and boundaries, and issues of marginalisation are neglected, then the outcome could be the use of a systems approach that misses or even exacerbates significant social problems.

> Midgley, 2006, p.469

In this thesis I have sought to bring together the experiences and viewpoints of parents, peer supporters, health professionals and policy makers, allowing these perspectives to interact with each other in the process of data gathering – through discussion in focus groups, participative research 'games', and through asking new participants to reflect on ideas generated at an earlier stage. This approach is also intended to enable different stakeholders to critique the framing of the problem being addressed, for example, by enfolding different

answers to the question 'why is breastfeeding important?' or 'what is a peer supporter', and to help to understand the different systems with which breastfeeding peer support interacts, for example, the health service, the family, friendship networks etc. It is also intended to act as a counter-weight to the influence of my own subjectivity.

Emancipatory: Just as the feminist researcher cannot stand outside her own research, her research is not value free. Feminist approaches are generally underpinned by a desire to use both the findings of the research and the research process itself to empower those on the being 'researched' end of the relationship, and to change services and settings to improve the context for participants (Green and Thorogood, 2018).

'Emancipatory' is too grand a word to describe my approach to the research developed throughout this thesis. However, I have been conscious throughout of a responsibility to feedback emerging findings into developments in the third sector (for example through presentations, and practitioner-focused blogs for NCT, ABM, BfN, and Unicef UK), in Welsh Government (through feedback to the Welsh Government's Action Planning group and through feeding into intervention development work for PHW) and also to find ways to present my findings directly to parents through Q&As and parent-focused blogs (including OurMilkyWay.org and Parenting Science Gang).

4.4 A mixed methods approach

I determined to adopt a mixed methods approach to exploring and articulating theories of breastfeeding peer support. Mixed methods approaches are compatible with a critical realist frame (Bergin et al, 2008) and are appropriate where researchers set out to investigate complex social problems where there may be multiple competing perspectives about the nature of causality, and where mental and physical properties interact – for example, Midgely (2006) has argued that,

> mixing methods from a variety of sources, [yields] a more flexible and responsive
> approach than might be possible with a more limited set of tools.

Midgely, 2006, p.466

In this study I have sought to integrate data drawn from semi-structured interviews with data from focus groups and with findings from realist review. I have used these methods in combination believing that in doing so I gain rich in-depth understanding of the research topic that could not have been gathered from using one method of data collection in isolation (Denzin and Lincoln, 2011).

Using qualitative methods within a critical realist frame

Qualitative research can be conducted under various epistemological frameworks including critical realism; the 'How?' and 'Why?' questions asked by critical realists being precisely the kinds of questions that are addressed through qualitative research methods. Qualitative research methods are used to develop and generalise theories about how and why things

happen as they do, as opposed to describing frequency of occurrence (Hyde, 2000), they place the participants' perspectives at the centre of the research process, enabling the researcher to investigate the meaning that participants themselves hold about a problem or issue by identifying patterns or themes (Creswell, 2012); and the focus is on understanding social behaviour in relation to the wider social ecology into which it is embedded (Gilbert, 1990).

While constructivists from different philosophical traditions disagree as to whether qualitative research can improve descriptions of an *objective* reality, the ontological constructivism that underlies a critical realist qualitative research framework '*re-legitimises ontological questions about the phenomena we study*' (Maxwell, 2012, p.13). In other words, the critical realist framework treats concepts that are identified and described through qualitative research not merely as abstractions or constructions whose value can only be assessed relative to one another (perhaps on ethical grounds), but rather as models which pertain to real (though ultimately unobservable) causal processes.

It is common for textbooks on qualitative methods to warn researchers against directly addressing issues of causality in their research questions, although 'beliefs and perceptions' about causality are considered legitimate topics for study (e.g. King and Horrocks, 2010). However, this point of view contradicts a long tradition of qualitative case study methods that go beyond a study of association or 'beliefs', for example in a quest to develop local causal maps (Miles and Huberman, 1994). Maxwell (2012), who uses qualitative methods within a critical realist frame, argues that qualitative methods can be important in helping us to get up close to mechanisms. He points out that qualitative methods are widely used in process evaluation to '*directly investigate […] causal processes through observation of social settings and interviews with participants*' (Maxwell, 2012. p.37).

Qualitative approaches to data collection, and particularly the methods of semi-structured interviews and focus groups used in this research, can provide an entry point to exploring understandings of causal processes within a system (for example, with respect to breastfeeding peer support, the perceptions and beliefs of parents, relatives, health professionals, voluntary sector workers, policy makers and so on). From a critical realist perspective it is important to explore the contribution of these 'mental' phenomena to the development of lay theories about what works for two reasons:

1. *They form part of the context for intervention* and are bound up in the causal processes that produce behaviour. The way that individuals respond to a given intervention in a specific context will be influenced by how they make sense of what is intended by the intervention, as well as different beliefs about the kinds of outcomes that might be expected to result. For breastfeeding peer support, the way that different actors within the system relate to the various 'positions' on the wider breastfeeding debate will be likely to influence their responses to breastfeeding peer support programmes.

2. *Human actors are reflexive with respect to the systems that they inhabit* and they can use their understanding of context to change it. Critical realists believe that

understanding the ways that lived experience interacts with – and in turn influences – processes of change can lead to deeper levels of explanation and understanding (McEvoy and Richards, 2006). So, for breastfeeding peer support it is possible to anticipate that meanings associated with 'breastfeeding' and 'peer support' are themselves layered-in to the context. As the intervention becomes embedded changes in meanings and associations will be bound up in the processes of change.

Gatrell has noted that the '*embodied actor*' is frequently missing from complexity thinking (Gatrell, 2005). One answer to this is the use of multiple narratives to access aspects of causality that are difficult to address in other ways. Uprichard and Byrne suggest that gathering multiple narratives can facilitate human actors to '*express the meaning that underlies their own agency*' and bring to light '*conscious reflexivity of individual or collective social action*' – in other words the role of agency in affecting change (Uprichard and Byrne, 2006). The authors see multiple narratives as adding to explanation in two ways. First, narratives from embedded agents reveal the processes by which they negotiate intersecting levels within a system, exposing the inner workings so that causal pathways can be described. Second, agents' reflections on the past and the future state of the system (including identifying phase shifts in the past, present and in an imagined or desired future) introduces a sense of history and projection.

In my own empirical research, I am using qualitative methods to elicit stakeholders' (parents, peers, health professionals and policy makers) own causal theories of breastfeeding peer support, drawing on their experience and beliefs, iterating these theories with case studies developed from the experimental literature. I seek to identify common understandings about links between context, mechanism and outcome that underlie the different implicit or explicit understandings about how peer support plays out in practice. This is not an abstract or relativistic exercise; I seek to uncover potential credible mechanisms for breastfeeding peer support triggered in UK low-income, low breastfeeding rate contexts, iterating between the existing evidence base and the experience of stakeholders. The findings are intended to have practical implication, providing a stronger theoretical basis for intervention design and evaluation in a Welsh context.

Conducting systematic review within a critical realist frame

Realist approaches to evidence synthesis and evaluation are based on an insight that it does not make sense to separate out a complex intervention – such as breastfeeding peer support – from its delivery context (Wong et al, 2013). Because contextual impact is considered important, realist syntheses do not combine studies to look at overall strength of effect. Instead, realists try to understand what the underlying processes of change are in any given context and *why* they are triggered in some contexts but not in others.

Realist synthesis is a theory-driven review method. Proponents argue that this form of review offers the potential for insights that go beyond the experimental paradigm (Wong et al, 2013). Realist reviewers draw in evidence from a variety of sources, including discussion sections of

study papers, qualitative studies and process evaluations, and conversations with those responsible for delivering the intervention or those otherwise affected. To achieve evidence synthesis, a method of constant comparison between CMO configurations identified in different intervention settings is used to develop mid-range theories about how interventions do (or do not) work in different contexts, and to draw transferable lessons.

Realist reviews tend to work forwards from identifying potential theories about how interventions do (or do not) work, to exploring the evidence to test identified theories across different contexts (Pawson et al, 2006). Realist reviews are increasingly being conducted to answer questions relating to intervention implementation in a public health context; for example on the benefits of participatory research in public health (Jagosh et al, 2012) and integrating health economic programme theories into hip fracture intervention (Charles et al, 2013). The most relevant example of realist review in the context of this thesis is a review of peer support interventions for improving health literacy and reducing health inequalities (Harris et al, 2015), discussed in Chapter 2, Section 2.4.

Principles of realist review can be reverse-applied to articulate intervention theory and theories in action in intervention cases that have already contributed to Cochrane-style systematic reviews of the experimental evidence. For example, this approach has been used to enhance interpretation from experimental studies of school feeding programmes that had contributed to a Cochrane review (Greenhalgh et al, 2007). This reverse-application approach enables the reviewer to explore theoretical and contextual heterogeneity and to consider the evidence for causal processes – rather than association between components and outcomes – thereby enhancing the potential for an existing evidence base to inform future intervention design. This is the approach that I have taken in this thesis, providing a complement to the bottom-up review of peer support to improve health literacy and reduce inequality undertaken by Harris et al, (2015), which included some qualitative studies of breastfeeding peer support but largely excluded studies underpinning the highly influential (and negative) experimental evidence base for breastfeeding peer support in a UK context.

What's next?

My study is conducted within a critical realist epistemological framework and underpinned by reflexivity, and by feminist and participative approaches. In Chapter 5, I describe in detail my methods of data collection across three Phases of research, and the relationship between my method and my research questions.

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Chapter 5: Three phases of data collection – research methods

5.1 Introduction and contribution to the thesis

In Chapter 4 I set out my underpinning epistemological framework and methodological principles. In this chapter I describe my research design, incorporating three phases of data collection and with analysis ongoing throughout. The research phases are overlapping and build on one another, with preliminary findings from prior phases leading to a refinement of research questions, methods and strategies for analysis applied in relation to subsequent phases.

Chapter summary

➢ In Section 5.2, I describe three phases of data collection and analysis. I present a schematic diagram (Figure 5, p.97) indicating how these phases contribute to answering the four thesis research questions, and I set out my intention to use an emergent fit approach across the three phases to progressively refine understandings of how peer support works in a Welsh context.

➢ In Section 5.3, I describe my Phase 1 research, comprising qualitative interviews with professional advocates, including Welsh policy makers and Welsh Infant Feeding Leads or Co-ordinators and explain my decision to analyse these data through a combination of narrative and thematic analysis.

➢ In Section 5.4, I describe my Phase 2 research, comprising a realist review of the experimental evidence base for breastfeeding peer support in high-income country settings.

➢ In Section 5.5, I describe my Phase 3 methods, comprising a realist qualitative study of focus groups with parents, peer supporters and health professionals.

➢ In Section 5.6, I introduce the empirical research chapters.

5.2 Emergent fit across three phases of data collection

I conducted three overlapping phases of data collection, with analysis on-going throughout. A schematic map of the relationship between strands of data collected and my four Research Questions (see Box 1, p. 75) is presented in Figure 5 (p.97). A schematic diagram indicating the time-sequencing of data collection and analysis and the iterative nature of the research is presented in Figure 6 (p.98)

1. *Phase 1: Professional Advocate Interviews.* The first phase of data collection built directly on my literature reviews, set out in Chapters 1-3, and was intended to answer Research Questions 1 and 2. I used semi-structured interviews to explore the conceptual and implementation landscape – the wider context – for peer support intervention in Wales

from the point of view of professional advocates. I considered whether concepts drawn from complexity thinking enhanced interpretation of the implementation landscape. I also began to identify clusters of ideas from professional advocates about how they understood breastfeeding peer support to be operating in Wales.

2. *Phase 2: Realist Review.* The second phase of data collection, built on my findings from *Phase 1,* and was intended to answer Research Question 3. I employed realist review methods to explore case studies of breastfeeding peer support underpinning the experimental evidence base. I considered whether studies speak to the complex implementation landscape that Welsh professional advocates experience and to the range of understandings about how breastfeeding peer support operates that were elicited from them.

3. *Phase 3: Stakeholder Focus Groups.* The third phase of data collection and analysis, built on my findings from *Phase 1 and Phase 2*, and was intended to answer Research Question 4, extending, enhancing and contradicting emergent theories of breastfeeding peer support. To do this I used focus group data gathered from Welsh mothers, fathers, peer supporters and health professionals.

Broadly, I identified methods in advance, with my preliminary decision being informed by the findings of the literature reviews, presented in Chapters 1-3. I intended to use a mixture of qualitative research with stakeholders and realist review of the experimental literature to explore theories of breastfeeding peer support in a Welsh context. However, my research questions and methods were refined as the research progressed. The precise make-up of the research methods for each phase were not specified in advance. Rather, I sought to ensure at each stage that the methods were legitimised by the research questions (Bryman, 2006) and indicated by emerging findings from previous research phases. So, for example, the finding (from Phase 1) that professional advocates had three ways of thinking about how breastfeeding peer support worked, led me to consider the extent to which these understandings had been tested experimentally. Furthermore, the finding from realist review (in Phase 2), that the existing experimental evidence base did not take account of complex interactions in the wider context and does not encompass the range of understandings about how peer support works that professional advocates held, informed my focused realist qualitative investigation of lay theories of peer support (undertaken through Phase 3). And in Phase 3, I extended emergent theories from Phases 1 and 2 drawing on the experiences of multiple stakeholders.

Furthermore, the finding from interviews with professional advocates (in Phase 1) that advocates found it especially difficult to make a difference in low income, low breastfeeding rate settings, along with findings from realist review (in Phase 2) that the wider cultural and infant feeding context for intervention makes a difference, led me to extend my focused stakeholder work (Phase 3) to incorporating secondary analysis of focus group data gathered from mothers, fathers and peer supporters who live and work in low income, low breastfeeding rate settings.

Figure 5: Schematic map of methods of data collection, data sources & relationship to the five thesis research questions.

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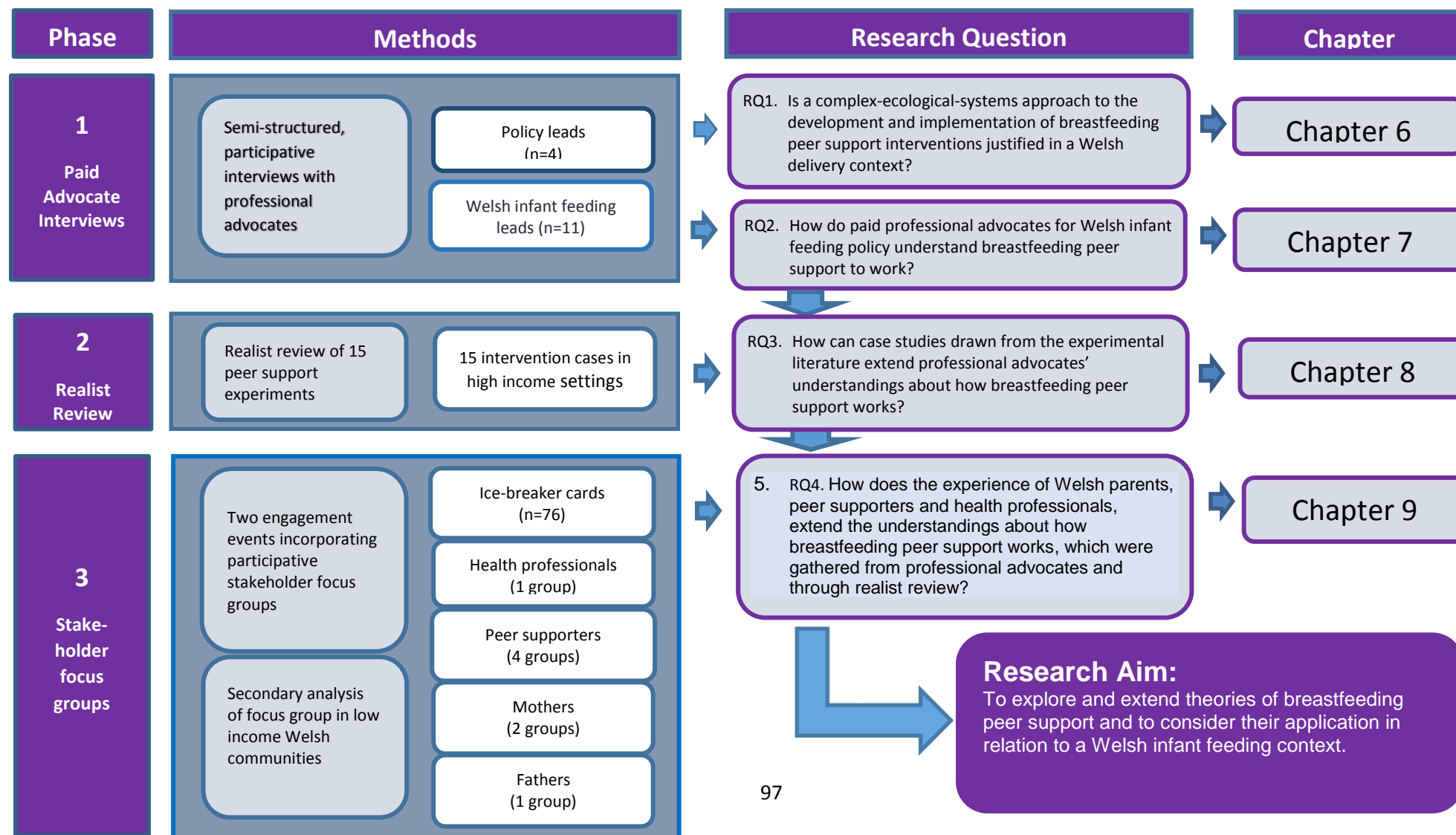
In terms of temporal sequencing, Phase 1 was completed first. Phases 2 and 3 were staggered but overlapping, with preliminary findings from Phase 2 feeding into Phase 3 work, but with iteration as part of ongoing analysis (Figure 6).

Figure 6: Timeline of data collection and analysis
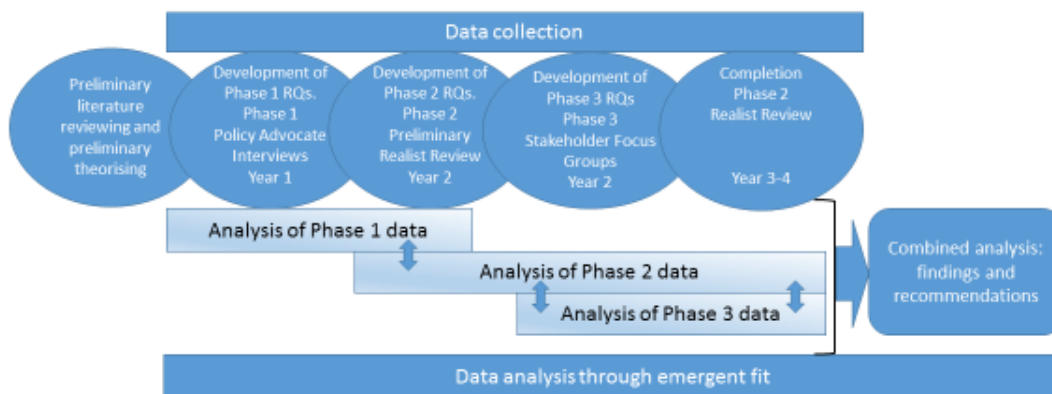
Integrating findings from a mixed-method approach

A potential difficulty with a mixed methods approach concerns the question of data integration (Johnson et al, 2007) - How should findings from different forms of data collection be mixed? A genuine mixed method approach takes an approach to analysis that allows different data sources to be 'creatively layered alongside each other to build a richer picture' (Kara, 2015. p.8) so that explanatory power is built from evidence drawn across methodologies (Yin, 2006). While each of the three phases of data collection substantially intends to answer specific research questions (See Figure 5, p.97), and is reported with one research question addressed in each of Chapters 6-9, the findings from all three phases are progressively layered. Implications for intervention and evaluation in Wales arising from all three research phases are considered together in a final discussion chapter (Chapter 10).

Methods of data gathering, preparation, organisation, reduction and interpretation across each of the three research phases are described in this chapter. While the phases of data collection were successive, my data analysis has been ongoing and iterative throughout, moving in analytic circles (Creswell, 2012), with development of theoretical frameworks in Phase 1 and 2, which were then extended, contradicted and nuanced through employing constant comparative analysis within and across phases.

My approach to theory development aligns with a method of emergent fit – an extension of a Glaseriian grounded theory method that enables the researcher to build on prior theoretical perspectives,

> An emergent fit approach allows the researcher to build on the work of another researcher or to expand personal research, thus building a series of studies about a single phenomenon.
>
> Artinian, 1988, p.144

Theory development proceeded from my own prior theoretical leanings (described in Box 3, p.86) and from a literature review of infant feeding decisions and breastfeeding peer support, which applied concepts drawn from ecological and complex systems thinking to the context for infant feeding intervention. This led to the development of research questions that explicitly intend to explore application of a complex ecological systems lens to breastfeeding peer support intervention. Identification and articulation of theories of breastfeeding peer support then proceeded through the three phased studies. Exploration of advocate experience and case studies from the experimental literature in Phases 1 and 2 led me to identify initial conceptual categories (Phase 1) and a visual model and propositional statements (Phase 2). These frameworks were subsequently extended, contradicted and nuanced using an emergent fit approach to theory development (Artinian, 2009) in Phase 3. Analytical integration has been facilitated through the application of common conceptual tools, including extraction of CMO configurations (discussed above).

5.3 Ethical approval, consent, data management and security

Ethical approval for the empirical stages of this PhD thesis was awarded by Cardiff University's School Research Ethics Committee, who oversaw standards of research governance. Phase 3 also incorporated focus group data from four focus groups with Welsh mothers, fathers and peer supporters that I collected as part of the Mamkind feasibly study, which ran in parallel (Paranjothy et al, 2017). Ethics approval for this study was granted by the NHS Health Research Authority, Wales REC 3 Panel, in June 2015 (reference 15/WA/0149). All participants provided written informed consent. Health-care professionals provided audio-recorded verbal consent for their interviews following a standardised script. Participants were not offered financial incentives or gifts. All Phase 1 and Phase 3 participants provided written informed consent to participate in the study (See Appendicies B and G).

Anonymised transcribed data and audio files were password protected and stored on the Cardiff University secure network, with access limited to essential members of the research team. Transcribed data and audio files will be stored for five years following the end of the research, in line with University Policy.

For Phase 1 participants, the nature of their professional roles, and the fact that there are only a limited number of stakeholders involved in design and delivery in this policy area, placed some constraints on my ability to ensure confidentiality and anonymity of the data. Further complications arose because many participants were known to each other, increasing the danger that some stakeholders may be able to guess who has said what, when reading

research outputs. While some stakeholders indicated that they would be happy to contribute to the research 'on the record' – meaning that they were happy for their identity to be disclosed alongside any quoted interview data – in fact, disclosing their identity would have the impact of making it harder to maintain the anonymity of others who were referred to as part of the interview. In view of these constraints, I ensured that all interviewees were informed via the information sheet and consent form (see Appendix B), as well as verbally at the commencement of the interview, that I would act to maintain anonymity. This included changing names, ages, dates and not disclosing the location of the participant. I also warned that their position might make maintaining full anonymity impossible and that they should bear this in mind when deciding what to share in interview.

Across Phases 1 and 3 of data collection, many participants had had their own personal experience of feeding a baby at one time or another. I anticipated (and subsequently found) that participants frequently referred to their own feeding experiences, or to those of members of their personal family or friendship network, within the interview context; drawing on personal experiences when discussing current approaches. I did not consider it likely that reflection on personal experiences would cause emotional harm to participants who work with infant feeding issues as part of their daily lives, but felt the possibility of harm should be considered, particularly among new parents. As part of my application for ethical approval I stated that in the event of a participant becoming upset I would offer to pause or stop the interview and in practice I offered to do this at the start of each recording. I found that while many participants described difficult and upsetting circumstances associated with feeding their babies, none indicated that they felt that talking about these experiences was harmful to them and no participant asked me to stop recording for this reason.

5.4 Phase 1 – Paid advocate interviews

In the first phase of my research (see Figure 5, p.97), I conducted semi-structured interviews with professional advocates for Welsh infant feeding policy.

Semi-structured interviews

The semi-structured interview is a method of qualitative enquiry through which the researcher asks participants predetermined but open-ended questions All interviews were audio-digitally recorded with the consent of participants. At the start of each interview I re-iterated that I would stop the tape if the participant said anything they would prefer not to be used. Hard copies of transcripts were anonymised and identifying data relating to any other individuals referred to in the interview were also anonymised.

In places in this section, I draw on material from the participant interview data to illustrate how aspects of my methodological approach were applied in practice; for example, including how

participants interacted with the visual aids, and how the rapport I established on the basis of an insider relationship in early interviews impacted on my data collection and analysis. The interview data included in this chapter does not pre-empt the 'findings' from these data, which are presented in Chapters 6 and 7.

Sampling and recruitment

I defined the term professional advocate as professionals whose paid work role explicitly involved promoting and implementing Welsh Government policy to improve breastfeeding experiences and outcomes in Wales.

My method of sampling was purposive. My participants can be divided into policy participants (makers and deliverers) and Infant Feeding Leads/Co-ordinators (IFL/Cs). Among the infant feeding leads I sought to achieve a geographical reach (across the seven Welsh Health Boards) and a professional mix, including midwives and health visitors.

Policy Leads were based within Welsh Government and PHW and are responsible for strategic delivery of infant feeding policy, engaging with all sectors of government. IFLC appointments are made at Health Board level; with infant feeding leads responsible for leading services towards achieving BFI accreditation. IFL/Cs are sometimes expected to have oversight over other aspects of policy delivery that are being taken forward within the Health Board area, including recruiting peer supporters and co-ordinating peer support. TheIFL/C posts are funded via the Health Board with funding for posts supported through a Welsh Government/PHW grant. At the time of the research all seven Health Boards had at least one IFL/C in post in a midwifery role, and sometimes two professionals sharing the role; only five Health Boards had an IFL/C in a Health Visiting role.

I initially identified participants using a snowball method, beginning with an infant feeding lead and policy lead who were already known to me personally through my prior paid and voluntary work. As the participants' own accounts illustrate, the world of the professional 'breastfeeding community' in Wales is small. It was straightforward, once initial participants had been identified, for me to identify further participants through a process of being recommended on. I was aware that a snowball sampling method might result in my over-sampling keener individuals, or those whose world view was close to that of others in the sample (King and Horrocks, 2010). I therefore supplemented the 'recommend on' approach with an approach of identifying participants directly from lists of infant feeding leads. As part of the recruitment process, I attended key meetings attended by professional advocates to talk about the project and encourage potential participants to engage. These were The AWBF, and the meeting of Welsh infant feeding leads. The AWBF has been running bi-annually since 1994. This is an open meeting for health professionals, policy makers, academics and volunteers with an interest in improving the context for breastfeeding in Wales. The AWBF arose directly out of the joint concern of a small group of health professionals, who saw a need to work across sectors. The meeting of Welsh Infant Feeding Leads (now replaced by the Welsh Infant

Feeding Information Network (WIFIN) is a formal meeting between health professionals in IFL/C roles with responsibility for implementation of the Baby Friendly UK programme and is sometimes attended by the PHW or Welsh Government policy lead.

Composition and reach of the sample

I recruited 15 participants to the study. These included three current and one former policy lead who had worked in Welsh Government or in PHW. Two policy leads held roles in which infant feeding policy had been the central focus, both had professional or voluntary sector backgrounds that had involved providing one-to-one breastfeeding support for mothers. They considered themselves to be well networked with other breastfeeding advocates (both health professional and voluntary sector providers) across the UK. The other two policy leads had professional roles that encompassed multiple public health or health service management priorities including developing, championing and implementing Welsh infant feeding policy.

I had little difficulty in accessing either policy advocates or IFL/Cs. Even though this group might be considered busy 'elite' professionals, not one refused to take part in the research. This ease of access initially surprised me, as I was aware from many informal conversations that my participants felt themselves to be time-poor and in highly pressured roles, I had been anxious that they would perceive the research as a waste of time.

Satisfactory geographical reach was achieved for Maternity-based IFL/Cs (with eight participants from six out of seven Welsh Health Boards), however, I was less successful in engaging Health Visiting IFL/Cs (with only three participants representing a possible five Welsh Health Boards with Health Visiting Leads in post at the time). Failure to recruit may have been due to these individuals being new in post, however, the possibility that this introduces unknown bias cannot be excluded (for example, these newer-in-post health visiting IFL/Cs may have taken a different attitude to their role).

A breakdown of policy advocate participants recruited to Phase 1 and format and location of the interview is presented in Table 5, p.103. Names are pseudonyms.

Table 5: Fifteen paid advocate participants

ID	Role	Format and location	ID	Role	Format and location
Liz	Policy Lead	Face-to-Face Heather's home	Joan	Midwife IFL/C	Face-to-Face Participant's workplace
Asha	Policy Lead	Face-to-Face Participant's workplace	Laura	Midwife IFL/C	Telephone
Jane	Policy Lead	Face-to-Face Heather's workplace	Gwen	Midwife IFL/C	Face-to-Face Participant's workplace
Nancy	Policy Lead	Face-to-Face Heather's workplace	Nyree	Midwife IFL/C	Face-to-Face Participant's workplace
Grace	Midwife IFL/C	Face-to-Face Participant's workplace	Carrie	Health Visitor IFL/C	Face-to-Face Heather's workplace
Leela	Midwife IFL/C	Face-to-Face Participant's workplace	Clara	Health Visitor IFL/C	Face-to-Face Heather's workplace
Sian	Midwife IFL/C	Face-to-Face Participant's home	Zena	Health Visitor IFL/C	Telephone
Gemma	Midwife IFL	Face-to-Face Participant's home			

*IFL/C – Infant feeding lead or co-ordinator

Data collection: location, format, time

All participants received information about the purpose of the interview ahead of our meeting and gave their consent to participate (Information and consent form provided in Appendix B).

Where possible stakeholders were interviewed face-to-face in a private location convenient to them. Six interviews took place in or near to the participant's place of work. Three were conducted in the participant's own home. Two interviews took place in my own place of work and one took place in my own home. Two interviews were conducted by telephone because a mutually convenient time and place to meet could not be found. Telephone interviews were arranged at a time in which the participant and I both had access to a quiet and private location where we were unlikely to be disturbed. I sought verbal confirmation at the time of the interview that the participant could not be overhead.

My intention was that the interviews would last between 60-90 minutes. I planned to spend about 40 minutes on part one, 20 minutes on part two and the last 10 minutes on part three, and to build in some time for over-run. In practice interviews had a range of 25 minutes to 2.5 hours, with three interviews lasting more than an hour-and-a-half. Longer interviews tended to be in a home setting and this may reflect participants feeling more relaxed and 'on their own time'. Telephone interviews tended to be shorter than face-to-face interviews, in part due to cutting out the final portion of the schedule. The main reasons for running 'over time' were that the open-ended discussion ran on, or that the participant remembered something towards the end of the interview – or after the interview had finished – which they felt added to their earlier thinking and which they wanted to contribute (in three cases I switched the audio-recorder back on after the interview had concluded to capture these 'after-thoughts'). In all cases when the interview looked as though it might be going to run 'over-time' I offered to skip through the

schedule or to call a halt before the schedule was completed; in each case the participants preferred to continue.

In fact, many of the interviews extended beyond the length originally agreed because the interviewee wanted to say more. For example, **Liz,** a policy participant, began the interview by saying that she had very little time and that we might need to skip bits of the interview. We agreed just half an hour and I suggested I cut the later, interactive portion of the interview schedule including the ecological diagram. After twenty-five minutes I paused the conversation. **Liz** said she would like to carry on for a bit longer. She decided to continue and the interview lasted 50 minutes.

Interview schedule

I set out to devise an interview schedule that would resolve a tension inherent to my research questions between, on the one hand, seeking to explore the landscape for implementation from the perspective of the stakeholders to understand the context for intervention (i.e. broad and participant-led) and, on the other hand, seeking to ensure the research encounter paid focused attention to the operation of breastfeeding peer support as a specific intervention form (i.e. focused and researcher-led). To manage this tension I devised an interview schedule that became progressively more structured as the interview proceeded. A copy of the interview schedule is provided in Appendix C.

In keeping with my commitment to an open agenda and a collaborative style, near the start of the interview, after re-iterating the purpose and discussing confidentiality, I gave participants a verbal overview of the areas that I planned to cover; for example, saying,

> I'm expecting this interview to last between an hour and an-hour-and-a-half, does that fit with what you were expecting? I'd like to start off by spending some time talking about you and what you do, after that I've one or two things I'd like particularly to ask you about infant feeding policy in Wales and at the end I hope there will be time for us to spend about ten minutes trying out a participative game to look at influences on infant feeding decisions. Does that sound okay?

I wanted participants to use the first part of interview to paint a picture of their own conceptual landscape, highlighting themes and issues that they considered to be particularly relevant to their experience of the challenges and consolations associated with their role. By giving the participant considerable scope to talk about her own experiences in the opening part of the interview, my intention was to gather enough material to test through analysis whether the complex systems lens (discussed in Chapter 3) was adequately capturing the lived experience of advocates who were responsible for 'doing policy implementation'. I wanted to explore the meanings and values that participants attached to their work. To this end the first part of the interview is relatively unstructured; I inserted just a few prompts. Unstructured interviews are intended to be participant-led and with considerable space for participants to tell their own

stories, with interviewer prompts intended primarily to get the discussion going. I planned for this part of the interview to last around 30 minutes.

I found that this part of the interview naturally gave rise to narratives. Participants had the space and time to make their own connections, and tended to tell plotted stories, with beginnings, middles and ends (Denzin, 1989), of their own journey into their roles and also about how their own feeding experiences have affected their current practice. My more discursive themes – 'does breastfeeding matter?', 'what makes a good infant feeding lead?', 'what are the challenges within role?' – tended to be embedded within these personal narratives, which provided an insight into the internal logic underlying the development of participants' own beliefs and values and are a way to understand the social context for their beliefs and behaviour (Popay, et al, 1998). Noting that these accounts tended to be rich in revealing the origin and development of participants' own conceptual frameworks, I changed the initial discursive prompts as the study progressed to encourage these narratives – for example, replacing,

> Perhaps a good place to start might be if you were to tell me a bit about your current role?

with,

> Perhaps a good place to start would be if you could tell me a little about your own background and how you came to take up your current role?

By design, the second half of the interview was more structured, my intention being to ensure that the data generated in relation to breastfeeding peer support would be sufficient to facilitate comparison between participants, whilst at the same time leaving space for new theoretical insights to arise. For the face-to-face interviews I used two visual photograph prompts to aid a comparative discussion about areas with low breastfeeding rates, these were street scene photographs of a typical Welsh valley town and an affluent area just outside of Cardiff (Appendix D). Mannay observes that photographs can be,

> useful in disrupting the focus from individual experience to the dominant visual tropes that circulate

> Mannay et al, 2017b, p.16

thus, allowing connections to be made between wider social representations and individual experiences. This was borne out in my own research; for example, in this extract, **Liz** (a policy advocate) is talking about geographical differences in breastfeeding rates while both of us consider the visual prompt of a picture of a Welsh valley town,

> **Liz:** It's hard work breastfeeding, it's long hours. So, you might spend a few hours in the morning breastfeeding and you're sitting in a café with your girlfriends, so everyone's getting nourished … *here* [*indicates the photo*] I bet there's no little nice cafés.

For the final portion of the interview, I used a version of the complex-ecological-systems visual model presented in Figure 4, (p.74). My intention was to get participants thinking about influences on decisions and about the implementation landscape for infant feeding policy and breastfeeding peer support. Describing the interaction with the visual model as a 'game' I supplied the interview participants with unmarked versions of the diagram and a selection of highlighter pens. I then asked each participant to use coloured pens to mark the diagram in response to the questions set out below,

∗ Thinking about Welsh mothers' feeding journeys … please mark the areas where current policy is having a strong positive impact at the moment **(in blue)**
∗ Thinking about Welsh mothers' feeding journeys … please mark the areas where you feel policy is having a little or no impact at the moment **(in yellow)**
∗ Thinking about policy to change infant feeding behaviours in areas with LOW BREASTFEEDING RATES… please mark the areas you think will be most important for policy makers to tackle in the future **(in red)**

Obviously the ecological-systems diagram had not previously been tested as a research tool at this stage. I was keen on the one hand to know participants would 'get it', and simultaneously anxious that they might find the activity of marking it up childish. In fact, in all the face-to-face interviews where I used the diagram, participants responded positively to this way of representing influences – the model seemed to have a good intuitive fit for the participants.

> **Gwen**: Well! This looks *really* good! Yeah! Because you've got it all in a nutshell there, haven't you! You've got it really separate from the mother, and everything else around her. Yeah! I think that's great!

Interactions with the ecological diagram sometimes caused participants to become aware that they were linking ideas together in a way that they might not have done if the interview had been entirely conversation based. For example, in **Nancy** (policy advocate) noted,

> **Nancy**: The thing I really like about [the ecological diagram] is the journey. This sense of a journey through it, because it's not… because people forget that and it's actually really powerful when you talk about the journey I have found. Because it… at a sort of strategic level, sometimes people forget that it's actually about people's experiences, their life and also that it's not about snap shots – there's a process sense to this. So the concept of a journey, really I think it's powerful because it immediately clicks…

The diagram seemed to have a de-personalising effect, facilitating reflection beyond participant's own experiences and the responsibilities, which had been very much the focus of the first portion of the interview. For example, this excerpt from an interview with Jane

indicates how the interaction with the diagram contributed to developing a shared understanding of Jane's overall assessment of the reach of infant feeding policy,

> **Heather**: Taking the blue pen could you mark on the areas where you think policy is having a positive impact?
>
> **Jane**: *(pause)* a strong impact?
>
> **Heather**: Well, I guess, yes *(long pause)*. You don't have to colour anything in...
>
> **Jane**: Well, if you ask me generally, I would say here… *[marks the mother's journey at the point marked birth]* … in the immediate sort of [*post birth*] period. But I'm not sure that that's the case in a deprived community.
>
> **Heather**: Okay, well, so perhaps just put a little dot on there, but you're saying that may not be the case in an area with low breastfeeding rates – okay.
>
> **Jane**: I think that's where most of our focus has been […] and the wider kind of you know Sure Start, Flying Starts… over the early years kind of agenda […] so there's probably, … hmmm…, I think there's little bits happening here that might help [*marks part of the diagram labelled 'community and social'*] …
>
> **Heather**: *(laughing)* I love the size of your [tiny] dots (*both laugh*) …
>
> <div align="right">**Jane**'s marked diagram is shown in **Figure 7**</div>

Figure 7: Where is policy having an impact?
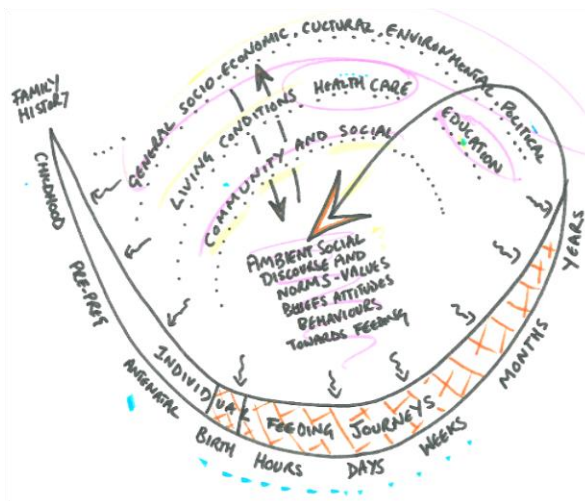
While my intention had been to focus in the second stage of the interview to a more researcher-led interview style, in practice, I found that in face-to-face interactions the photographs and the opportunity to interact with the ecological diagram led participants to take the conversation in directions that were important for them. I tended to find myself picking up on threads from the open-ended discussion that had preceded, so that this second stage of the interview flowed naturally, and conversationally, from topic to topic as issues that I had in my mind to raise were raised spontaneously by the participant interacting with the prompts. However, the visual prompts and games did not work well over the telephone, for the first

interview I sent visual prompts to accompany my topic guide ahead of time by email, however I found referring to them led to the discussion becoming stilted and disjointed and did not include them in the subsequent telephone interviews. I also concluded that discussion of the ecological influences diagram would not prove feasible or enjoyable over the telephone and translated this into probing in a more general way about the policy implementation context.

Research memos and non-verbal data collection

I used field memos to record classificatory data about each participant and situational details – for example, details of where the interview took place, availability and any time constraints. As well as writing notes to capturing my impressions, occasionally I found it helpful to record rough-and-ready illustrations of participant gestures and expressions that struck me, as these seemed to capture the participants meaning in a way that was preferable to my attempting to describe in words. As the interviews progressed I also began to record more impressionistic information, including my impression of participants' willingness to engage, and non-verbal cues, sometime recording silences or drawings of participant gestures that felt key to the story the participant was telling. I also used memos to keep a record of ideas that I was developing in relation to the research questions between interviews.

The interview as conversation

Feminist approaches to qualitative research seek to break down barriers between researcher and research participant. My prior training in person-centred counselling led me to recognise similar underpinning values and intentions, for example, the focus on attentiveness and building trust and on developing relational depth within the research encounter (Mearns and Thorne, 2013). In the language of counselling, feminist interviews enfold high and genuine levels of empathy, acceptance and transparency towards clients with researchers developing an ability to be continually reflexive.

These qualities are intended to engender a context in which the participant feels comfortable sharing personal perspectives and experiences. However, a feminist philosophy of approach goes beyond simply creating 'rapport' – as Oakley points out (1993) there is something disingenuous and manipulative about using 'rapport' as a research tool; as if creating a warm, empathetic relationship with the participant had value only as a research 'skill'. In feminist research the conversation is intended to be authentic and reciprocal, and to enfold the principle that intimacy requires reciprocity. The feminist researcher needs be prepared to introduce her own experiences, emotions and emergent ideas about the direction of the research into the conversational space, whilst at the same time ensuring that these experiences and views do not overwhelm or direct those of the participant.

Shared experience between researcher and participant opens the possibility of participants placing trust and revealing more personal aspects of their own experience. Certainly, I found

that many participants felt able to tell personal stories about their own experiences of feeding babies, and that these stories were interwoven with stories about why they had taken on the role as well as their beliefs about why breastfeeding mattered (see Chapter 5); so that by ensuring that participants did feel comfortable to tell personal stories I was able to gain insights into their conceptual frameworks and their implementation experiences.

Several participants used the interview to off-load their feelings about the challenges of their working life, feeling that I would 'get it'. Indeed, some of the conversations seemed to involve elements of a '*therapeutic encounter*', as described by Birch and Miller (2000). Three infant feeding leads told me that they had found the interview personally helpful, either because it had provided a rare opportunity to look back on their personal experience of feeding babies, or because it helped them to talk about the difficulties they were facing at work. The excerpt from the interview with **Gwen,** presented in Box 4, p110, exemplifies this point; in this extract **Gwen** is treating herself in taking time out from her ward work to reflect on that work and on her own feelings of isolation.

I would have very much wanted to listen to **Gwen's** experience outside of a research context. My intention in the excerpt above was not solely instrumental. Nonetheless, making space for participants, including **Gwen**, to use the interview to off-load in this way often led to valuable insights connected to my research questions. For example, the feelings of isolation expressed by **Gwen** here were also expressed by other participants. Through analysis I was able to connect the theme of feeling isolated to the positioning of advocates within a complex system of individuals with conflicting views and experiences. I was then able to relate her feelings to the emergence of advocacy networks within the NHS hierarchy (an aspect of the intervention context discussed in Chapter 6).

Similarly, there were occasions when a conversational approach, and self-disclosure on my part, seemed to facilitate insights about the development of participants' own conceptual frameworks which might not have emerged if the disclosure relationship had remained one-sided. In this instance **Joan** discussing her own feelings about feeding older babies had changed over time. I introduced my own experience as a way of make it clear to that bringing her personal story into the conversation was appropriate and as a way of normalising what she might have felt was an exposing story,

> **Joan:** I thought it was absolutely disgusting that that [an older friend] breastfed for a year. '*How could you feed at a year – you know, a child that as year old!?!!*' That was in '99.
>
> **Heather:** Yes, I remember watching [a friend] feeding her 18-month old and we were sort of family in the room, and she was feeding the baby and I just thought '*Ooh, that's a bit… that's a bit much… at 18 months.*' [*Giggle*] It wasn't' until I had my fourth and I fed her for 18 months…
>
> **Joan:** Yeah, [*laughing*] and then I fed one that was, like, *nearly four*, going to school.

Sometimes, I chose to articulate my own reactions to what the participant had said with the intention of extending my understanding of an emergent theme to offer these reactions up to challenge by the research participant (in counselling terms this might be called 'reflecting in action'). For example, this exchange follows from Jane's own observation that IFL/Cs are unusual in public health terms in being particularly committed to their policy area,

> **Heather:** There's that word… it comes up again and again in these interviews, 'passion'. And I'm interested in the idea that the policy advocate for this area needed to be somebody who knew about breastfeeding…
>
> **Jane:** We don't say that about anything else [*here* **Jane** *is referring to other public health policy areas, for example, smoking, alcohol and obesity*]
>
> **Heather:** Yes. And I'm sort of reflecting on my own reaction to that really, which is, which is that I would tend to agree [*both laughing*], it *does* need to be somebody who knows about breastfeeding. I'm wondering how much of that is my own prejudice and how much is... and I would guess that the rationale for that from people who do look at it from that perspective is that there's so little understanding of what it takes to enable somebody to breastfeed that really unless you come at it with some understanding to begin with you're not going to get anywhere. But also, maybe this thing about passion that you need someone who is going to be passionate to do it?
>
> **Jane:** Well, I don't think it's necessarily a bad thing … but the flipside is you can't bring about change because people become protective of their policy…

There were other times when I was less certain that self-disclosure would be helpful, or even certain that it would not. One aspect of an insider status is that other breastfeeding community 'insiders' tended to assume that I shared their own perspectives about the evidence-base for breastfeeding promotion and their worldview about why breastfeeding 'matters'. I sometimes struggled to discern when to introduce my own beliefs and developing ideas, feeling on the one hand that it would be congruent to do so, and would allow these to be made transparent for the participant to challenge and critique, and on the other that my own thinking might

become the focus or might get in the way of my understanding the participant's perspective. This memo written after an interview with Gwen articulates my unease,

> **Gwen** clearly assumed I shared her views that an attachment style of parenting could act as a prophylactic against the impact of family poverty […]. I asked several clarifying questions to better understand her beliefs, but I did not share my own [doubts] as I couldn't see how doing so would help the research – the point being to gain her perspective. Given the rapport we had established, it would be reasonable for **Gwen** to have assumed we were looking at the issue of breastfeeding from a shared perspective, so I am now wondering whether failing to articulate my own thinking makes me dishonest.
>
> <div align="right">Research memo – post-interview with Gwen</div>

In instances like this, I found a helpful read-across to person-centred counselling practice in discerning when to disclose and when to hold back (Mearns and Thorne, 2013). I reflected that within a Rogerian counselling approach (which also intends to break down barriers and diminish hierarchy) self-disclosure is permissible where it is intended to help the client in her journey towards self-understanding. I translated this as a rule that self-disclosure was permissible to the extent that I believed doing so would further the research agenda. However, I am also aware that either way, this was a matter of judgment. The decision to hold back incorporates an element of instrumentalism that might not be considered in keeping with a fully transparent/feminist approach, while a decision to disclose may cause an unhelpful re-direct in the conversation.

A related risk arising from assumption of shared experience is that the researcher may take for granted key aspects of the participant's world and fail to surface shared assumptions, values, beliefs and goals so that these can be studied critically. I tried to work with awareness of this danger and was helped by my supervisor (JS) who in early stages of on-going analysis pointed out several instances where she felt aspects of the context I was describing needed further exploration or clearer explication. However, I was not always successful, for example, as I discuss in Chapter 6 (Section 6.3), I suspect that my insider status may have led me to under-explore participants varied understandings of some aspects of the 'health benefits' of breastfeeding because of a shared assumption that we both knew what these were.

Finally, by identifying strongly with participants there is a risk of becoming so involved with and sympathetic to the group, as to lose objectivity so that the research questions become subsumed into wider agenda of the participant community. Again, I sometimes found this risk tricky to negotiate. Several infant feeding leads I interviewed referenced my previous work for NCT and tended to assume my personal goal in conducting the research was to make a case for extending provision of funding for volunteer peer support groups. Among the 'after interview' notes I recorded,

> After wrapping-up the interview, **Clara** asked when this research would be out as it might help to ensure that PHW understands how much peer support is needed.

> She clearly sees the research in terms of its role in advocating for peer support. She also brought up the work that I had done for NCT in the interview, and we talked a bit about that. Plenty of confirmation in this exchange that it is just not possible for me to be perceived as a neutral observer. And indeed, that's right. I am not a neutral observer, although the conclusions of my research may not take precisely the direction **Clara** would like, I *do* also want to see an adequately resourced pathway for mothers and I suppose I *do* hope the research contributes in a small way to that.

<div align="right">

Research Memo – post-interview with **Clara**

</div>

In managing these expectations around the purpose of the research process, I developed a line that the research was intended to help develop successful infant feeding policy rather than to push for specific services to be created or retained.

Analysis of Phase 1 Paid Advocate Interviews

I listened to each of the participant interviews at least twice, and at least once each with the full transcript in front of me and in conjunction with any reflective memos applying to that interview. I conducted a preliminary analysis of the first three interviews, and then again of the first eight interviews, discussing emergent themes with my supervisors.

My primary approach to analysis was thematic, following the approach described by Braun and Clarke (2006). My rationale for taking a thematic approach was (a) that this approach has a good fit with my semi-structured approach to interviewing, (b) a good fit with an agenda to develop theory across the mix of methods used in the three research phases, and (c) would facilitate additional focusing to support a realist approach to theory development, enabling realist notation, such as 'context', 'mechanism' and 'outcome' criteria to be incorporated within thematic coding hierarchies.

However, while I had intended to take a semi-structured approach to interviewing, and to code thematically, the interviews had progressed (naturally and inevitably) through narratives. Frankly, the transcripts seemed to be begging to be analysed through a narrative qualitative research lens (Riley and Hawe, 2004), the themes and issues I found myself exploring were embedded within participants' 'plotted accounts' (Denzin, 1989, p.37) of their experience of their professional life journeys and sometimes their own infant feeding journeys.

My resolution to this dilemma was to progress with development of a thematic frame to provide a framework for integration across phases *and* to treat the interviews as holistic accounts, extracting and linking participant's stories. Incorporating into this a narrative element led to 'storied' insights (Mello, 2002, p.232) into participants' conceptual landscape for infant feeding policy in Wales. For example, as will be discussed in Chapter 6, I found that a direct question such as '*Why is breastfeeding important?*' tended to lead to the participant reeling off a list of

health benefits, whereas by reading through participants' own feeding stories I discovered that, for many, breastfeeding held tacit experiential meaning. I found that these tacit meanings were enfolded into personal accounts, which participants tended to introduce towards the middle or end of the interview. They sometimes provided an unspoken sub-text to other portions of the interview, for example, they underpinned discussion of the difference between people who do and do not 'get' breastfeeding. To illustrate the ways in which this approach to analysis has contributed to development of findings I have included some longer extracts from the interviews in my reporting in Chapter 6.

I began my coding by reading and re-reading each transcript in its whole document form along with any memos related to the interview, with the intention of capturing an overall sense of the contents of the interview. I then began identifying portions of text relating to three pre-defined high-level etic codes. These were,

(i)   Beliefs about breastfeeding
(ii)   Experience of the role, and
(iii)   Breastfeeding peer support.

I added a further etic category as a repository for material that reflected the way that the interviews were conducted and experienced, for example, relating to participants' willingness to reflect on the research questions, their interaction with the visual prompts, as well as instances of participants entering co-production of the analysis during the interview itself.

I then applied a method of *in vivo* coding to the whole data set, adopting a line-by-line method leading from individual transcripts, leading to additional emic codes arising from keywords and phrases. I incorporated these into a combined etic-emic hierarchical coding frame which I applied working across the whole data set (all the transcripts together) searching for repeated patterns of meaning and surfacing latent themes. I explored the links between these patterns of meaning – or themes –through hand-drawn concept maps, subsequently using these maps as the basis for structuring the discussion of my findings.

My coding was by hand. I have used electronic coding methods on many other projects and have found this particularly helpful for team-working. I had taken a refresher day course in NVivo training and began to code up my transcripts using this package. However, as I progressed, I found that the mechanical 'click and drop', plus only being able to see portions of transcript at a time, distanced me from my data to the extent that I kept forgetting *who* I was coding – the jumping about on the screen seemed to prevent me from keeping a picture of the participant in my head. Furthermore, my ADHD brain struggles with filing and with systematic version saves, especially when I am not working as part of a team with people who manage this aspect of the research process more successfully. I kept losing my place or forgetting my system for moving files and I began to get frustrated and to develop an unhealthy aversive relationship with my transcripts. Reflecting that others have found that a hands-on approach of spreading papers out, turning over, shuffling and laying transcripts alongside one another

can help with feelings of immersion (Saldaña, 2013), I went back to blocking bits of text with multi-coloured felt tip pens, to coding-up in the margin, and to covering the floor of my office with A3 concept maps of interconnecting themes. I began to enjoy myself again and made progress.

In the analysis, the data relating to participants' use of the interactive ecological diagram, plus drawings and memos I had taken, were considered alongside audio-recordings, rather than being analysed separately. I found that using the sources of data together helped me to understand where individual participants were coming from and aided meaningful comparison between participants' perceptions.

For the portions of data concerning breastfeeding peer support, I refined my thematic approach to develop categories relating to different kinds of ideas about how this intervention form worked in practice and began to compile context-mechanism-outcome arrangements that participants suggested operated within those categories. The three broad categories (and associated CMOs) provided a starting point which were then explored and extended and/ or contradicted through evidence gathering in Phases 2 and 3.

The first six interviews were transcribed by me. I paid to have the subsequent 11 interviews transcribed.

5.5 Phase 2 – Realist Review

In the second phase of my research (see Figure 5, p.97), I led a realist review of breastfeeding peer support interventions in high income countries that had been subject to experimental study, using a methodological approach similar to the approach used by Greenhalgh *et al,* (2007) in a study of school feeding programmes. This review involved contributions from a team of reviewers and led to a peer reviewed publication, involving six authors (Trickey et al, 2018). The reporting in this thesis is based on my initial analysis and drafting, prior to publication.

Methods of data collection and analysis

I followed the stages of realist synthesis set out by Pawson et al, (2004). These are: (i) Clarifying the purpose of the review; (ii) evidence gathering – searching for index studies of 1-2-1 breastfeeding peer support delivered under experimental conditions; (iii) quality appraisal of included cases in terms of their suitability for the purposes of realist review; (iv) data extraction; (v) data synthesis; and, (vi) drawing conclusions and making recommendations.

Scope and purpose: For the purposes of this thesis, the realist review was intended to,

1. Explore heterogeneity in theoretical underpinnings for breastfeeding peer support interventions and to compare the theory-reach with the understandings of professional advocates in Phase 1,
2. Identify propositional statements from cases that have been subject to experimental study to contribute to further theory building through stakeholder engagement in Phase 3.

The unit of analysis for review was breastfeeding peer support intervention cases. I included cases associated with an experimental studies that were published between the start of January 2000 and the end of January 2016. Studies were included if they had breastfeeding initiation, continuation or exclusivity as the primary outcome for full term babies in high income countries (though often these were low income settings *within* high income countries). I chose a cut-off year of 2000 to prioritise interventions that would be likely to have greatest relevance to the present-day delivery context.

Evidence gathering: Evidence gathering was conducted in two stages.

- Stage 1: A search for index experimental studies was conducted using the following databases: ASSIA, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL), Embase, ERIC, HMIC, Medline, Medline in process, Scopus, Social Services Abstracts, Sociological Abstracts, and Web of Knowledge. The search also encompassed the Unicef UK BFI website, key journals (Breastfeeding Medicine, Journal of Human Lactation, Maternal and Child Nutrition, Midwifery) and two trial registers ClinicalTrials.com and metaRegister of Controlled Trials. The search was limited to English language only and publication years 2000–2016. This electronic literature search was conducted by Dr Mala Mann. A Prisma Flow diagram indicating papers included and excluded is published in Trickey et al, (2018, p4).

- Stage 2: I developed intervention cases from the index experimental study papers, drawing in process evaluations, qualitative studies, secondary analyses, intervention protocols, training manuals, and correspondence with the study authors where possible. Study paper reference lists were scanned; supplementary searches were conducted based on the name of the intervention and the lead author. I worked on the development of each intervention case with other members of the review team contributing so that each case was developed by two members of the review team.

Quality appraisal: Harris *et al* (2015) point out that realist review methodology challenges conventional approaches to quality assessment, such as the approach set out in the Cochrane handbook for systematic reviews of interventions (Higgins and Green, 2008). The 'quality' of case study evidence collated for each of the included interventions was judged on the basis of the potential for each compiled case to contribute to theory identification and theory building. I conducted a quality assessment of assembled case materials to assess suitability of each

included case for realist review. I considered quality to be compromised where the following were lacking: A description of intervention theory; a description of intervention components; a description of the infant feeding and health service context; a description of implementation, take-up, and fidelity issues; the existence of process evaluation; and congruence between measured outcomes and intervention theory.

Quality assessments were agreed by the review team.

Data extraction: I extracted the following data from each intervention case.

- The intended intervention: The components: timing and setting, characteristics of peers, and the intervention goals (initiation, continuation, and exclusivity).

- The target population: age, income, ethnicity and prior feeding intention, inclusion and exclusion criteria, and timing of recruitment.

- The intervention theory: Theory elicitation was approached from two directions. First, I extracted all cited theories and explicit descriptions of theories of change. Second, I drew on the approach proposed by Leeuw (2003), looking for '*groups of relational statements about peer support that were used to describe, explain predict or control the intervention*' (Harris et al, 2015 p.35). We reconstructed theoretical assumptions by working backwards from descriptions of the intervention components or methods.

- The delivery and usual care context: location, infant feeding context (background rates), socio-economic context, existing policies, and systems of care.

- The intended experiment**:** the main goal of the experiment, outcomes measured, type of experiment, study size, and an assessment of risk of bias using Cochrane criteria (Higgins and Green, 2008).

- Inferred Context-Mechanism-Outcome relationships expressed in the case materials. For each CMO relationship described, I recorded the source and degree of inference; whether an observed causal association, process evaluation findings, author's inference, or reviewer's (my) inference.

I devised the data extraction sheets and contributed to data extraction for each case: For each case data extraction was conducted by two members of the review team. An example of a completed data extraction sheet is shown in Appendix E.

Synthesis and conclusions: I developed a master-list of CMO relationships. I then thematically grouped sets of CMOs, using a method of constant comparison and moving within and across intervention cases. Thematic categories were discussed, amended and agreed by the review team. I then drew on the approach adopted by Harris *et al,* (2015) to develop 'propositional statements' (Harris et al, 2015) (sentences that can be said to be either true or false) summarising emerging patterns. I discussed, amended and agreed these statements with the review team.

5.6 Phase 3 – Stakeholder focus groups

In the third phase of my research (see Figure 5, p.97), I generated data from eight focus groups with health professionals, peer supporters and parents living in Wales. Five stakeholder focus groups were held with health practitioners and peer supporters at two Welsh stakeholder engagement events. A further four focus groups were with mothers, fathers and peer supporters living in low income, low breastfeeding rate Welsh communities – data from these four focus groups were gathered as part of the MamKind peer support intervention development study (Paranjothy et al, 2017).

A focus group is a group of deliberately selected people who participate in a planned discussion intended to elicit perceptions about a particular area of interest. By being in a group, it is considered likely that new insights will be extracted beyond those that we would have uncovered if issues had been discussed with individual participants (Kitzinger, 1995).

I employed two strategies to recruit participants to research focus groups. First, I recruited via two stakeholder engagement events. Second, in recognition of barriers to this form of participation, I recruited directly in areas with low breastfeeding rates.

Recruitment to focus groups via stakeholder engagement events

My primary route for recruiting participants was to hold two stakeholder engagement events.

North Wales Joint Training Event (October 2013). The first event was held in North Wales, as a joint-training day attended by 52 participants, including 35 peer supporters and 12 health professionals. The joint training day was an annual event supported by a Welsh Government Grant and co-ordinated by the infant feeding lead for the Health Board area. All NHS trained peer supporters and NHS midwifery and health visiting staff were invited.

Attendance at the training day was voluntary, however attendance at an appropriate annual update session was part of the volunteer policy and the training session was intended to provide this. The infant feeding lead who co-ordinated the day's training indicated that take up among active peer supporters in the area was high.

Take up of the training event among health professionals was more likely to be guided and by health professionals themselves recognising that that they needed further training in the area of infant feeding support. Health Care professionals were able to gain continuing professional development points from attending the training day. However, there are no hard and fast Nursing and Midwifery Council rules as to what constitutes education or professional development for revalidation, it being up to the individual practitioner to identify their learning needs and how to address them.

Health Challenge Wales Seminar (November 2013). The second event was a Health Challenge Wales seminar, run as a one-day conference under the title '*What next for breastfeeding peer support'*. This event was co-convened by DECIPHer and by PHW and was

attended by 108 participants, including breastfeeding peer supporters, midwives, health visitors, breastfeeding counsellors, and local government and Flying Start employees with an interest in breastfeeding – many of whom had multiple roles. An EventBright link was publicised to potential participants via PHW and DECIPHer's social media networks, as well as via the social networks of invited speakers. The number of intended participants reached venue capacity (120 participants including speakers) within a few weeks.

Transparency and communicating the project at stakeholder events

Both events were structured in such a way as to,

- promote detailed understanding of the aims of the research and the progress of the research to date, including describing preliminary theoretical frameworks,

- to provide time for all those attending to discuss emerging findings in groups, with a subsample of peer supporter and health professional participants contributing to dedicated research focus groups that were intended to enhance or contradict emerging theory frameworks, and

- to provide an opportunity for all participants to engage in information-sharing and networking with the research project.

At both events, I gave a presentation of the evidence context and key findings from Phase 1 and preliminary findings from Phase 2 to all participants as background to the discussions. Both events also included a presentation about Welsh infant feeding policy delivered by a representative from PHW. The larger, Cardiff-based event also included invited speakers who gave presentations on the theme of peer support intervention. The timetabling of each event was adapted to the requirements of the setting and the number of participants present.

Pros and cons of recruitment to focus groups via stakeholder events

There are clear advantages and disadvantages to recruiting through stakeholder events.

Advantages include likelihood of attracting participants who have a good level of knowledge and understanding of the topic area and who are enaged with the research agenada. This level of knowledge and engagement with the topic area is helpful in understanding why interventions do and do not 'work' – participants at the two events were well positioned to provide a range of perspectives on breastfeeding peer support in practice.

Disadvantages include a propensity to include participants who have the time and means to travel to stakeholder events; so tending to exclude the kinds of potential participants who have lower incomes as well as those who are put off by the idea of 'training'. Furthermore, as a flip-side to the advantages set out above, stakeholder events tend not to attract the kinds of participants who do not have a special interest in the topic area.

It is likely that the participants at the stakeholder events, and particularly the health professionals included in the focus groups, were more inclined than their colleagues to be pre-disposed to be interested in the topics of breastfeeding and breastfeeding peer support.

Selection among event participants for contribution to research focus groups

Both events included opportunities for *all* participants to discuss the findings in focus groups, However, the data produced from this number of participants would have been overwhelming in analysis. I therefore decided to focus my research on a subset of *research* focus groups, explicitly designed to separately gather the perspectives of peer supporters and health professionals. Participants in research groups were not selected from event participants according to any criteria other than their status as peer supporters or as health professionals.

The research focus groups held at the engagement events were either conducted by myself or by colleagues from DECIPHer and from PHW who attended a pre-event training session which I devised and led. (It was not possible for me to lead all the focus groups from the Health Challenge Wales seminar as they needed to be conducted concurrently).

Stakeholder event focus groups that contributed to this thesis were:

- One focus group of 16 peer supporters, at the North Wales Joint Training event. The focus group was facilitated by me.
- Two groups of peer supporters (one group with 8 peer supporters, one group with 9 peer supporters) at the Health Challenge Wales seminar. One focus group was facilitated by me, another by a DECIPHer colleague.
- One group of 13 Health Professionals (midwives and health visitors) at the Health Challenge Wales seminar. This focus group was facilitated by a DECIPHer colleague and by my supervisor Professor Julia Sanders.

Icebreaker cards issued at Health Challenge Wales seminar

In order to enable a broader range of participants who did not form part of the research focus groups to contribute to the research, all Health Challenge Wales seminar participants were asked to complete 'ice-breaker' cards.

The ice-breaker cars asked participants to describe *'In just a few words, what difference do breastfeeding peer supporters make?'* The ice-breaker card also asked participants to describe their role in relation to breastfeeding peer support (peer supporter, parent, health professional, etc) – see Appendix F.

Stakeholder event research focus group topic guide

My group topic guide was divided into sections intended to facilitate generation of CMO-type explanations of how peer support works. The sections were determined to prompt thinking

about a range of possible contexts, mechanisms and outcomes for breastfeeding support, whilst anticipating that CMOs would be expressed as part of the discussion across all parts of the focus group. Research focus groups were intended to last an hour. My topic guide (Appendix H) prompted discussion of,

- The definition of breastfeeding peer support (15 minutes): this portion was intended to ensure discussion of the intervention context and heterogeneity of intervention types.
- Barriers and facilitators to effective peer support (15 minutes): this portion was intended to ensure a discussion of mechanisms.
- Impact of breastfeeding peer support (10 minutes): this portion was intended to get participants thinking about different sorts of outcomes, and to consider success criteria for intervention,

As for the Phase 1 interviews, in the final ten minutes of the focus group participants were encouraged to participate in a 'game' involving an A1 size version of the complex ecological systems diagram that was presented in Figure 4 (p.74) at the end of Chapter 3. In Phase 1, my intention had been to use the diagram to facilitate discussion of influences on breastfeeding. In Phase 3, I intended my participants to use the diagram to give more focused consideration to the role of breastfeeding peer support. Instructions were –

> You have 2 minutes! … What are the most important influences to tackle next to make a difference to mothers' experiences of feeding their babies? (EVERYONE PLACE **5 RED DOTS** - at least two on the timeline)
> You have 2 minutes! … Where can peer support make the greatest difference to mothers' experiences of feeding their babies? (EVERYONE PLACE **5 GREEN DOTS** - at least two on the timeline)
> Hold up the flip chart, ask about and discuss the clusters of dots.

To test the strength of the topic guide and diagram in eliciting lay theories of breastfeeding peer support, I ran a pilot discussion group with seven infant feeding leads following a meeting of the AWBF. Drawing on suggestions from the pilot group, I developed a more pictorial version of the diagram for use in a group setting, using my own illustrations to symbolise the sets of influences set out in the ecological diagram (Figure 4) that I had developed to describe women's journeys. Pilot participants felt that in a group setting, interacting pictures – rather than words – would be more likely to key into participant's impressions about different parts of the system that peer supporters currently interact with. A photograph of a group-completed diagram, with illustrations, is shown in Figure 8, p.122.

Figure 8: Where can peer support make a difference?

Unlike the Phase 1 interviews, which were intended to be exploratory and to give participants scope to take the conversation in any direction that seemed pertinent to them, the stakeholder engagement focus groups were explicitly structured around my research agenda and issues of theory development. I intended participants to be conscious of their roles in engaging with theory-construction. Furthermore, unlike the interviews, the focus groups needed to run to time and to fit into the rest of the day's agenda. In consequence the discussions were relatively fast paced, with the facilitator keeping portions of the discussion to time.

Beyond stakeholder events: extending the reach of the research focus groups to stakeholders in low breatsfeeding rate communities.

The two research engagement events brought together peer supporters and health professionals from across Wales, including participants living and working in low-income, low-breastfeeding rate communities, some of whom had also received support as parents. However, as the research progressed it became clear that my data collection would need to extend further to fill important perspective gaps – in particular I identified a need to,

- encompass the perspectives of parents who had not themselves received or provided breastfeeding peer support, and

- give focused attention to the perspectives of stakeholders living and working in communities with very low breastfeeding rates

Attempt to recruit to single area case study: To address these gaps, I initially determined to supplement my data with an area based case sudy, enfolding the persepectives of parents, peer supporters and health professionals living in the same (low breastfeeding rate) Welsh community. Unfortunately, the research plan I developed to achieve this was, in retrospect, rather naïve with respect to my 'outsider' status as university researcher, with the consequence that I found myself stalled in a research cul-de-sac – the full story is recounted in Box 5, p.124.

In brief, I had not sufficiently considered the likelihood that the idea of '*research*' and my intended research methods (such as recording interviews) would be unfamiliar and off-putting to potential participants. In contrast to the women I had interviewed in Phase 1, who believed that participation in the research would do no harm and might further a professional agenda and who sometimes found the interview valuable to themselves as individuals, feedback from the Flying Start midwife (my key contact) was that the women in the planned case study area did not anticipate sufficient benefit to themselves, or their families, to overcome negative feelings about 'being studied'. And I had not left myself with sufficient lead up time to put in a second NHS ethics application, start again in a new case study site, learn the lessons and gain trust more gradually. For me, this was a key learning point in the research. Another time I would take more time to get to build relationships and to establish several points of entry contact into the community.

Secondary analsyis of MamKind data: I *was*, fortunate in having, at short notice, access to an alternative route to incorporating the voices of mothers, fathers and peer supporters living in low-breastfeeding rate settings. With permission, I conducted secondary analysis of four focus groups I had facilitated or co-facilitated as part of the team for the parallel MamKind breastfeeding peer support intervention study (Paranjothy et al, 2017). These focus groups were conducted with mothers, fathers and peer supporters in three low income, low breastfeeding rate Welsh communities.

Box 5: A research cul-de-sac

My research questions necessitated gaining the perspectives and experiences of parents and peer supporters living in low-breastfeeding rate communities. While the perspectives of peer supporters working in a diverse range of communities had been gathered through the Engagement Events, the perspective of parents – and particularly parents who were not previous peer support users – was lacking. I decided to use a case-study approach, working closely with a midwife in a low-breastfeeding community. I contacted an enthusiastic Flying Start midwifery lead, responsible for training local women in breastfeeding peer support in a South Wales valley town. We had a series of promising face-to-face conversations about conducting qualitative interviews with women in her patch. With her agreement, I presented a study proposal to the Research and Development group at the relevant health board and applied for NHS ethical approval. After a six-month process, I received NHS and Health Board R&D approval for a single case study.

I initially arranged to meet the Flying Start contact and four local women over coffee in the town's community centre. I introduced myself as a PhD student at Cardiff University and explained the purpose of the study. We chatted informally for about feeding babies and about breastfeeding support for about an hour, the conversation being led by the women themselves. It was immediately clear that these women could provide a rich source for understanding. My field notes, written up immediately after meeting reflected my perception that the women seemed to engage readily and that we had achieved a good level of rapport. I had positive feedback via an email from my Flying Start contact, who had known the women for many years and felt that the meeting had gone well. We seemed to be all set … I arranged to return the following week to sort out consent and start recording interviews.

None of the local women who had attended the previous week turned up at the community centre for our next coffee, although they had messaged my Flying Start contact to say they would be there. My contact was initially surprised and then began to wonder whether there might be a problem with 'trust' and with the idea of 'research'. She reflected that despite having been embedded as a midwife in the community and working with each of the women on an individual basis it had taken her many years to become accepted and trusted. She offered to follow-up personally with the women to find out what the issue was, indicating that she felt this would come better from her as she was already known and trusted. Having done so, she fed-back to me that the women had begun to get cold feet, in particular becoming increasingly uncomfortable with the idea of being 'interviewed' and with the prospect of an audio-recording – these methods being more familiar to them as tools of authority figures such as police officers, social services representatives or officials responsible for welfare payments.

I then made a series of attempts to remedy the research plan in ways that would make it acceptable to the women I had met. My attempts were mediated by my local Flying Start contact, a mode of communicating that I found increasingly frustrating, but couldn't see how to step around. I offered to take notes rather than record interviews, to talk to the women in pairs or groups rather than one-to-one, to rely on observational data alone. Finally, a mutually acceptable plan very nearly came off. I was welcome to start by attending a series of peer support training sessions, collecting mainly observational data and building up a relationship with a wider group of intended participants over time, possibly leading to group or individual interviews if the women felt happy to do so. Unfortunately, these training sessions were subsequently delayed until beyond the period where they could be conducted within the intended time-frame of my PhD research. Gaining ethical approval for a new site was not going to be possible within the remaining time frame. I swallowed defeat, reflecting that I had not anticipated and prepared for the difficulties that I had encountered. The whole process took nine months.

Sampling and recruitment.

The four focus groups were conducted with mothers (2 groups), fathers (1 group) and peer supporters (1 group) in two low-income, low-breastfeeding rate communities; two groups (mothers and fathers) were with participants living in a South Wales urban suburb, two groups (mothers and peer supporters) were with participants living in a South Wales valley town. The groups were intended to inform development of the Mamkind intervention (Paranjothy et al, 2017). The intention was to explore participants' perceptions about how a breastfeeding peer support intervention should ideally function, as well as practical, social and emotional barriers and facilitators to accessing support. Hence, the resultant data had a good fit with the aims of this thesis.

Mothers and fathers were recruited through existing community-based antenatal and parenting groups, facilitators invited parents to participate in a local focus group. They were not required to have experience of peer support or breastfeeding. Peer supporters working in the study areas were identified through local service managers, infant feeding leads and via databases of qualified peer supporters. Participants were invited by e-mail, telephone and social media. Groups were held in the local community at the site of existing antenatal and parenting groups.

Pros and cons of using focus groups from a separate study and recruitment via existing community-based groups

The MamKind focus group data proved a rich source for additional perspectives on peer support. The data had the advantage of being collected over in low bresatfeeding rate sites – which may have improved generalisability. However, it wasn't possible to triangulate accounts or gain understanding of mechanisms to the same depth that I had anticipated from a case study approach.

One clear disadvantage of a secondary analysis was that I was unable to employ the same level of transparency and involvement with the research agenda that was achieved for other stakeholder participants. My approach to this portion of data collection was necessarily less participative and iterative than the approach I had taken in previous strands of data gathering.

An advantage of mothers being recruited via general antenatal and postnatal groups their own community was that the mothers who participated in the research would find it more convenient to attend than would have been possible for a special event. Because the groups were not breastfeeding specific, participants were more likely to include mothers with a range of feeding experiences and attitudes to breastfeeding. However, it is possible that mothers

who already had an interest in infant feeding issues were more likely to take part in the research.

Group settings for expectant and new fathers are less common and it is possible that the fathers recruited in this way – selected via a Flying Start Fathers Group – were more keen than average to be involved in this aspect of parenting their children.

An advantage of data gathering from peer supporters in their own community setting was that as a researcher I could be sure that the participants were active in low breastfeeding rate settings and I was able to relate the stories they told to the environment in which they told them. Participants may also have felt prompted to talk more about specific incidents and issues relating directly to setting they were in, rather than to talk in general terms about peer support.

Description of the focus groups included in the analysis

In all, eight focus groups contributed to Phase 3 of this research. These data included that gathered from one focus group (peer supporters) held at the North Wales Joint Training Day and three focus groups (two with peer supporters, one with health professionals) held at the Health Challenge Wales Seminar.

A break-down of Phase 3 focus group participants is provided in Table 6.

Table 6: Phase 3 Participants

Group	Description	Number of participants
A – Peer Supporters	Health Challenge Wales Seminar – All Wales	8
B - Peer Supporters	Health Challenge Wales Seminar – All Wales	9
C – Peer Supporters	Peer supporter training day – North Wales	16
D – Peer Supporters	MamKind Study (low breastfeeding rate site A)	8
E – Mothers	MamKind Study (low breastfeeding rate site A)	6
F – Mothers	MamKind Study (low breastfeeding rate site B)	8
G - Fathers	MamKind Study (low breastfeeding rate site B)	4
H – Health Professionals	Health Challenge Wales Seminar – All Wales	13

Topic guide for MamKind focus groups

Topic guides were devised by Dr Lauren Copeland and myself (another researcher working on the MamkInd project) and were agreed by the research team. The guides are reproduced in the final project report for the MamKind study (Paranjothy et al, 2017). Topics covered were

'breastfeeding', 'breastfeeding support', and 'the proposed intervention'. No visual prompts were used.

Analysis of Phase 3 Stakeholder Focus Groups

Data from all eight focus groups were analysed under a single analytical framework.

My approach to data analysis for Phase 3 mirrored the strong theory-extension approach I had taken to data collection at the two stakeholder events. While data collection for Phase 2 and 3 ran in parallel, I used my Phase 3 analysis to extend, contradict and nuance these emerging frameworks from Phase 1 and 2. I began this phase of the analysis with three category clusters for ideas about breastfeeding peer support that I had elicited from Phase 1 participants and with a 'stages for design' model and 20 propositional statements that had been developed through realist review in Phase 2.

I began by coding the free-text responses on the 72 completed ice-breaker cards from the Health Challenge Wales seminar. Answers on these cards ranged from one or two words to short paragraphs, they did not tend to lend themselves to CMO string extraction. I reduced the data by gathering into coded themes, which I considered in relation to the three registers – categories of articulated understanding – about breastfeeding peer support that I had elicited from my conversations with professional advocates in Phase 1 – noting where they enhanced and extended and where they were in contradiction.

I then worked through each of the eight focus group transcripts in turn. Initial reading indicated that these data – whether gathered from the Stakeholder events or as part of the MamKind study – were rich in participants' relational statements, expressing causal understandings of breastfeeding support. I therefore decided to apply a coding method developed for realist evaluation purposes based on identifying and extracting linked context-mechanism-outcome configurations from the transcripts either verbatim or partially inferred (Jackson and Kolla, 2012). Figure 9 illustrates how this coding worked across a portion of transcript.

Figure 9: Extracting CMO relationships from focus group transcripts.
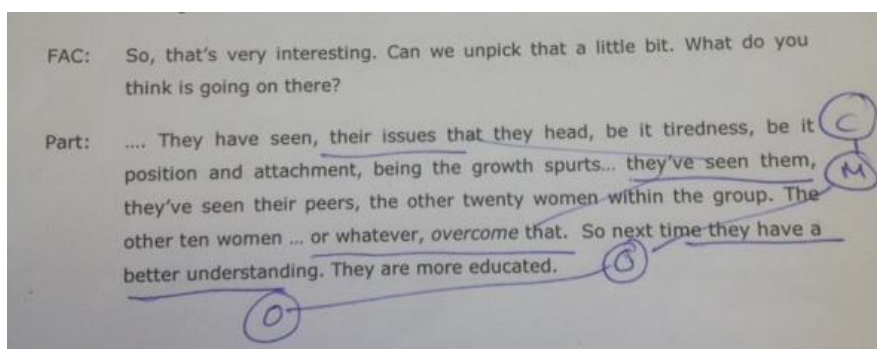
This method of coding transcripts explicitly using CMO identification enables the researcher to maintain transparency in the relationship between initial CMO CM MO CO chains expressed in the raw text, tracking their contribution to the thematic categories developed during data reduction. To facilitate data reduction, I developed a comprehensive list of all the CMO relationships that I identified across the eight focus groups. In Appendix I, I provide an example list of 70 CMO extractions taken from just one of the eight focus groups.

I then cut out strips of paper, with each strip containing one extracted string. Using a method of constant comparison between different CMO configurations I gathered the strings into thematic categories, beginning by using category headings I had developed from my Phase 1 and Phase 2 research stages. I included strings that seemed to corroborate, contradict, nuance or extend the Phase 1 categories and the propositional statements developed through realist review in Phase 2. In addition, I created new thematic categories to encompass CMO strings which did not speak to categories developed through either of the previous phases.

As with the Phase 1 interviews, I hand-coded the transcripts. There might have been a stronger argument for electronic coding for Phase 3 compared to Phase 1; the extraction of CMO relationships from the discussion was less dependent on keeping in mind the whole discussion. However, this was the first time I had used CMO extraction as part of qualitative analysis and I wanted to be in touch with my data. I wanted to be able to show my work to my supervisor, and I found it helpful to move quickly back and forth between the pages of the individual transcripts and between several transcripts to ensure a consistent depth of coding across the whole data set. As shown in Figure 10, p.129, at the data reduction stage a 'hand coding' method allowed for literal immersion in the data. I spread out the names of the theoretical categories and propositional statements developed from Phases 1 and 2, with aide memoir details about those categories pasted to the walls for reference. As I categorised, my supervisor (Professor Julia Sanders) double-checked the relationships I was making.

Figure 10: Immersed! Phase 3 CMO extractions against Phase 1&2 findings
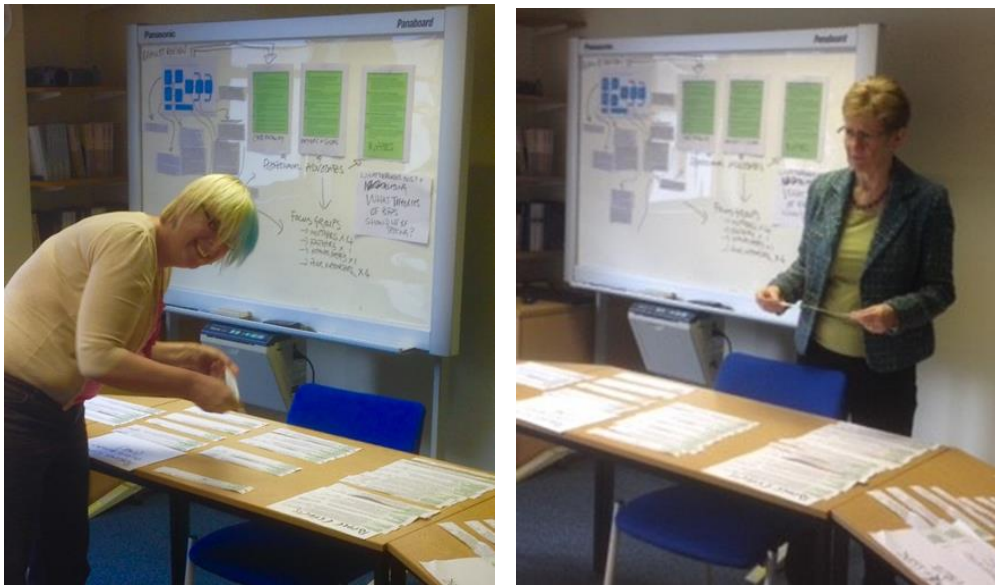
Where data did not fit existing categories, I created new categories. I then considered the categorised data in relation to the understandings about 'how peer support works' that were generated from the Phase 1 interviews with professional advocates and in relation to the propositional statements I had developed from the realist review in Phase 2, noting enhancements, contradictions and nuances, and combining to develop a stakeholder enhanced list of statements to inform future intervention design. The categories and propositional statements generated by the Phase 3 data provided the structure for my reporting from Phase 3.

5.7 Introduction to the empirical chapters

To recap, my empirical research has proceeded through a process of emergent fit progressed through three phases of research. Findings from the three phases of the research are presented in Chapters 6-9. In Chapters 6 and 7, I present findings from Phase 1 interviews with professional advocates. I consider whether a complex-ecological-systems approach to understanding breastfeeding peer support is justified and identify preliminary lay understandings about how peer support works. In Chapter 8, I present findings from the Phase 2 realist review, and consider how case studies drawn from the experimental literature can extend understandings about breastfeeding peer support. Then in Chapter 9, I present findings from Phase 3 stakeholder focus groups, and consider how the experience of Welsh parents, peer supporters and health professionals can extend findings from Phases 1 and 2.

Chapter 6: Working with a wicked problem – professional advocates' perspectives and experiences

6.1 Introduction and contribution to the thesis

In this chapter, I present the first half of my findings from Phase 1 of my empirical research (see Figure 5, p.97). This comprised semi-structured interviews with 15 professional advocates for Welsh infant feeding policy. I set out to familiarise myself with the Welsh implementation context and to consider the extent to which a complexity lens is likely to be helpful in thinking about the sorts of peer support interventions that are likely to 'take' in a Welsh context.

The findings presented in this chapter address Research Question 1:

> RQ1: Is a complex-ecological-systems approach to development and implementation of breastfeeding peer support intervention justified in a Welsh Delivery context?

Chapter summary

The chapter is structured as follows.

➢ In Section 6.2, I consider the extent to which professional advocates can be considered as potential change-agents in a complex system of influences on infant feeding decisions, noting that participants tended to be highly motivated to achieve change and that their motivation has often arisen out of their personal feeding history.

➢ In Section 6.3, I explore the conceptual landscape for infant feeding policy in relation to the concept of a 'wicked problem'. I explore participants' accounts of 'why breastfeeding matters', discovering that while professional advocates 'believe' in the health benefits of breastfeeding, they also value experiential benefits, so that that professional advocates' beliefs and motivations have an inexact fit with the current public health policy agenda. While professional advocates 'believe' in the health benefits of breastfeeding, they also believe breastfeeding can bring experiential benefits.

➢ In Section 6.4, I describe participants' experiences of a contested implementation context, the contribution of health service history and personal history to creating that context, and the emergence of an advocacy community.

➢ In Section 6.5, I consider participant experience of working across open systems, and report their own assessment that infant feeding policy in Wales has had limited ecological reach.

➢ In Section 6.6 I conclude that there is sufficient evidence from the experience of participants to justify a complex-ecological-systems lens and I highlight implications for breastfeeding peer support intervention, noting that being outside of the health care system, peer supporters may be differently positioned in their ability to speak to experiential understandings about why breastfeeding matters and to engage with a broader set of influences at community level.

The roles of the participants and location of the interview are provided in Table 5 (p.103)

6.2 Passionate change-agents

It is perhaps unsurprising that the 15 infant feeding advocate participants were universally positive about the value breastfeeding and about the need for a change in the health care context for infant feeding decisions. However, the *depth* of their enthusiasm for improving infant feeding support might not be anticipated by anyone unfamiliar with the world of breastfeeding advocacy.

An impression of extraordinary commitment gathered as I proceeded through the interviews, confirming my prior personal experience of this advocacy community (Box 2, p.85). The impression that this strength of commitment is *unusual* was underlined by all four policy maker participants, who indicated that they viewed Welsh Infant Feeding Lead/ Co-ordinator (IFL/C) advocates as being an especially active and vocal advocacy group when compared to practitioner advocates working in other public health policy spheres, or even to IFL/Cs they had encountered outside of Wales.

> There's a real perception [in Welsh Government/Public Health Wales] that the actors in this arena, there's no question they are *different* than in any other arena, you know, [Public Health Wales] are taking on a range of [public health] programmes, there was no other programme where [it is considered so important] to be so actively engaged with the stakeholders.
>
> **Jane (policy participant)**

> In Wales, there's a high percentage of infant feeding coordinators who really care about breastfeeding … above and beyond the job role and actually, interestingly, quite a high number who do some voluntary work in breastfeeding… I wouldn't say without exception, but a really high proportion. Yeah in a way that is slightly different than in England […] there are a few people in England for who it's just a job; it's a stepping stone, part of their career path but I don't think I have come across anybody like that in Wales…
>
> **Nancy (policy participant)**

Participants' narratives suggested some common origins to advocates feelings of commitment. A few understood their belief in the importance of breastfeeding to be innate – something they had always felt. A few (including one advocate who had no children of her own) made a connection between their valuing of breastfeeding and remembering their mother or sister breastfeeding a baby when they were a child. More commonly, participants believed that their own embodied experience of feeding a baby had had a transformative impact on their values, feelings and motivations. These changes in personal outlook, arising from personal experience, mirrored my own account of the impact of transition to parenthood (Box 2, p.85).

Twelve professional advocates told personal feeding stories during the interview. Nine of these stories were not directly prompted. These feeding narratives were woven through participants' attempts to explain their own positions on the value of breastfeeding and their commitment to improving services. For some, the experience of breastfeeding had led to awareness of potential experiential *positives* from breastfeeding, for many personal experience led to increased empathy for the suffering of mothers who were struggling.

Participants who had already been involved in supporting mothers for many years, sometimes felt that having their own babies had heightened their professional concern for the women they supported, leading to stronger feelings of personal connection and empathy, A key word, arising again and again in the interviews symbolised this strength of feeling – 'passion'. Two out of four policy advocates, and all but one of the eleven IFL/C participants used the word 'passion' to describe advocates' relationship with their work.

> What fuelled my passion was […] once I had my babies, I knew how much it
> mattered in a completely different way than I had understood before and *then I
> felt the distress* of that woman … [those] I was trying to support to feed their
> babies *very acutely*…
>
> **[Pseudonym withheld as may not protect anonymity]**

> I *feel so much* for these mothers when things aren't going right, […] because I
> hate mothers having to fight their babies, it's just not right and so, you know, I
> think that I'm sure that has come from my own experience… although I don't
> talk about my own experience to mothers …
>
> **Sian (MW IFL/C)**

Personal experience did not need to be wholly positive to have a transformative impact a participant's outlook. Negative and mixed experiences could sometimes be motivating, particularly when participants felt they had been let down by the existing system of care. For example, if they believed that health care practices, professional ignorance or insufficient encouragement had undermined their experience and/or enjoyment of feeding their babies,

> **Heather:** Did you feel angry about your first breastfeeding experience?

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Carrie : I do now, yeah.

Heather: Do you think maybe that motivates you a little bit?

Carrie: Maybe, because I wouldn't want somebody to experience that, yeah and that feeling of being so upset about something which should really be a very enjoyable process. You know and an enjoyable experience and time with your baby…

<div align="right">Carrie (HV IFL/C)</div>

Having a baby often caused participants to reflect on their own care practices, with some concluding that they (and their colleagues) had contributed to poor care because they had not been adequately trained to understand the degree of support new mothers need or to understand why it mattered so much to receive help,

> When I did my midwifery training [in the 1980s] we only had four hours on breastfeeding, we were given anatomy and the physiology, but we were never really told how to support women you know […] And then I had my firstborn, and I just breastfed him and honestly, I kept thinking, I had no problems you know […] I think not because of what I knew, but what I did naturally […] I wanted to know more to support mothers better when I went back to work ... and support my friends you know. That's where the passion started … how wrong it was that we weren't told this, how wrong it was that people weren't given the information …

<div align="right">Grace (HV IFL/C)</div>

> I trained as a midwife [in the 1990s] I saw these poor women dreadfully, dreadfully traumatised and so from there that's where the passion came from, from knowing that by doing very simple things I could help those mothers.

<div align="right">Nancy (Policy Lead)</div>

While a minority of participants developed their personal commitment to breastfeeding within their advocacy role, most participants were already passionate before taking up a paid advocacy position. Several IFL/C and two of the four policy maker participants mentioned that they had created or actively pursued an infant feeding advocacy role. For example, **Clara** had been part of a group of health professionals involved in the developments in Wales from the 1980s onwards. She became involved in promoting BFI from its inception in the mid-1990s. She explains that she,

> […] immediately went to my manager and said, '*Look, this is a new thing, what about us being involved with it'?* So right from the word go I made links between us and Baby Friendly which didn't really go anywhere for a long, long, long,

long time. [...] When we had Welsh Government backing for [Baby Friendly] I was the person in the right place.

Clara (HV IFL/C)

In **Gwen's** case, her prior commitment was recognised by others, who encouraged her to apply for an advocate role,

> The reason I applied for that job was because I was one of a small group of five midwives particularly keen on breastfeeding… and we had set up a unofficial informal little breastfeeding group to see what we could do in our own hours […] so because people knew I had an interest in breastfeeding, my head of midwifery said *'how do you feel about applying for this role that's come up'* […] so I only had personal enthusiasm, I didn't have any training.

Gwen (MW IFL/C)

A personal journey through pregnancy, birth and breastfeeding could sometimes lead to increased awareness of the conditions that constrain women's decisions to breastfeed. So, professionals who might have previously viewed decisions to formula feed as being predominantly 'personal' became more likely to see these decisions as being mediated by powerful commercial interests or being the consequence of systematic oppression. For example, **Nyree** was influenced by reading Gabrielle Palmer's seminal book 'The Politics of Breastfeeding' (Palmer, 2009), which raised her awareness of the marketing strategies of formula milk and baby food companies and the impact of formula milk marketing on infant mortality in developing country settings. This consolidated **Nyree's** belief that there was a need for a push back against commercial interests in Wales,

> I can remember, when I was pregnant, hearing an item on Woman's Hour which turned out to be the bottle-fed baby scandal thing in Africa and that affected me deeply too. And yeah, […] sense of, a strong sense of fair play […] well, in the case of Africa it was, you know, going as far as causing disease and death, so the level of it being just not humane in a sense […] also with the sense of my approach, being a trade unionist and that sort of thing, that sense of justice…

Nyree (HV IFL/C)

Agents for change?

The stories of paid professional advocates suggests that they be understood as *potential* change agents within the system of influences on decisions. In complex systems terms, any *actual* difference they can make – their capacity to contribute to a phase shift (Byrne, 2005) – depends on the way their agency interacts with a multitude of re-enforcing or stabilising influences. In the sections that follow, I discuss advocates' underlying beliefs and rationales,

as well as what happens when those beliefs and rationales conflict with the understandings of other actors within the system.

6.3 Why breastfeeding matters…

In Chapter 3, I posited that 'low breastfeeding rates' had many of the characteristics of a wicked problem (Rittell and Webber, 1973; Wexler, 2009) – a problem which is poorly defined and hard to separate from other related problems. I drew on my conversations with advocates to explore their conceptual framework for infant feeding policy – the extent to which the underpinning rationale held by professional advocates feels stable, bounded and easy to communicate.

Closely linked to advocates 'passion' for their role is their 'belief' in breastfeeding. Participants frequently contrasted the strength of their own 'belief' with a lack of belief among others, including health professional and health service manager colleagues. The interview provided a conversational space for participants (and, also for *me*) to explore, *Why does breastfeeding matter?, 'What is it exactly that I believe in?'* and *'Are my beliefs a good fit with the formal policy framework?'*

Universally, participants share a 'belief' that with the right conditions and support, a clear majority of women are biologically capable of providing adequate milk for their babies. Participants also share a belief that women deserve a more supportive service and a more enabling wider societal context for breastfeeding than currently exists.

More difficult to unpick, was the understanding that breastfeeding is in many ways beneficial for babies and for mothers. 'Benefits' are understood to be multiple and to encompass immediate health benefits for the baby, long term health benefits for the growing infant or child, long term health benefits for the mother, and immediate and long-term 'wellbeing' benefits for the mother and the baby. I teased out two loose categories of benefit, which I discuss in turn. These are beliefs that,

(i)   breastfeeding confers health benefits to the baby (and to the mother), and,

(ii)   breastfeeding confers experiential benefits to the mother (and to the baby).

It is important to note that these loose categories were not separated in participants' accounts. Most advocates referred to both categories of 'benefit' in our conversations, though there were differences in emphasis between participants.

The most striking feature of our conversations about the 'benefits' of breastfeeding was participants' conditioned reflexivity. Most found ways to convey that they were aware that they were talking about emotive and complex issues within a contested sphere. Participants' accounts were frequently self-interrupted with counter-positions and qualifying statements. I had the impression that participants were actively manging their passion within the context of the interview. I, and readers of any subsequent research output, were to understand that

alongside their 'belief' and their professional role, they empathised with the position of mothers who simply did not want to breastfeed, or who ran into difficulties and stopped. This extensive identity-work (Faircloth, 2009) as an integral aspect of conversations about breastfeeding was familiar to me from my prior experience as an advocate and as a breastfeeding counsellor (see Box 2, p.85).

Because the reflexive interweaving of rationales and qualifying statements is difficult to capture in short quoted extracts I have included a couple of extended annotated extracts (see Figures 11 and 12). These are intended to illustrate the tone of our discussions, which I will now cover as discussions of 'health benefits' and of 'experiential benefits'.

Beliefs about health (and well-being) benefits for babies

Nearly all advocates referred to associations between breastfeeding and a decreased risk of disease or of disease pathway outcomes. These associations were often mentioned in a perfunctory or taken-for-granted way. The generic phrase '*health benefits*' was often used as a shorthand to encompass a whole variety of health-related associations, while specific health outcome relationships tended to be referred to without much supporting detail and usually without any attempt to convey the scale of any anticipated health gains from improved take up of breastfeeding.

Commonly mentioned benefits of breastfeeding included that breastfeeding provided optimal nutrition (or better than formula milk), provided antibodies and/or protection against infection, was associated with a reduced chance of the child becoming obese in later life. I found that participants' descriptions of health benefits tended to have more emotional content when they were linked to direct anecdote rather than a general evidence base, for example one advocate believed her own son had been spared allergies, which ran in her family, because he had been breastfed. I did not probe participants understanding of these 'health benefits' extensively and my failure to do so may have been a consequence of failure to manage my insider status (See Chapter 5, Section 5.3) – participants tended to assume a shared understanding of the epidemiological evidence base and I did not explicitly challenge this.

Participants were notably more eloquent and animated when talking about 'health outcomes' in the broader sense of breastfeeding supporting the growing infant's emotional well-being. Thirteen of the fifteen advocates talked about the role that breastfeeding played in prompting emotional attachment between the mother and baby, or in more general terms about a causal association between breastfeeding and the future well-being of the child.

> **Liz:** Emotional attachment
>
> **Heather:** Right, so talk to me a little about why that's important
>
> **Liz:** Emotional attachment? … it's *it*, isn't' it? I mean, '*Why is it important to be emotionally attached?*' … [*Laughter*] […] with skin-to-skin and what I'm doing with my arms [*baby-holding gesture*] it's, it is… beautiful… and we know the

oxytocin stuff, love hormones, obviously that is working, but to hold a baby that close, skin-to-skin, feels very nurturing… and obviously, ha! *'obviously'*, I say, [*self-mocking at taking the assumption of a causal relationship for granted*] you know, supports attachment to your baby …

Liz (Policy Lead)

Four advocates referred to the role of breastfeeding in supporting '*brain*' or '*neurocognitive*' development. While two advocates made explicit reference to *'the research on brain development'*, participants were more likely to base their 'belief' in the importance of attachment on their own intuitive understanding.

Several participants rationalised that breastfeeding must be good for babies *because* breastfeeding is the biologically normal way to feed a baby and *'what nature intended mums and babies to do'* (**Leela**). Participants reasoned that because, as a species, we have evolved to breastfeed, it is therefore the case that breastfeeding is intrinsic to normal psycho-social development of the child. By the same reasoning, formula feeding, which is an artificial alternative to the evolutionary norm, is framed as a potential disruption to 'natural' mother-infant relations and therefore also to the normal process of child development. Here, for example, **Carrie** uses this 'from evolution' rationale to make sense of her own emotional reaction to observing mothers feeding their babies with formula,

I feel awful saying it, but I do think there is a difference. I do. That's my honest … and you've pulled this out, this little nagging thing in my head. When I see people bottle feeding, I do think, there's a missing link somewhere. There isn't that closeness, you know, as a baby, to me anyway, suckling from the breast … that's my own personal opinion.

Carrie (HV IFL/C)

Carrie feels *'awful saying it'* suggests she is aware that this way of thinking could be construed as judgmental of mothers who formula fed their babies. She is conscious that for many women *not* breastfeeding is linked to feelings of shame and guilt and feeling judged (Lee, 2008; Thomson et al, 2015; Leeming, 2016) and she identifies the discourse of 'benefits' as having the potential to contribute to these feelings. Like **Carrie**, many participants worked hard through the interview to nuance this aspect of the conversation. It was typical for participants to move back-and-forth between, on the one hand, expressing an understanding that breastfeeding enables a bond between the mother and the baby, and, on the other, qualifying that understanding by indicating the importance of competing considerations. The annotated extract from the conversation with **Asha,** shown in Figure 11 (p.139), illustrates the ways in which advocates used the conversational space to nuance their beliefs about an 'attachment' benefit from breastfeeding.

Figure 11: Multiple qualified rationales …

Asha: 'Why do people breastfeed?' It's like, 'Why do people want to have babies?' I mean that's what babies need. Yes, that's the natural continuation of a pregnancy and it's what we are for, basically. […] So, it's a question of whether you fit in with your baby or your baby fits in with a pre-existing life of your own, I think. And you know, because you can purchase this thing called 'infant formula' and you mix it with water and it turns into a drink and anybody can feed the baby, I feel mothers and babies lose out sometimes… but I'd better not say that, I can't say that, I can't say …

[margin notes: NORMALITY; PERSONAL REACTION; SELF-CENSORING / PASSION MANAGEMENT]

Heather: I want to unpick that a little bit, so you think, I think it's quite an interesting thought that mothers and babies lose out and I understand what you are saying that you don't want to make some judgmental statement, I understand that but I would still like you to unpick this idea of what it is that mothers and babies lose out, because I am just interested…

Asha: That intimate relationship. Because the baby has been growing inside of you and it's a continuation of that experience. And I think, you know, mothers have got a lot to give their children obviously, but they have got a lot to give physically during the first year or more. Mothers and babies are all part of the same unit. When a new baby starts to cry a mother can't ignore that sound; why not? Why can't you ignore it? It's because you are still… *[problem with the recording]* … I think it gives mothers a lot of, breastfeeding gives mothers a lot of self-confidence in their mothering. I suppose I haven't thought about this before but… because it's something that only the mother can provide, is the breast milk. Whereas if you are feeding your baby something that can be bought in Tesco's and fed to the baby by anybody at all it takes away from teat a unique special relationship between you and your baby. Which… probably has a long-term impact on the relationship that you have with that child. Although I suppose on the downside, the counter argument to that would be that it adds a great deal of pressure that only the mother can stop the baby crying because the baby wants to be fed. BUT ONLY IF GOES WELL / QUALIFIED RESPONSE.

[margin notes: ATTACHMENT; DYAD; NORMALITY; DYAD; EMPOWERMENT CONFIDENCE; PROMOTES ATTACHMENT; LONG TERM EMOTIONAL OUTCOMES; IT'S COMPLICATED]

Participants were keen to convey that they understood that there is a difference between individual level and aggregate-level outcomes, that breastfeeding might not be the right way forward for every mother-infant dyad even if they believed that breastfeeding was a short-cut to good attachment and stronger relationships. Several participants were keen to indicate that they did *not* believe that breastfeeding was an essential ingredient in good relationship-building and believed it could even *disrupt* relationships if the mother was uncomfortable with the idea of breastfeeding or ran into difficulties that could not be overcome.

> …we are talking about epidemiology here, rather than individual families.
>
> **Clara (HV IFL/C)**

The newer BFI standards, with their focus on relationship-building regardless of feeding method were welcomed by participants because they encompassed mothers who used formula milk under the umbrella of recipients of support for 'attachment'. The new emphasis on promoting responsive bottle feeding as artificial feeding was seen as moving formula feeding closer to an ideal evolutionary 'natural'. For participants this partially resolved a tension between their 'belief' in breastfeeding and a desire not to be considered judgmental of mothers using formula milk,

> **Clara:** Now Baby Friendly, well the New Standards are much more about relationships with mothers and families […] I'm thinking there's more emphasis

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now on the way babies are held to be bottle fed and picking up on their cues rather than just the making up of the feed.

Heather: So, I think we'd call that formula feeding in the context of a biological norm of breastfeeding?

Clara: yes, yes yes…

It's changed a lot now and Baby Friendly themselves have realised they need to be more inclusive and considerate of parents really and the health professionals who are supporting these parents. They're now more inclusive regarding support for mothers who have been given information about breastfeeding but have chosen not to.

Grace (MW IFL/C)

Participants tended to feel that expectant parents had a right to know that breastfeeding was associated with better health outcomes for babies and mothers compared to formula feeding. However, many also felt that simply learning about the health benefits was unlikely to make a difference to mothers' decisions, as these decisions were complex and socio-physio-psychological rather than detached, evidence-based and rational. Indeed '*banging on about the benefits of breastfeeding*' (**Nancy**) – and particularly giving information without improving breastfeeding support – was considered counterproductive by many participants, as it would be likely to result in mothers who formula fed feeling alienated and shamed.

Beliefs about experiential benefits for mothers

For many participants the 'health benefits' of breastfeeding were only part of the picture – and not necessarily the most important part. Many pointed out that breastfeeding, when going well, brought powerful experiential benefits of physical and emotional pleasure to the mother, that, as others have found, Welsh women who breastfeed beyond the difficult early months often enjoyed breastfeeding (Brown and Lee, 2011). There was a sense that 'benefits' of breastfeeding, framed in relation to population level epidemiological evidence, somehow failed to encapsulate these broader emotional and experiential well-being reasons for promoting breastfeeding and for ensuring adequate support**.**

Advocates spent a considerable part of the interview attempting to describe the *immediate experience* of breastfeeding. It was notable that focus for these descriptions of experiential benefits *was* primarily *the mother* – frequently the advocate themselves as 'mother', since personal stories were a common way to explain this aspect of 'benefit'. This maternal focus was in stark contrast to the primary focus on the baby in the discussion of health outcomes,

You want to give mothers the opportunity to have that close feeling. I rarely talk about my own experiences because I'm not sure if that's valuable, but I really want to give them the opportunity, health benefits aside, it's just such a

beautiful relationship, when you see a mum and baby, skin to skin, it's beautiful

it's an emotional and passionate area.

Zena (HV IFL/C)

Participants frequently struggled to find words adequate to express the *meaning* behind their emotional and physical responses to breastfeeding. The words '*beautiful*', '*precious*' and '*lovely*' occur repeatedly, sometimes breastfeeding is described as '*magical*', as a mystical or almost religious experience, see Figure12.

Figure 12: 'A raid on the inarticulate'

These descriptions of breastfeeding as something that is pleasurable and meaningful for the mother tended to occur towards the middle or end of the interview, once rapport had become well established. I sometimes had a sense that respondents felt that physiological pleasure from breastfeeding might be considered inappropriate or deviant, and that I was being told about these feelings because the respondent felt, as an insider, I would be less likely to judge,

> [*Laughing, confidential*] I've got a cousin at the moment whose baby was born –
> coming up to three weeks old now, and supporting them with breastfeeding is
> just … and seeing how natural it is just lovely and this part of me goes: '*I'd*
> *really… can I just borrow him and put him back on me…*' It's just lush! And the

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baby is [*Joan indicates reaching out and hugging to her breast*], and you think: that's just lush! I miss that – can I have that back!

<div align="right">**Joan (MW IFL/C)**</div>

Finding themselves at the limits of language, participants often fell back on facial expressions and gestures in their attempts to explain what they meant. Figure 13 is a sketch taken from a post interview research memo – my attempt to capture the intense, animated, emotional content of one of these gestures, Nancy's tactile response to a remembered feeling.

Figure 13: Experiential benefits

I'd asked Nancy (Policy Lead) what motivated mothers to breastfeed. She said, *'It's very little to do with the brain and that rational thing, I think and a lot to do with …'* I said, '*You are hugging as you say that…*' Nancy laughed and explained '*I don't know what the word for that is … but it's physical … no sensual … not the right word ...*' (Figure 13).

In face-to-face interviews full body gestures imitate the act of breastfeeding a baby while trying to describe what breastfeeding was like and why it was important were common. Facial expressions – smiling – to indicate pleasure, even more so. These gestures and expressions seem to confirm that this aspect of 'belief' arises from embodied experience. Sometimes the gestures were momentary or partial, for example, to conjure a fleeting physical interaction,

> **Gwen:** I just enjoyed feeding, you know. And he used to enjoy it as well. And, you know, when they get older and they start doing their own thing and look up and smile, and he use to have a habit of sort of going with his hand - *like that.*
> **Heather:** Sort of stroking your breast?
> **Gwen**: Yes, a lot of babies do that. I now know, because it's one way of triggering a let-down… but I just thought '*Ah, look at him being so affectionate*' [laughter], which, it is that as well isn't it?

<div align="right">**Gwen (MW IFL/C)**</div>

Gwen refers to 'let-down' here, meaning that the baby's action had a physiological function in stimulating a release of milk into her milk-ducts. However, she is aware that this explanation is reductive, failing to encapsulate the full experience for her of her baby '*being so affectionate'*. A reductive retreat into the language of biological mechanisms is also heard in **Gemma**'s shift between '*brain development'* and *'love'* in this extract,

> **Heather:** Just suppose there was some new major study that proved that there's no difference at all in the health benefits between breastfeeding and formula feeding. Just imagine. How would you feel then about...?
> **Gemma:** I would still be passionate about [supporting breastfeeding] because it's not just about nutrition it's about relationships and it's about bonding and it's about, I'm sure they couldn't' get – I'm sure it would be proven that they got rid of your… your antibodies and your anti-inflammatory elements you pass over by giving breast milk. So, I think it's not just about feeding, it's not just about nutrition, it's about, it's very complex, it's brain development, its relationships, it's *showing love*, it's, … yeah, it's not just infant nutrition. […] I think most people don't choose breastfeeding because of the health benefits.

> **Gemma (MW IFL/C)**

The slide from feelings to biological mechanisms could also be heard in **Clara**'s references to the hormone '*oxytocin'* in Figure 12 (p.141). Again and again, emotional experiences were half-inadequately conveyed through the language of biology and health in this way. For these health professionals, the language of the body as a biological entity is to hand in a way that the language of emotional experience is not.

Advocates' themselves recognised a poor fit between the experience of breastfeeding and the formal policy language of biology and health. Laura's experience is the women she supports are rarely motivated to breastfeed by 'health benefits' considerations,

> When you talk to [new mothers], they do have an understanding of the physical advantages of the right nutrients and antibodies and all the rest of it, but they also have something that is almost unspoken, they can't it's like they can't really say what it is, it's something inside them that makes them feel they *have to* carry on and do this.

> **Laura (MW/ IFLC)**

Experiential benefits to the mother were not just considered to be short-term. Several advocates believed that an experience of setting and achieving a breastfeeding goal could be empowering, engendering a sense of lasting pride. This was thought to be particularly true for women who had little prior experience of feeling successful.

> You know, particularly when they've been through difficult times getting going and being really struggling and particularly if they've had families who keep saying '*don't do it'* and *blah di blah di blah* and then seeing them blossoming

and turning into mothers that are happy and confident in what they've done and rightly very proud for having succeeded. Even if they give up, if they've achieved what they wanted to do or more than what they intended to do its, sort of, so heart-warming.

Leela (MW IFL/C)

The role of infant feeding policy in empowering and enabling women to breastfeed was seen by many participants to extend beyond improving the experience for *individual* mothers. Participants observed that the women they supported sometimes themselves became 'passionate' and motivated to change the system. Alongside expanding individual women's autonomy over their own bodies, these women would advocate for improvements to breastfeeding support and could expand and enhance the geographical and social space that new mothers coming behind were able to occupy. In a variety of ways they began to support their peers and to advocate for the next generation of mothers.

A complex conceptual frame?

In summary, advocates' 'beliefs' about the benefits of breastfeeding are multi-faceted. This range of beliefs appears to have an inexact fit with current articulation of a public health policy agenda. The public health rationale for promoting breastfeeding is weighted towards an understanding that breastfeeding is important because it brings a suite of health benefits to individual babies and (though this is less frequently articulated) to mothers. While professional advocates contributing to this research study certainly 'believe' in these health benefits, they tend to be viscerally motivated by an understanding that breastfeeding has the potential to bring emotional and experiential benefits. They note that mothers themselves are similarly motivated by their experiences.

6.4 Working without consensus

Wicked problems are marked by a lack of consensus among putative problem solvers about how to address the problems at stake and by frequent challenges to the legitimacy of the solutions that are put forward by problem solvers (Rittell and Webber, 1973; Wexler, 2009).

In this section I describe participants' experiences of a contested implementation context, their perceptions of the role of system history and individual's own history in creating that contested context, as well as the emergence of an advocacy community.

A contested implementation context

Participants' accounts reveal that lack of consensus is a key feature of the implementation landscape. Both policy and IFL/C advocates referred to their pursuit of change, even via implementation of well-established interventions such as Baby Friendly, as a 'fight' or 'battle', with others, including other health professionals, often perceived as an opposing army. Some

participants felt that they had been fighting this battle for decades, sometimes making small advances, but often just holding ground. There is no doubt that participants felt themselves to be operating within a peculiarly contested policy frame.

> There was, kind of, us fighting for breastfeeding in Wales and there was, we were, *fighting* I use that word because it was as if there were forces mitigating against breastfeeding being taken forward.
>
> **Clara (HV IFL/C)**

Most IFL/C participants felt that to remain in this fight, to keep at it, you needed to be *passionate*, you needed to *believe*. In line with the findings for other UK-based studies, participants found that the work of integrating breastfeeding practices often caused them significant emotional distress (Furber and Thomson, 2008). Advocates who were not passionate simply could not be trusted to fight the fight in such a difficult environment, against such odds, to put the necessary work in to overcome initial conditions and countervailing forces. Indeed, **Leela** said that she had been convinced take the role against her initial instincts. Her lack of negotiation skills, her lack of confidence in managing others were secondary compared to ensuring that a key paid advocacy role was *not* occupied by someone who was *'not really interested in breastfeeding'*.

> I don't think I'm the right person to do this because I knew what it would be like, and I knew that you not only have to have the knowledge and skills of breastfeeding, but you've got to be able to convince the uninitiated and the senior management and the Heads of Service and one thing and another […] and someone said to me, '*You want this going to somebody who knows nothing about breastfeeding?'* And I said, *'No!'* […] Well, one of the dangers, and you can see them actually, are the people who are not really interested in breastfeeding but are using it as a tool to get further in their career and I have seen that happen and I didn't even consider … so anyway I went, I agreed to do it.
>
> **Leela (MW IFL/C)**

Changes to existing service policy and practice could not be achieved by the advocate working alone. Once in post, the advocate's job is to use her passion to win over the hearts and minds of other stakeholders.

> **Heather**: I'm just wondering, if this role went to somebody who wasn't passionate…
> **Gemma**: I'd be furious [*laughs*]
> […]
> **Heather**: Why? Why do you need to be passionate?
> **Gemma**: Okay you have to be passionate, because it's about belief; it's about believing that life is about helping people and making things better for people

> and enabling them […] you've taught them and they will pass that on to other friends it's like … it is like … I don't know, *spreading light*. So, it's like belief, isn't it?

Gemma (MW IFL/C)

To extend the religious imagery, the aim here is to win converts, ideally – and most effectively – by winning over hearts as well as minds. Participants found that this fight for hearts and minds could sometimes be very bitter. It's notable that when Gemma is describing 'spreading light' in the excerpt above she is talking about the women she supports coming to believe from personal experience. In contrast, convincing people without access to an opportunity to influence through transforming experience could be more difficult. Some participants felt they had been poorly-prepared for the intensity of the resistance they encountered. **Gemma** describes the impact of working alongside colleagues who were often collectively ambivalent or individually hostile to the idea of implementing BFI – the central function of her professional role,

> I turned up on the postnatal ward and was told '*Oh! For goodness sake! We don't want any of that Baby Friendly shit round here, get out of here*'. It was really rude, it was really, really aggressive. I said '*Whoa! Why am I doing this job?*' Especially why should I take this rubbish when all I want to do is enable staff to support mothers well, that's what this is about…

Gemma (MW IFL/C)

Participants found support from their own professional peers invaluable in enduring these sorts of reactions.

Emergence of an advocacy community

A contested implementation context has led to the emergence of especially nuanced advocacy strategies, which are developed within a 'breastfeeding community'.

Participants had learned to prize and develop an ability to assess the baseline beliefs and experiences of the stakeholders they needed to persuade and to rapidly identify potential friends and foes of their advocacy agenda. In consequence, professional advocates frequently engaged in 'identity work' (Faircloth, 2009) and vigilantly monitored the reactions and responses of others.

Potential enemies of change gave themselves away through verbal expressions of ambivalence and through their body language. Being able to make rapid assessments from subtle clues helped the advocate to know when and how to soften or tone a request or an advocacy message, how to open a conversation and to disarm a potentially hostile stakeholder.

You just get your antennae out and you just know the way somebody says something that they […] I think you just become very sensitive to it. […] People that understand about breastfeeding talk about it in a different way and most of it is positive because they're looking for ways of making it better. And people who don't understand it nearly always will say along the lines '*well, I know it's best, but…'.* Everything after the 'but' is bullshit.

Siân (MW IFL/C)

Sometimes they will come up to you after the meeting you know, *'I had a terrible time, awful time'*, and you think to yourself, *'I knew that by the way you reacted in the meeting when we brought up breasts and breastfeeding'*, you can see the alteration in the body language and the sort of dismissiveness.

Carrie (HV IFL/C)

Carrie explained that it was part of the advocacy role to work sensitively and empathically to bring these individuals around, including by opening the conversation to explicitly address that person's own experience. Advocates would adapt central messages to disarm and to minimise the risk of being unhelpfully categorised as an extremist. For example, this would be achieved by the advocate clearly articulating a distinction between promoting breastfeeding to individual mothers and promoting improved systems of care that would better enable breastfeeding decisions. A focus on improved conditions was felt to be more widely acceptable, less victim-blaming. Several participants welcomed and explicitly referenced the ways in which this distinction had been articulated by NCT (Trickey et al, 2011) and more recent BFI literature (Unicef UK, 2016).

Depending on the stakeholder, professional advocates would sometimes decide to spend less time talking about the health benefits of breastfeeding because they had thought these were likely to be received as an implied criticism of women who had not breastfed. In other situations, a health benefits rationale was used because it was felt to provide a more 'objective', less emotional, basis for action.

I suppose I spend quite a lot of time in meetings framing things in a way to reduce the threat and then once the threat level is reduced then you can have a dialogue and understanding and there we are. That is straightforward then…

Nancy (Policy Lead)

Asha: […] if my job is promoting breastfeeding there will be an assumption I breastfed and that, you know, I have got the glint in the eye and that I am an evangelist with it… And I suppose that raises the '*Yes, I think breastfeeding is fantastic and I really enjoyed doing it and I did it until my baby was such and such …'*, or it will be '*I tried it and I didn't get on with it or it didn't work and there is nothing wrong with my children, is there?*'

Heather: Okay. And do you find yourself self-managing in those conversations or managing perceptions of yourself?

Asha: Well, I guess so, that's part of the work …

<div align="right">

Asha (Policy Lead)

</div>

Carrie: I've learned over the years. […] a huge deal in the language we use and the different reactions we get and, you know, we've talked a lot about it as professionals.

Heather: needing to monitor, modify and think about your language…

Carrie: yeah, to not only health professionals, but any sort of professionals you come into contact with.

<div align="right">

Carrie (HV IFL/C)

</div>

The flipside of the need to be acutely vigilant to the negative attitudes and prior experience of others was that participants were also able to pick up on opportunities created because of recognising stakeholders who were already 'on side'. These were people who shared the passion for breastfeeding, potential allies and who might be called upon to smooth the pathway to policy implementation.

Heather: And what about the opposite situation… someone who is clearly pro …

Asha: Well, you have a sense that you can push things further, that you can actually probe a bit deeper; you can be a bit more honest, I suppose …

<div align="right">

Asha (Policy Lead)

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Heather: And how do you find out who they are?

Nyree: Well … there's some funny handshakes involved (*laughs*)… I don't know. But I just know you need your people in strategic places […] we get called *'The Breastfeeding Mafia'*! I don't mind! It's a pretty successful operation! (*both laugh*). I know where my key people are for different things. So, we have one on the Health Board, there's at least three… and I got people in general practice… just different areas […] and the chair often the MSLC Maternity Services Liaison Committee and things like that.

<div align="right">

Nyree (HV IFL/C)

</div>

So, you've got key people … but they're not necessarily, it's not dictated by a profession, it's by *passion* […] We're a very dispersed community but we are working for the same goal.

<div align="right">

Gemma (MW IFL/C)

</div>

Participant accounts suggest that the ability to negotiate the feelings and experiences of other stakeholders is a requirement, a skill that professional advocates *must* develop to be effective within the peculiar emotional landscape that forms part of their everyday working conditions.

This special requirement is related to the emergence of a '*breastfeeding community*' within the implementation context. This community encompasses health professionals, peer supporters, voluntary sector workers, and indeed anyone who 'gets' breastfeeding and wants to be part of a promotion agenda and is closely networked both within Wales and across the UK. As **Leela** put it, '*everyone in breastfeeding knows everyone else, sooner or later*'. By banding together, the community is able to act as a *'pressure group'* (**Grace**), promoting change and challenging system-level barriers.

The community provides an opportunity to re-charge enthusiasm, and acts as a bulwark against feeling overwhelmed or isolated. Advocates are able to let their guard down, to talk about the issues without the high level of vigilance to the reactions of others.

> When we get together, it is always really beneficial. […] You just really need to be able to think to yourself, *'I'm not the only one in this position. In fact, I'm better off than some, because I'm full time*'.
>
> **Gwen (MW IFL/C)**

> You need a safety net. You need some people that you actually sit down and be honest with. It's that, *likeminded environment*, isn't it? You also get your motivation and enthusiasm from them.
>
> **Carrie (HV IFL/C)**

Participants did not view all members of the community as having equivalent levels of negotiation skill. There was a tendency to feel that *less experienced* members of the breastfeeding community could be clumsy. For example, someone new to the field might not grasp the complexity; might not understand the need to make a subtle distinction between promoting breastfeeding and promoting a supportive context for decisions to breastfeed. Above all, there was a risk of coming across as *too passionate*. While participants generally used the word 'passionate' in the positive – to mean that passion is a good a necessary thing – inside the breastfeeding community there is also acknowledgment that passion has a dark side.

> It touches a painful place in [other policy stakeholders], maybe they have had experience with people who are at the very passionate end of breastfeeding – and you can be so passionate, I have observed, that it's really hard for people to hear what you say.
>
> **Nancy (Policy Lead)**

Too passionate advocacy was considered dangerous, undermining to the good work of more subtle and experienced advocates, with the potential to result in a backlash against infant feeding policy goals.

Very occasionally participants talked about themselves as having managed their own advocacy skills poorly in the past. However, it was more usual for participants to talk about

other advocates' inability to manage their messaging. There was no shared stable understanding as to which individuals qualified as 'too passionate'. Indeed, one policy advocate had been warned before coming into post that IFL/Cs collectively (encompassing all the IFL/C participants in this research project) practiced a form of *'aggressive'* advocacy and that this was a group that needed to be carefully managed. Due to their relative inexperience, breastfeeding peer supporters were sometimes considered by IFL/Cs to be especially at risk of exhibiting inappropriate passion. For example, by overburdening women with their enthusiasm to give women information about breastfeeding.

System history and feedback

Several IFL/Cs believed that the status and resources with which they were operating were insufficient to be fully effective in overcoming these system-level countervailing forces. Many participants went above and beyond their paid commitment to attempt to bridge the gap. Chiefly this involved putting in additional hours of work, but also involved providing training resources from home and paying for their own training and networking costs (for example, attending the Baby Friendly conference).

IFL/C participants sometimes felt that the complex nature of the problem and the scale of countervailing forces was under-appreciated by line managers, who sometimes had little idea of the very low starting base for staff in terms of breastfeeding knowledge and attitudes – even if they were signed up in principle for the maternity service to work towards achieving the BFI award. The BFI assessment requires only that 80% of staff meet a minimum standard of breastfeeding support knowledge (Unicef UK, 2017), however, several participants said that they found the level of work associated with preparing for a BFI assessment, and the pressure from their managers to achieve the award, to be physically and emotionally exhausting,

> I think [another IFL/C] also felt with her Head of Midwifery that there isn't a realisation that you can't just stop you have to keep on educating staff and reminding them, and all the new people come along, and I don't think they really understand the full implication of Baby Friendly.
>
> **Laura (MW IFL/C)**

For example, **Grace** took the view that because breastfeeding knowledge remains a minor part of the midwifery, and health visiting training curricula and the majority of Welsh university training courses are not BFI accredited, the baseline knowledge of new midwives is scarcely improving. As a consequence, she found she was needing to re-educate each new intake of midwives and health visitors alongside existing staff. In complexity terms, the attitudes and skills of health care staff and health care professional training might be understood as a key control parameter (Byrne, 2005), over-riding the impact of changing other components within the system.

A continual intake of new staff with little knowledge of breastfeeding, on top of an initial condition of low skill and expertise in the system, meant that participants found they had limited capacity to get stuck into the strategic aspects of their roles. Several IFL/C participants experienced difficulties in shifting from providing direct breastfeeding help to new mothers to building up core expertise among staff. They continued to be identified within their units as the 'go to' for any mother who asked for a breastfeeding issue to be resolved. Some participants felt that their colleagues understood this direct support to be the central purpose. IFL/Cs, who perceived that mothers would go unsupported without their direct help, often found it impossible to lay aside this aspect of the work. Especially as they also tended to find directly supporting mothers to be personally rewarding in a way that trying to re-train reluctant midwives was not,

> Am I a co-ordinator, or am a breastfeeding advisor? Because the amount of
> time – manpower time – that I spend with complex, ongoing problems, or just
> basic problems that don't seem to have the best input, lack of time, of
> midwives, or health visitors … or whatever … the amount of time that I have
> with mothers referred to me, and it takes a huge chunk and I'm trying to cut that
> down. But it's difficult when there's a lack of other help. […] The staff were used
> to having me full time on the ward … in an infant feeding need capacity … very
> hands on … staff and mothers. Full time. Brilliant job… and then suddenly to
> have that taken from you, so there's no one, actually, physically on the ward …
> they're not sure what to do.
>
> **Gwen (MW IFL/C)**

While some participants felt that their line managers colluded with the idea that the IFL/C would provide the breastfeeding support, others described their line mangers' attempts to encourage them to be more strategic.

Human agency and feedback from individual experience

Participants themselves believed that the root of much of the hostility they experienced in their implementation roles was the emotional content of other stakeholders' personal or family feeding histories. As **Grace** put it, health professionals, hospital managers and government officials all '*bring their own baggage'*. Participants tended to agree that this baggage mattered to an extent that would not be usual in relation to other public health or health policy issues – for example, **Jane** contrasted it with the personal investment one might encounter from those one was trying to influence to deliver a smoking cessation policy.

> It's something that's different about breastfeeding … everybody has a strong
> reaction, at whatever level you are dealing with it at and people seem to
> connect much more rapidly with their own personal experience than I have
> known in other areas. So, it becomes straight away, in fact before I have even

opened my mouth, as soon as it's on the agenda, it's about what happened with them, with their babies, what happened with their wife... sister, whatever.

Nancy (Policy Lead)

I would be in a meeting, you know, Chief Execs of Trusts and various other bods, men usually. [...] They would all start talking about their family's breastfeeding experiences, they hadn't had babies and they hadn't done it themselves, but they would talk about their wives and their sisters or their mothers and whether they were breastfed or not. Everybody has got a story to tell about breastfeeding and it comes at you from the most unexpected quarters as I am sure you are aware. So, it is something which touches something else that is not cerebral, you know, it's not academic.

Asha (Policy Lead)

Indeed, as **Asha** suggests, and as my reflexive account indicates (Box 2, p.85), I had also experienced the implementation landscape in this way, was struggling to negotiate it myself.

Participants tended to feel that the shift of focus in the BFI standards (Unicef UK, 2017) towards 'maximising breastmilk' (rather than avoiding all supplementation) and the emphasis on supportive relationships (for all parents whether breastfeeding or not) increased IFL/Cs comfort with the content of programme. Earlier incarnations had been hard to sell to maternity staff as they tended to be perceived as too prescriptive, heavily weighted towards emphasising the health benefits of breastfeeding, and insufficiently flexible with respect to formula supplementation given pre-existing levels of confidence in breastfeeding among staff.

I think we have to be very, very supportive of the mums who choose to formula feed [...] So, it's about not being afraid to use the 'F' word [laughs] as well because there was a bit of that when Baby Friendly first came in, I don't know if you will remember this, sort of around 2000 there was a lot of '*there will not be a bottle seen, no bottles seen*' ... we're being downright dangerous if we're not going to give any formula because that baby could end up with serious repercussions. If we don't give some calories to that baby so it's about being realistic as well as without the guilt thing.

Gemma (MW IFL/C)

As discussed above, increased attention to the needs of parents who are formula feeding in the revised BFI (Unicef UK, 2017) constitutes a significant shift in problem-framing. Participants believed that the initial starting conditions of very low breastfeeding rates in Wales, taken together with a lack of consensus among stakeholders about how the problem of low breastfeeding rates should be addressed, have necessitated this shift.

6.5 Working across open systems

Complex systems tend to be open, with interlinking sub-systems, so that those seeking to change the system are required to work across system boundaries.

While Baby Friendly gave professional advocates working in a hospital setting the authority to introduce changes into maternity care, implementation challenges occurred when working across the system boundary of maternity and paediatric care. Taking on the culture of high rates of supplementation requires co-operation of paediatricians – stakeholders that IFL/Cs are not able to influence through positional power. A difference in priorities meant that participants often struggled to find a synergy between a paediatrician's focus on minimising risk of dehydration and their own focus on enabling women to establish and maintain breastfeeding.

> The biggest opposition is paediatricians … I think they are concerned that the babies … they are more risk averse, I understand that, they don't want a baby admitted to the neonatal unit who is dehydrated and jaundiced … and I understand that, but […] their default would be *'get fluid in of any sort'* and if breastfeeding… well you're not sure what they've had… [….] so there's a lot of work to do with paediatricians.
>
> **Liz (Policy Lead)**

> Most of the policies were easy [to put in place] because I had the support of managers … the ones between paediatrics and us, maybe was more difficult … the anxieties about these babies having expressed milk and not having formula top-ups.
>
> **Leela (MW IFL/C)**

Difficulties of reaching across system boundaries *within* the health care system were considerably magnified in participants' experiences of difficulties in working outside of the health care system altogether. The IFL/C role had included promoting and delivering community-based elements of the 2001 Welsh Infant feeding strategy (Welsh Assembly Government, 2001); including, at one time, a Breastfeeding Welcome Scheme, development and dissemination of a 'School's Pack', as well as training breastfeeding peer supporters.

Participants tended to agree that, despite an ecologically informed strategy, in practice infant feeding policy had achieved poor ecological reach since 2001, and that some interventions arising from the 2001 strategy had had poor social and geographical reach. They shared a sense that little had been achieved in terms of changing the wider Welsh infant feeding culture, particularly in more socially deprived areas where breastfeeding rates had been low for many generations.

This evaluation was manifest in the mark-ups of the ecological template, which tended to indicate that influences at the higher ecological levels had been only scantly addressed. For

eight of the nine completed diagrams, areas marked in blue, meaning '*policy is having a positive impact, improving the conditions for breastfeeding*' were restricted to the health service (marked by all participants) and the sections of the '*individual feeding journey*' marked as '*hours and days after the birth*' (marked by seven participants). However, often this marking was done to indicate that the participant recognised any sort of attempt to address influences at that level, rather than to indicate a belief that significant progress had been made.

As **Nancy** put it, after completing the ecological template, presented in Figure 14,

> It's a good thing I wasn't feeling like I was doing a good job, because if I felt like I was doing a good job and then I [completed this diagram] it would be like, '*Oh my god! Slit my throat.*'

> **Nancy (Policy Lead)**

Figure 14: Nancy's completed ecological model
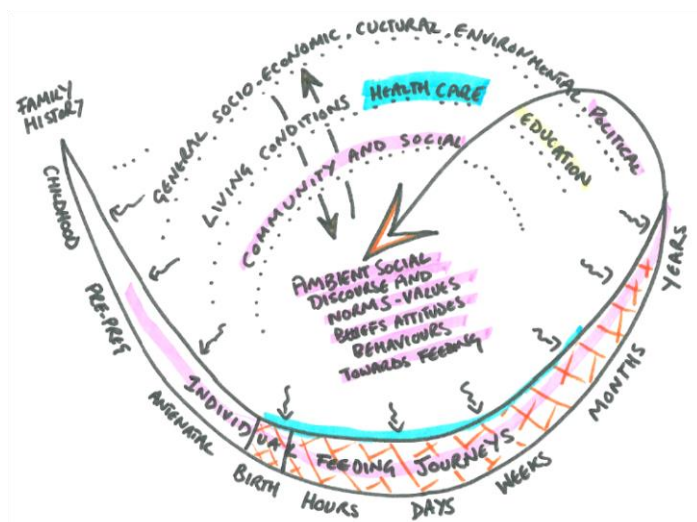
Participants shared a sense that in interventions arising from the 2001 Welsh Breastfeeding Strategy (Welsh Assembly Government, 2001) that had been intended to address influences at community level, including the Breastfeeding Welcome Scheme, The Schools Education Pack, and training for peer supporters had been poorly funded and had often been delivered in a piecemeal and non-strategic way.

Community-based elements of the strategy had tended to be viewed as an additional extra, to be fitted around the main task of delivering Baby Friendly. Furthermore, IFL/Cs often felt they lacked the authority, contacts and expertise to embed community-based interventions. In particular, The Breastfeeding Welcome Scheme and The Schools Education Pack were considered to have been less than ideally embedded into the organisational and policy

settings they were intended to influence. Advocates also felt that these interventions were poorly theorised and that any impact tended to rapidly 'wash out' of the wider system of influences (Hawe et al, 2009).

Participants also believed that controlling influences on infant feeding decisions lay beyond the reach of IFL/Cs and of Welsh policy makers and that vocal political support is not enough. Several participants marked up the area labelled '*political*' on the ecological diagram in blue, indicating that they believed there *is* political support in Wales for policies to promote breastfeeding. **Liz**, a policy maker participant, said that she was '*pushing an open door'* when it came to ministerial level support. This was also recognised by ILB/C participants,

> Because we've now got Welsh Government backing, in as much as they've put
> policies in place to say every hospital and every unit has got to be working to
> obtaining or maintaining Unicef Baby Friendly status, it's now written in stone
> that we have to have it! And that has added a lot more weight to our role, and
> the importance of our role, because now it's coming from government.
>
> **Joan (MW IFL/C)**

Some participants were aware that this political goodwill was an asset that had not always been available to infant feeding leads working in England. However, they also felt that Welsh Government has limited legislative power, restraining Welsh politicians' ability to make difference. For example, participants remarked it was unfortunate that that Welsh Government was not able vary the legislation on marketing of formula milk, seeing advertising and exploitation of loopholes in the existing UK-wide legislation as a key countervailing force to achieving infant feeding policy goals.

Several participants referred to the introduction of the Equalities Act into England and Wales (Equality Act, 2010), which had made it illegal to prevent a woman from breastfeeding a baby aged under six months old in public premises. Participants recognised this as an important step towards enabling a breastfeeding friendly culture, however, they noted that that the lesser legislative power of Welsh Government meant that Wales has a lower level of protection for breastfeeding mothers than is was afforded to Scottish mothers (Breastfeeding etc. (Scotland) Act, 2005), which had made it a criminal offence to prevent a mother from feeding her baby anywhere that she and her baby are legally entitled to be.

Key Welsh Government-led strategic advances that participants felt *had* enhanced the potential for ecological reach beyond individual-level influences on feeding decisions, included the development of the AWBF, the decision by Welsh Government to appoint a strategic lead and the setting up of a Welsh Government strategy group, the publication of the Welsh infant feeding strategy (Welsh Assembly, 2001) and the small amount of funding that Welsh Government had made available for breastfeeding peer support training. However, they recognised the greatest key to implementation work had been turned by the Welsh

Government commitment to working towards the Unicef UK BFI awards in all Welsh maternity settings.

6.6   Discussion and implications for theory development

A review of the evidence for peer support in Chapter 2 and of the landscape for intervention in Chapter 3 suggested that breastfeeding peer support is a complex intervention that is likely to have a high level of interdependence with contextual influences in the implementation landscape. In this chapter I sought to test the understanding that the implementation context should be treated as a complex system, drawing on professional advocates' experiences and considering those experiences in the light of key components of complex systems thinking (Byrne 2005; Gatrell, 2005; Rickles et al, 2007). In this section I consider whether a complex systems lens is justified, and in what ways professional advocates' experiences can inform the development of theory to underpin peer support intervention

The findings align with an understanding that the problem of 'low breastfeeding rates' is a 'wicked' problem (Rittell and Webber, 1973). The conceptual landscape for infant feeding policy is complex, shifting and highly contested. Professional advocates' underpinning rationale for breastfeeding promotion is mutli-faceted and unstable. Professional advocates experience some dissonance between a dominant formal policy goal to improve *health outcomes* for babies, and a personal goal to improve the *experience* of breastfeeding for mothers. Participants themselves tend to be motivated primarily to improve mothers' *experiences* of feeding – including improving opportunities for mothers to articulate benefits of satisfaction, pleasure, love and empowerment.

An increased emphasis on the concept of 'attachment' in the public health discourse is welcomed by professional advocates for two reasons. First, because it provides acceptable 'health policy' language for promoting positive maternal experiences. Second, because the concept of 'attachment' is broad enough to encompass mothers who are using formula milk, a group that professional advocates perceived to be in need of affirming experiences. However, the language of 'attachment' and 'brain development' appears to be reductive, failing to encapsulate an understanding that maternal experience is important *for its own sake* and because the *mother* matters, quite aside from any health or well-being benefits conferred from delivering breastmilk or from delivering close physical interaction to the baby. In the absence of agreed language, advocates continue to struggle to articulate rationales for breastfeeding promotion and support that are not directly linked to health outcomes and feel unsure about whether these rationales can be integrated with their formal advocacy role.

Meanwhile, and again in line with the characteristics of a 'wicked problem' (Rittell and Webber, 1973) the implementation context is highly contested, so that professional advocates are

attempting to produce change in a context of weak consensus among colleagues on whom delivery of change depends. This research demonstrated that infant feeding leads often experienced intense negative emotions related to their implementation role, in line with findings of other UK-based studies (Furber and Thomson, 2008).

Several complexity landscape concepts and characteristics do appear to be helpful in making sense of this contested implementation landscape and of the strength of the countervailing forces that professional advocates encountered; these include the importance of initial conditions, of system-history, open system interactions, positive and negative feedback loops, and emergence (Rickels et al, 2007).

Participants experienced system history and initial conditions as powerful counter influences to intervention (Rickles, 2007). IFL/C and policy makers tended to believe that a history of formula-normal maternity care practices reached forward into a present-day, so that even after changes in policy and the implementation of BFI there is a residual tendency towards proposing supplementation with formula milk as a first line response to resolving breastfeeding problems. In complexity terms this tendency acts as negative feedback in response to the potential interruption in the system represented by Health Board level commitment to implementing Baby Friendly. Many participants considered these system-level feedback loops to be part of the explanation for continuing low breastfeeding rates, even against the backdrop of a Welsh Government public health policy commitment to promote breastfeeding.

The research shows that positional power within the system is important. IFL/Cs were often working below the BFI recommended grade, making it more difficult for them to influence the attitudes and behaviour of their colleagues, and often found it impossible to influence paediatricians. Outside of the health care system they had very limited positional power, limited strategic understanding of the context, which – compounded by poorly theorised Welsh Government led interventions (PHW, 2013) and by having limited resource and capacity – meant that they were unlikely to achieve geographical or social reach or to produce a sustained impact on the wider ecology for decisions.

Participants' experiences certainly suggest that human agency is an important component within the implementation landscape, as I proposed in the complexity-enhanced visual model presented in Figure 4 (p.74). The critical pathways of individual stakeholders can be understood as being threaded through larger the health care system and the wider system of influences on decisions, often meeting at the intersection of the intended system-level interruption – the point of policy implementation. While advocates represent potential change-agents in these systems, other stakeholders potentially have a dampening (or negative feedback) effect.

The CMO notation of critical realism can be used to describe how professional advocates' stories of personal transformation interrupt a system of influences, leading to a change-accelerating (positive) feedback chain. Thus,

A midwife has a baby (C) and experiences an acute period of heightened emotion (positive, negative or both) associated with feeding (M) she becomes more aware of the support needs of new mothers (M) and she feels especial empathy for those who are struggling (M). This prompts her to become more critical and analytical about the conditions under which feeding decisions are made (M).

As a midwife she has a position of some influence within the system (C). She actively seeks opportunities to change circumstances with a view to improving the care experiences of other mothers, taking up an advocacy role when this becomes available (M). Her actions have the potential for a multiplicative effect on the experiences of individual mothers; directly, she influences the quality of support that many new mothers receive (O); indirectly, she influences wider maternity care practices (O).

Thereby, changing the context for support giving in the future (C).

The experience of professional advocates, and their experiences of negative feedback from the wider system, suggest that it may be worth considering the potential for theories of peer support that facilitate multiplicative positive feedback effects arising from the agency of individual advocates, including peer supporters. Like professional advocates, peer supporters are women motivated from their own experience to help others. Theories of peer support that make use of feedback from personal transformation – via a mechanism of 'passion' – are worth considering.

Such theories would need to take account of the strengths and weaknesses arising from peer supporters' different positioning within the system of influences on infant feeding decisions. Professional advocates struggle to articulate experiential benefits, in part because these are not central to their formal public health policy agenda and also because articulating experience tends to involve bringing up one's own experience, which might be considered unprofessional. In contrast, peer supporters may have more freedom to advocate for better *experiences* for their own sake, and be better positioned to talk about the non-health-related aspects of feeding experience with mothers. Furthermore, although peer supporters are not as well positioned as health professionals to influence the health care pathway, they may be better positioned to have an impact on system-level influences that extend beyond the health care setting.

What's next?

In Chapter 7, I draw on the same interview data to explore professional advocates' experientially-based ideas about the ways in which breastfeeding peer support does and does not work when inserted into this complex implementation context.

Chapter 7: Three registers for understanding breastfeeding peer support

7.1 Introduction and contribution to the thesis

In Chapter 6 I drew on the findings of Phase 1 interviews with 15 professional advocates to explore the implementation context for breastfeeding peer support in Wales. I concluded that their experiences could be understood in relation to concepts drawn from complex systems thinking. In this Chapter, I draw on the same Phase 1 data set to consider professional advocates' ideas and beliefs about the ways in which breastfeeding peer support does (or does not) work.

The findings presented in this chapter address Research Question 2.

> RQ2: How do professional advocates for Welsh infant feeding policy understand breastfeeding peer support to work?

In this chapter I identify three 'registers' – or ways of understanding and articulating that sit somewhere between discourses and mechanisms – that professional advocates use to explain how breastfeeding peer support works. These registers are distinguished by different degrees of implied mutuality as well as by different degrees of ecological reach. These registers will be considered in relation to findings of the realist review of breastfeeding peer support experiments – Phase 2 – reported in Chapter 8. Together with the findings of the realist review, the three registers will then be extended, contradicted and nuanced though realist qualitative analysis of multi-stakeholder focus groups in Phase 3, reported in Chapter 9.

Chapter summary

The chapter is structured as follows:

➢ In Section 7.2, I introduce different sorts of understandings about how peer support works. Three registers – 'care pathway', 'mothers and sisters' and 'ripple in the pond' imply different directions of the relationship between the peer and others, and have different levels of ecological reach.

➢ In Section 7.3, I discuss the ways in which that peer support is understood to enhance or ameliorate the care pathway for individual mothers.

➢ In Section 7.4, I discuss the ways in which peer support groups are understood to provide alternative communities of 'mothers and sisters'; a sub-culture in which breastfeeding is socially safe and from which cultural norms and inconsistent health professional advice can be challenged.

- In Section 7.5, I discuss the ways in which 'peers' are understood to act as 'ripples in the pond' across a range of influences on decisions, diffusing the idea of breastfeeding as 'socially normal' and advocating for wider community level and societal level change.
- In Section 7.6, I consider implications fo different registers for evaluation.
- In Section 7.7, I discuss implications of a range of understandings that operate across ecological levels for the ways in which breastfeeding peer support interventions are developed, monitored and evaluated.

7.2 Registers for understanding breastfeeding peer support

All but one of the IFL/C participants and two of the policy participants I spoke to had direct experience of working with breastfeeding peer supporters in Wales. Forms of involvement included conducting peer support training, supervising peer supporters, attending peer support groups, and inducting peer supporters into providing support in hospital settings.

The three current Welsh Government and PHW policy advocates I spoke with were concerned about the lack of UK-based experimental evidence for the effectiveness of breastfeeding peer support. They referred to the conclusions from systematic review and meta-synthesis that breastfeeding peer support was 'unlikely to work' in a UK setting (Jolly et al, 2012a – discussed in Chapter 2), and to PHW's own Health Improvement Review, which raised questions about effectiveness (PHW, 2013). Participants also believed that funding for peer support in Wales had not been strategically distributed and that the impact of funding had been poorly monitored.

Both IFL/C *and* policy participants tended to believe that breastfeeding peer support *can* 'work', just not necessarily in ways that had been measured through experimental study. The portions of our conversations that were about commissioning peer support, or about experiences of working alongside peer supporters included a range of hunches, ideas and narrative descriptions about 'what works, for whom, in what circumstances and in what respects and how?' (Pawson and Tilley, 1997). I found I was able to group ways of talking into three registers – sitting somewhere between discourses and mechanisms. I applied applying category labels for these registers drawn directly from the participants' own words. These were as follows,

- *'Care Pathway'*– these were clusters of ideas based around an understanding that what peer supporters primarily do is to give social support to mothers, with an assumed direction of influence from the peer to the mother, and with social support delivered somewhere along mothers' feeding pathways. Peer support was believed to contribute to short-term change in outcomes and experiences at the level of each mother-infant dyad.

- '*Mothers and sisters'* – these were clusters of ideas based around the concept of breastfeeding being normalised at community level, via a mutual exchange of influence from mother/peer to and from mother/peer, with support delivered across multiple feeding journeys.

Peer support was believed to change the experience of feeding among groups of mothers and to change knowledge, skills and attitudes within a community setting.

- *'Ripples in the pond'* – these were clusters of ideas based around the concept of diffusion, with a direction of influence from a group of mothers outwards to the wider community and society, with change delivered outwards and reaching beyond mothers' feeding journeys. Peer support was believed to change knowledge, attitudes, beliefs, facilities, practices and policies and so on, across a whole social network or community.

These broad groups of understandings, or registers, are discussed in the sections that follow.

7.3 Peer support embedded to improve the 'care pathway'

Under the category label 'care pathway', I have clustered ideas that indicated that the participant perceived breastfeeding peer supporters as an extension of or enhancement to the support that mothers routinely received from professional health care providers. The active ingredient in the intervention was understood to operate through one-to-one encounters, (or rather, through one peer supporter to one mother-infant dyad encounter). By working with infant-mother dyads, peers were understood to encourage initiation and to enable longer breastfeeding durations; they were also thought to improve mothers' *experiences* of breastfeeding. With the proviso that they were not actually *displacing* existing care, they were understood to make a short-term difference to the overall quality of the maternity health care service that mothers received.
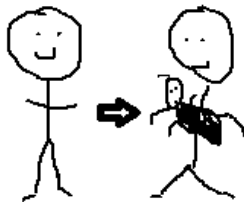
Participants described ways in which peer supporters could both make up for deficiencies and gaps in the existing care pathway and add something extra into the care pathway, that health care professionals were not positioned to provide. Participants also discussed barriers to care pathway integration.

Filling gaps

Participants tended to perceive the maternity care pathway in Wales as deficient and underperforming in terms of breastfeeding support. As discussed in Chapter 6, structural problems were perceived to include inadequate training of current and new staff, short hospital stays and cuts in funding leading to fewer home visits. In a context of limited health professional capacity, participants described peer support as (ideally) being embedded within mainstream service delivery, so that mothers who experienced difficulties that health professionals did not have the capacity to solve would find it relatively easy to seek help from volunteers.

> I think it's bridging that gap between – there is a real big empty space between where the midwife's support finished – the number of [postnatal] visits by the

midwife has halved now – so you've very little support as far as feeding is concerned. […] There's a big gap … a massive gap.

Joan (MW IFL/C)

Participants recognised gaps in quality as well as capacity. In the context of a lack of consensus about the need to prioritise breastfeeding, described in Chapter 6, several participants acknowledged that the support that mothers received from health professionals could be haphazard or like a '*lottery*'. Some participants perceived peer supporters as being, on average, more optimistic about mothers' chances of overcoming breastfeeding problems than health professionals, some had found that peer supporters could be more knowledgeable than health professionals about how breastfeeding works.

Social similarity

In Chapter 1 (Section 1.7), I referred to Dennis's taxonomy of support, and to the distinction she makes between embedded social support networks and created social support networks (Dennis, 2003). Dennis's taxonomy highlights that support is delivered along a continuum of professionalisation, ranging from health professionals, to para-professionals, to trained peer supporters and untrained help from family and friends. Participants in this study believed that the non-professional status of peer supporters was itself part the way that peer supporters improved the quality of the health care pathway.

Participants found that mothers viewed peer supporters as appropriate sources of information and suggestion to help with issues that they would not tend to ask a health professional for help with – examples given included the ostensibly low level but nonetheless discomforting/embarrassing breastfeeding issue of '*leaky breasts*'. Participants believed that peer-to-peer relationships tend to be less hierarchical; because of this, some felt that conversations could be more honest, with peers feeling more confident to self-disclose anxieties. Participants believed a non-professional status was particularly important for women from communities where professionals are less likely to be trusted.

I think many of these girls [new mothers] are nervous of health professionals […] Social support is as valuable in [low breastfeeding rate] areas as proper teaching and support from health professionals. In some respects, probably more so because when you get peer support you get these girls trained, they get trained to quite a high level, so they are able to deal with the sort of common everyday stuff. But because mothers are meeting other mothers on the same journey as them they get there much quicker.

Sian (MW IFL/C)

Participants did tend to believe that the degree of social similarity (homophily) mattered (McPherson et al, 2001 – see Chapter 1, Section 1.7). A possible upside of *not* being a professional, from the perspective of participants, was that mothers would be likely to perceive

a peer supporter as being more similar to herself. Participants felt that breastfeeding peer support would be less likely to be successful if it was not delivered by a peer from the target community, and that training that was too 'academic' might be less likely to attract the right kids of peers. However, participants also pointed out that in low breastfeeding rate communities homophily is difficult to achieve. Women who *do* breastfeed are, by definition, unusual; meaning that they might not be considered 'like me' by the majority of local mothers. Participants were concerned that middle-class mothers living in middle-class areas were more likely to be attracted to the idea of 'training', while mothers with lower levels of education were more likely to be put-off by the idea of a return to the classroom. They had found it was much more difficult to identify and train women who would be located in areas with low breastfeeding rates.

Style of support-giving

Participants had observed that the relationship between peer supporters and mothers tended to be of a different quality to that between health professionals and mothers. This quality is understood, in part, to be related to having a non-professional status. For example, peers were perceived as having the potential to give information in a way that was easier for a mother to take on board *because* she had the option of rejecting the advice – after all, it was only coming from another mother. The difference was also understood to stem from different philosophies of training. Some participants valued peer supporters who had been trained to deliver support in a person-centred, non-directive way, recognising that this could be empowering for mothers. This non-directive style of helping was contrasted with the usual approach of health professionals.

> A peer supporter will never tell a mother to do something. She will give
> information and allow the mother to make her own decisions about things. […] I
> think Health Professionals like to see things as black and white.
>
> **Nyree (HV IFL/C)**

> I was a bit stuck with the 'support' thing … they kept saying it was to give them
> support. And I would ask what kind of support you mean and never got an
> answer. But listening to them and just talking to ladies who've been with other
> women who've been in or understand the situation and they come out not even
> with ways of dealing with an issue but ways of being there and listening and
> nodding their head in the right way … it's just actually being there to listen.
>
> **Laura (MW IFL/C)**

Participants valued peers who were friendly, warm and empathetic and able to disseminate their own enthusiasm for breastfeeding without putting mothers onto the defensive – participants' perception that these qualities matter is in keeping with the findings from the

review of experiences of breastfeeding peer support conducted by Schmied *et al* (2011), discussed in Chapter 2 (Section 2.3).

Pathway integration

Participants' believed that integration of peer support into the existing health care pathway is key to promoting effectiveness, a belief that is in line with findings form other UK-based research (Aiken and Thomson, 2013),

> I suppose to work most effectively these peer support schemes would need to be embedded within the pathways of support for parents at a local level as part of the service delivery and there would need to be a very close synergy between the formal NHS staff supporting people and the more informal networks and you would want to signpost and refer back
>
> **Sian (MW IFL/C)**

Participants identified several reasons why breastfeeding peer support could fail to cohere with the existing care pathway. The voluntary nature of peer support acted as a barrier. Participants felt that it was unreasonable to expect volunteer mothers, who themselves had multiple competing responsibilities, to be entirely reliable. Some also felt that in a context where levels of existing health care professional expertise and confidence in supporting breastfeeding was lacking there was a very real danger of peer supporters being exploited, so that volunteers became overstretched, and good will expended,

> I'm so protective of my peer supporters […] I'm very aware the NHS can take them in and spit them out. […] suddenly you're the person who knows about breastfeeding […] and everyone gets referred to you.
>
> **Nyree (HV IFL/C)**

Advocates had different experiences of attempting to integrate peer supporters in hospital settings. Trusting relationships and a shared agenda between health professionals and peer supporters was considered fundamental, again in line with findings from other UK-based research (Aiken and Thomson, 2013). **Nyree** spoke about how peer supporters had become integrated into the maternity ward team, taking responsibility for sitting with individual mothers while breastfeeding was established. **Gemma** also found this could sometimes work well,

> Without peer support, parents get varied amount of information – a leaflet – whereas they get someone to talk to them show them a picture a doll, demonstrating positioning and attachment, have a good laugh and bring it to life. Health professionals just don't have time. With peer support you get extra value to those mothers … you know they'll remember it.
>
> **Gemma (MW IFL/C)**

Gemma had encountered bureaucratic barriers in establishing integration in a ward setting, particularly in getting volunteers Disclosure and Barring Service (DBS) checked, achieving temporary employment status, and ensuring that approval was received to ensure that delivery of peer support was compliant with health and safety legislation. Furthermore, some participants had found that peers lost confidence once inserted into ward settings, where they were under the eye of health professionals. **Nyree** noted that considerable professional staff time could be lost in orientating peer supporters and establishing them as part of the team, only to find that they stopped volunteering after a matter of months.

Some participants had observed that mothers felt unsure about imposing on volunteers. Two advocates suggested that these capacity and emotional barriers meant that using peer supporters to fill gaps in the health care pathway as a routine part of care was unworkable and unethical and that investment would be better directed in upskilling Maternity Care Assistants.

> Well, I think peer support is problematic because replacing people constantly, and because with some small investment from health boards and with some healthcare assistant type posts we could […] breastfeeding could really be enhanced if women know they weren't bothering people, because someone who is paid can pop round and sit with you.
>
> **Liz (Policy Lead)**

7.4 Peer supporters as 'mothers and sisters'
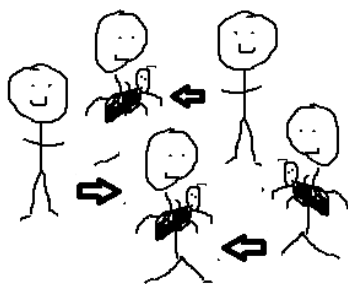
Under the category label 'mothers and sisters' I clustered ideas that reflected an understanding that peer support operates at the level of the group, and with a degree of *mutuality* that is not part of the 'care pathway' cluster of understandings. The distinction between 'peers' – even highly trained peers – and 'mothers' is blurred; so that, sometimes a woman is the recipient and sometimes the supporter. In terms of outcomes, this shared support among groups of mothers was primarily understood to have the potential to improve *experiences* of breastfeeding, with improvement in breastfeeding rates generated as a by-product of struggling mothers finding that they have somewhere to turn. This register for understanding peer support reflected ways in which a sub-culture of normalised breastfeeding could become established.

Establishing a breastfeeding sub-culture

The two photographs of a wealthy of a Cardiff suburb and a Welsh valley town (Appendix D) prompted participants to make comparisons between existing levels of social networks and community support for breastfeeding in different community settings. The most frequently

cited perceived barrier to a change in breastfeeding rates in low income areas was an established culture of formula feeding, which participants understood to have been shaped and re-enforced by a culture of formula feeding in hospitals and by formula-normal welfare policies.

Carrie pointed out that for generations from the 1950s onwards mothers in receipt of social welfare benefits had been entitled to free formula milk as part of that package of benefits. A few participants shared an understanding that a practice of formula feeding had become embedded as part of wider parenting practices, with those practices being handed down from generation to generation from the 1950s onwards. Participants also alluded to usual family helping practices, such as grandparent involvement in providing shared care from the early days, which might either necessitate formula feeding when the mother was absent or require the mother to forgo the help.

Participants also noted that, because generations tend to be closer together in lower income Welsh communities, the likelihood of having a parent or grandparent who breastfed was lower than in areas where the generations tend to be further apart. Mothers tended not to know anyone who had breastfeed. It was also common for mothers never to have seen anyone breastfeeding. Participants understood this this lack of vicarious experience to reduce mothers' self-efficacy, in line with other research findings from a UK context (Hoddinott et al, 2010b). Women who did decide to breastfeed lacked social support, making those decisions difficult to sustain.

> You've got these very closed communities up and down the Welsh Valleys. Nobody goes in and very few people come out and they've been bottle feeding since the 1950s and getting health promotion messages to them in any form is difficult. Just think about smoking and obesity and so it's a nightmare. You may, as a Health Visitor, have only one woman in six months who is breastfeeding and there may be no support for that mother stuck up in the valley, no transport, none of her family and friends [*have breastfed*]. So, you've got to find ways of giving that mother extra encouragement.
>
> **Sian (MW IFL/C)**

For several participants, the two photographs prompted discussion of 'two cultures' of baby feeding, divided by geography and social class.

> I think it's the lifestyle. It's the pressure from those around you who are prepared to give you a lot of support and that's very tempting you know when you are an isolated mum perhaps a single mum. It's almost like you have two ends of the scale. You've got your very educated wealthy affluent, you know *that* mother […] and then the opposite end of the scale is the isolated young mum living in a community where she has never seen breastfeeding.
>
> **Leela (MW IFL/C)**

For **Liz**, the practice of breastfeeding – and particularly of breastfeeding in public places – had become strongly identified with affluent parenting; a by-product of access to leisure time and disposable income to spend in cafes with middle-class women – part of a *'cappuccino-culture'*. **Liz** believed that lack of access to places where breastfeeding feels normal and safe acted as a barrier, especially in South Wales valleys towns; a perception that is in line with PHW commissioned insight research (Cork, 2013). Pointing to the picture of the low-income valley town she said,

> I bet there's not nice little cafes where you can meet your girlfriends and breastfeed in public with no one staring at you.

Liz (Policy Lead)

In this context, trained peer supporters and group based support was understood to provide a community-level sub-culture, enabling information and suggestions about breastfeeding could be contextualised appropriately with the parenting norms of the community setting. Support-giving is not primarily focused on overcoming health-related problems. Rather the focus is on building friendships, these friendships are understood as mechanisms for delivering encouragement and support and value for breastfeeding when there isn't much from mothers' existing social networks.

Participants believed that peer support groups provide social networks in which breastfeeding is considered 'safe' and normal' (Thomson et al, 2012). As with 'care pathway' ideas, discussed above, these 'mothers and sisters' understandings about how peer support works at the level of a sub-community have a good fit with the Theory of Social Support (Barnes, 1954). In contrast to 'care pathway' understandings, however, emotional support, information, feedback and even instrumental support were considered to have an element of *mutuality*. Participants understood mothers to be simultaneously receiving and generating local 'lay expertise',

> Peer support is putting the knowledge and skills of breastfeeding back into the hands of women, where it should be anyway. We deprived them of this by medicalising childbirth and the baby has got thrown out with the bathwater.

Nyree (HV IFL/C)

Mutuality was understood to trigger empathy between mothers who were experiencing problems and those who had experienced similar problems – and it is notable that participants were describing a similar impact of prior experience on empathy that they had personally experienced as a result of their own feeding experiences (see Chapter 6). However, unlike the paid policy advocate participants themselves, peer supporters were understood to be free to tell their own stories. Participants believed that this learning through sharing *real* and *current* experiences of challenges, and stories of challenges overcome was valuable – having the effect of making a mother feel that here difficulties were less acute, more resolvable.

One took [Baby's name], and one gave me a cup of tea. And said '*We'll see you in five minutes*'. And I just remember thinking '*they know that I'd had a bad night*'. It's okay for the midwife or the health visitor to turn around and say, '*Ahhhh*' [*imitation of false sympathy*] *have you had a bad night?*' When they come over and say '*Did you have a bad night?*' '*Yeah, did you?*' '*No, I had a good night*', '*Oh, lucky you!*',* because you know they'd had a bad night a couple of nights before.

Joan (MW IFL/C)

Participants believed that the social and emotional support that mothers received from peers in a group setting had the potential to spill out from the group setting; as friendships developed groups of mothers could begin take to their sub-community out into public spaces,

From a mother's point of view going somewhere where it seems normal is a huge benefit. You see things in the papers where mothers get turned away or kicked off the bus. It's upsetting. Peer support gives them confidence. They make friends. They go out together. And they feel breastfeeding is normal.

Sian (MW IFL/C)

Difficulties in establishing a sub-culture

Participants suggested several reasons why these mutual 'mothers and sisters' support mechanisms might fail to be triggered – particularly in low income and low breastfeeding rate community settings.

Sub-cultures built around peer support groups were understood to provide a challenge to more than existing cultural norms. Participants also gave examples of peer supporters providing an alternative perspective and challenging the 'expertise' of health care professionals. For example, participants noted that a key function of the group was for peers to share information with one another about which health professional is more likely to understand breastfeeding, which GP to avoid, which piece of advice should be respected, which might be anticipated to result in premature breastfeeding cessation. This function of challenging the expertise of health professionals is a key way in which the 'mothers and sisters' cluster of mechanisms differs from a 'care pathway' cluster, the later placing greater emphasis on integration.

Several IFL/C participants had found that groups in low income areas were unsustainable without the bodily presence of health professionals. Some IFL/Cs found it was difficult to step back from these groups. Participants felt that solely peer supporter-run groups varied in quality of help given and in reliability of service. Not all participants felt confident in referring mothers to community-based peer support groups.

Here, **Gemma** is pointing to the need for mutual respect and integration between health professionals and peer supporters – however, her words seem to imply that mutual trust and co-ordination is not 'a given' among health professional colleagues.

We're not working against the peer support groups we are very much working with them and I do think that's got to come from the top whoever is co-ordinating the system has to be very sure that we are all working together and there's no '*oh no, we're better than them*' rot!

Gemma (MW IFL/C)

Participants' experience was that target communities frequently do not have sufficient numbers of women who are breastfeeding, and who have capacity to provide regular support to others, to form a group. Other participants felt that 'going to a group' was itself a middle-class behaviour, and would be unappealing to women living in low-income settings. Some participants had found that peer support groups were difficult to sustain unless they were used by middle-class mothers journeying in from out of area. This was perceived as perpetuating an idea among local mothers that breastfeeding is a predominantly middle-class lifestyle choice. One participant felt that the requirement for peer supporters to 'train' as a breastfeeding supporter (gaining a qualification) compounded this impression.

I think we've an enormous cultural shift to achieve […] I think peer support has a big part to play in that. How we educate, how we reach … part of that is better if it's local people trained. But if you see some motivated middle-class person coming in, saying *'this is how you do it'*, I don't think it will have much impact.

Leela (MW IFL/C)

7.5 Peer supporters creating 'ripples in the pond'
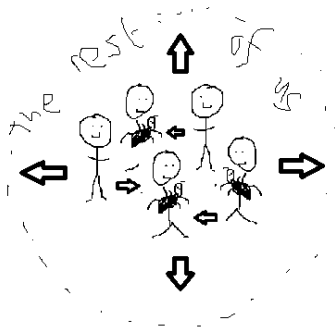
Under the category label '*ripples in the pond'*, I have clustered a register of understandings that breastfeeding peer support works by empowering mothers (who may or may not be trained) to change attitudes, beliefs, knowledge, services or practice in the community setting, or in wider society. Examples included mothers informally passing on information and stories based on their own knowledge and experiences to multiple other mothers, mothers choosing to train as peer supporters, as well as mothers taking up advocacy and campaigning work. The direction of influence for these mechanisms is from a group of mothers outwards towards the wider community and society. Participants perceived potential outcomes relating to social norms, practices and services and that these would be likely to be observed over the medium to long-term.

So it's trying to get individual mothers to have a better experience, feel supported, then they are going to encourage and support their friends, like ripples in a pond. So that is really the long-term goal.

Gwen (MW IFLC)

Several participants understood that mothers who had breastfed themselves often contributed to infant feeding policy goals by diffusing the idea that breastfeeding is normal, achievable and acceptable, by changing attitudes and beliefs. Some participants expressed frustration at the idea that the effectiveness of a peer support group could be measured by counting the women who attend. In complexity terms, they understood peer support training has a potential multiplicative impact (Hawe et al, 2009).

> I think there's a lot of work being done that we can't capture. So for example, the peer supporters we trained, gosh over a 100 peer supporters in the last few years, however, we've only got a core group of about 8 that are actively peer supporting regularly. Now, you could look at that statistic and think *'well, that's awful we've trained over 100 and we've only got 8 working'* but what I'm getting feedback from is there's a lot of stuff going on that we don't know about. So there's stuff going on at the school gate, there's little discussions about breastfeeding and breastfeeding support groups [...] and you know, because a lot of our peer supporters have gone on to midwifery and other things… […] *'Yeah, my friend came to one of your courses, she was telling me about breastfeeding and how easy it was'.* […] I think we could plot them all on a map and see how wide it spreads.
>
> **Carrie (HV IFLC)**

Participants understood that peer supporter training and subsequent peer support activity, in contexts where women's social networks are poor in breastfeeding experience, could have the effect of highlighting the presence of potential role models for breastfeeding success who might otherwise have gone unnoticed in that setting. As such, in complexity terms, peer support training can be understood as activating the latent potential of mothers who had breastfed themselves, by giving them the confidence to share their experiences with others. Trained peer supporters could take their experience and knowledge with them into their every-day life, diffusing positive messages about breastfeeding in multiple every-day settings – at the school gate or in their place of employment.

> You're educating a community and for every one mother that you've done that education with [...] those messages are passed on. So even if they come to us and do a little bit of peer support those messages are still getting out there more widely.
>
> **Leela (MW IFLC)**

This was understood to instigate a chain reaction, so that mothers who had received support from a peer supporter go on to have positive experiences of breastfeeding and so to tell more positive stories to members of their social network; these stories became part of the community discourse on what breastfeeding is really like. Some of these mothers who have been supported themselves could be inspired to train to support many other mothers. So, the motivation generated within peer support groups becomes infectious and influences the levels

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of motivation among health professionals leading to better support for a greater number of mothers… and so on.

As **Liz** describes it, the diffusion work that peers enact has as much to do with *'planting the idea of breastfeeding'* as with supporting and enabling individual mothers to achieve their feeding goals.

> Planting the idea of breastfeeding … if breastfeeding is such an alien concept to this area, okay, and you put a peer support group in this area, even if it has got people from external areas in there, you re normalising breastfeeding in this area. You are putting a bit of *'Oh, it's quite normal to breastfeed in the middle of a café'* and if you've got people walking past – if you've got a girl with a bump walking past, and it does look nice […]. If you can get people in there to see that it's normal.
>
> **Liz (Policy Lead)**

Participants also noted that in order to diffuse the idea that breastfeeding is socially acceptable or even socially normal it would be necessary to have the right diffusion agents, and enough of them,

> **Joan:** If you have somebody with the right personality breastfeeding, you can have a massive chain reaction. Sadly, we can't choose that.
> **Heather:** And when you say 'with the right personality' …
> **Joan:** You can't have someone who succeeds in breastfeeding but they want to cover themselves up and do it behind closed doors they're not going to cause that chain reaction. I don't mean an exhibitionist. But somebody who's happy to talk someone who's bright, bubbly and, *'Yeah! It's working!'* and who's happy for somebody to say, *'Are you really breastfeeding then?'*. *'Yeah, do you want to see?'* …
>
> **Joan (MW IFL/C)**

Being a good 'diffuser' was not simply about being extrovert. Several participants pointed to the dangers of seeing low income communities as homogenous populations. They warned of an unjustified assumption that 'success' consisted of engaging one or two individuals and getting them to 'promote' breastfeeding. There was a danger that the wrong sort of advocate could be off-putting. **Nyree** suggested that you really needed to know your context well to be able to identify good 'diffusers' – she expressed a concern that breastfeeding could itself become embroiled in a feud between different segments of a community who had a long-standing dislike of each other.

How ripple mechanisms relate to other categories of understanding

The 'diffusion effect' that participants felt to be important was understood to arise in conjunction with mechanisms that might be categorised under 'care pathway' and 'mothers and sisters' understandings.

As described above, it was understood that a supported journey would give rise to diffusion of positive stories. Participants found that other women grew in empathy because of personal experience, in the same way that many of them themselves had become more 'passionate' after having their own babies (see Chapter 6, Section 6.2). Participants believed that the positive feelings that arose through mutual support – 'mothers and sisters' type mechanisms – would then begin to provide a direct challenge to existing attitudes, empowering and emboldening new mothers,

> They had a gang within the outer gang, which was the place where they lived
> in, they had a gang that said '*I'm jolly well going to try this. It's not what my*
> *mother would do, it's not what most of my mates are doing, but I'm going to do*
> *it because I'm tough enough, I'm strong enough, I'm powerful enough...*'
>
> **Gemma (MW IFLC)**

In consequence, some women would become radicalised and through collective action, consciously seek to change the context for breastfeeding either in their local community or at national and international level. Hence, over time, a mothers' personal decision to breastfeed could become merged with feelings and positions about the place of breastfeeding in society generally and consolidated by being part a movement for change. This passion becomes a resource that professional advocates can tap into,

> They had us doing a rally down with our babies on the Senate steps, when we
> were waiting for the Equality Act to come through. So, yes, peer support did
> have an influence at that point.
>
> **Joan (MW IFLC)**

However, participants also pointed out that any potential diffusion impact from peer support would be working against the tide. Mothers who felt they had not received much help (a circumstance that participants felt was common) or who had had disappointing experiences of breastfeeding would be simultaneously counter-diffusing a message that breastfeeding is difficult.

7.6 How should impact be measured?

Policy maker participants tended to feel that peer support delivery in Wales had been poorly monitored and that it was likely having poor social reach. Against this, several IFL/Cs were concerned by what they saw as a fixation on counting *active* peer supporters and *numbers* of women who pass through peer support groups – their objection was that this focus on *counting*

was missing the point. These participants were concerned that negative findings from UK experimental studies would lead to disinvestment in peer support in a Welsh context, which they felt was unfair.

They argued that peer support needed time to establish and time to demonstrate effect. For example, **Gemma**, who had been involved in training peer supporters over the previous five years felt that until recently the focus had necessarily been on capacity building rather than on infant feeding outcomes.

> It's taken years and years to get peer support rolling and built up to a size where it actually starts to work and now funding has been diverted to research away from pragmatic support systems to see if it's effective. But from my point of view it's only just started.
>
> **Gemma (MW IFLC)**

Others felt that it was unrealistic to expect a small amount of Welsh Government funding for breastfeeding peer support training to demonstrate quantifiable impact on breastfeeding rates given the multiplicity of countervailing influences. They felt that peer support ought to be considered *part* of the solution and needed to work in conjunction with action to tackle other aspects of the system,

> I think it's a long game. I think that we can't expect peer supporters to change the whole situation, because the political situation, the commercial situation with regards to aggressive marketing of formula milk. You can't possibly mediate all of those things [with peer support].
>
> **Nyree (HV IFLC)**

Several participants expressed frustration that the experimental evidence, which focuses on individual-level outcomes, was not capturing the full impact of breastfeeding peer support, and in particular that evaluations did not tend to look at the long-term 'ripple' effects of intervention, which they firmly believed to be present.

> We know that no education is ever wasted. People often worry that we did all this peer support training but we lost them. You don't lose them. They just turn into secret agents. You know they are going to be cracking grandmothers. Lots of our peer supporters have gone on to become health care support workers a few have gone on to midwifery training.
>
> **Nyree (HV IFLC)**

> A lot of what has happened is difficult to measure because how do we measure what goes on in the relationships that people have in everyday life? [...] Just knowing there is someone down the road who knows about breastfeeding – we really don't know what to measure.

However, I found that participants also tended to be unclear about the sorts of outcomes and impact they felt *were* reasonable to expect from peer support, and about how long they would take to realise. This was further complicated by a recognition that mother-centred peer support is not *directly* aligned with a goal to improve breastfeeding rates. The shift towards supporting bottle feeding mothers and improving maternal experience for all mothers left some participants struggling to conceive of appropriate outcomes for intervention.

> I think peer support has got to be really hard to evaluate. Because each woman is going to give something different, and every woman is going to take something different. 'Right, okay, let's see if peer support can help us to get our feeding rates up at 6 months' or 'our feeding rates up at a year'. That's a scientific thing. But [the newer Unicef standards] have made everything so woolly and more widespread [pause] maybe we can't measure it? […]
>
> **Joan (MW IFLC)**

7.7 Discussion and implications for theory development

A discussion of theories of peer support in Chapter 1 and an overview of the evidence for peer support in Chapter 2 led to the observation that breastfeeding peer support is a variously theorised intervention. In Chapter 3, I proposed that theories of peer support might need to take account of the role of peer supporters in altering the wider context for decision-making. In Chapter 6, I observed that theories that build on the transformative impact of personal experience might be relevant. I noted that, compared to health professionals, the position of peer supporters within a wider system of influences frees them speak to non-health rationales for enabling breastfeeding. I also highlighted that peer supporters are in a position to effect change in community settings in a way that health professionals are not.

In this Chapter, I sought to elicit professional advocates' understandings about how peer support works in Wales. I found that these understandings are heterogeneous and that they could be grouped into three 'registers' – distinguished by degree of mutuality implied and by their implied relationships with wider influences on infant feeding decisions. I found I was able to map these registers onto the complexity-enhanced model of infant feeding decisions that I developed in Chapter 3 (Figure 4, p.74), as presented in Figure 15 (p.175).

Figure 15: Three ways of thinking about breastfeeding peer support
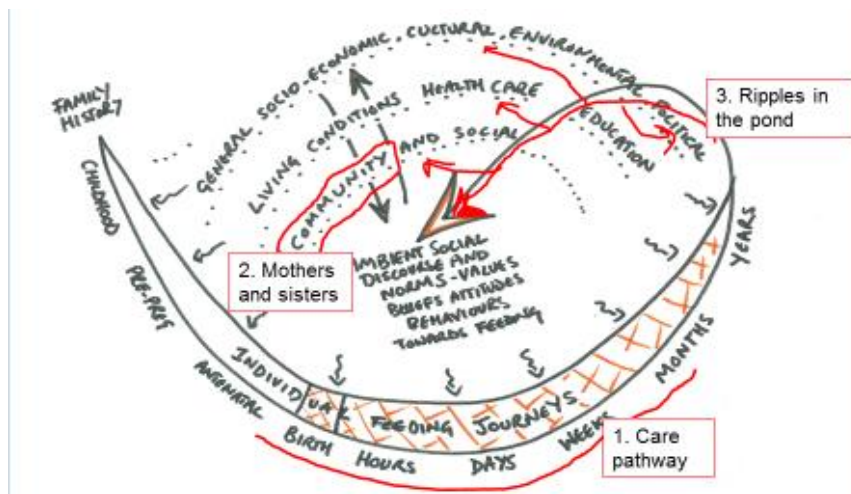
The three registers appear to have different relationships with existing theories, and appear to require different approaches to evaluation. Individual level theories of behaviour change are insufficient to describe all the relationships between peers and the system of influences that participants identified.

'Care pathway' understandings seem to have a good fit with the theory of social support (Barnes, 1954), with peers working with individual mothers to help them to manage potentially stressful feeding journeys. Professional advocates believed that the presence of certain peer qualities would be necessary for successful delivery of social support. These peer qualities included having a non-professional status and a non-directive style of support-giving. In line with other UK research, participants also understood the development of trusting peer-health professional relationships and good integration with the existing care pathway to be key to peer support intervention success (Dykes, 2005b; Aiken and Thomson, 2013). Some participants raised doubts about whether sufficient integration of peer support would be possible in a Welsh context. Considered in relation to implications for evaluation, participant perspectives on 'care pathway' understandings suggest that interventions may need time to establish prior to testing, and that there is a need to take account of interaction between the intervention and the existing care pathway.

'Mothers and Sister's mechanisms appear have some fit with 'social learning theory' (Bandura, 1986), so that new mothers compare themselves with peer supporters who have graduated from the experience of feeding a baby. In contrast to 'care pathway' understandings, mechanisms operating within this register include direct observation and imitation of other mothers feeding their own babies. While these mechanisms still operate at the level of changing the beliefs, attitudes and behaviours of individual mothers, this register of understandings also include interactions between peer support and mothers' social networks;

so that peer support acts as an interruption or challenge to existing social norms. This latter function seems to have a good fit with control theory (Hirschi, 1969). Control theory proposes that through a process of socialisation, people inherit and disseminate customs and beliefs which provide them with the skills and habits they need to participate within their own society – so that people tend to confirm to group-level behaviours and norms. Relationships, commitments, values, norms, and beliefs developed through a process of socialisation encourage them not to commit deviant acts. Control theory emphasises that strong bonds between individuals and society make deviance costly, whereas weak bonds free people to deviate from social norms. Participants viewed the culture of parenting in many low income Welsh communities to assume formula feeding, making it difficult for mothers to deviate from decisions to formula feed if they wished to do so. They believed that the presence of peer support had the potential to facilitate the establishment of a sub-culture, making decisions to deviate less costly. Considered in relation to implications for evaluation, participant understandings suggest that individual-level outcomes around social comfort and self-efficacy may be important, as well as social network level outcomes, such as changes in attitudes and beliefs and changes in mothers' behaviours with regard to help-seeking from within her network.

The 'Ripples in the pond' mechanisms clearly relate to diffusion based understandings about how change happens; if we consider breastfeeding as an 'innovation' and peer supporters as 'early adopters' these understandings may be seen to relate to 'Diffusion of Innovations' theory (Rogers, 2010). In terms of implications for intervention design, these understandings suggest those developing intervention need to clarify *the vehicle for* diffusion (for example, stories, or hands on support, or vicarious experience or campaigning work) as well as identifying communication channels for diffusion. Participants also believe that some 'diffusers' are more effective than others. Considered in relation to implications for evaluation, participant understandings suggest that change in knowledge, skills and attitudes within a social network are likely to be important.

What's missing? What's next?

The three registers of understandings provide an initial framework for thinking about the different ways that breastfeeding peer support might 'work' in a Welsh context and the kinds of outcomes that might be associated with success.

In Chapter 8, I consider these the influential experimental evidence base for breastfeeding peer support. I assess the intended theoretical reach of this evidence base and also explore how interventions *actually* pan out in relation to their contexts – thereby identifying the role of these registers in relation to the intervention theories that underpin experiments and to '*theories of action*' (Harris et al, 2015, p.96). I draw on the experimental case study examples to develop 'propositional statements' about how peer support works; these enhance, contradict and nuance the ways of understanding that have been presented here.

Chapter 8: A chain of mechanisms – a realist review of experiments

8.1 Introduction and contribution to the thesis

In Chapter 1, I described peer support interventions as theoretically heterogeneous, and indicated common theories that have been associated with this form of intervention. In Chapter 2 I concluded my overview of the literature on the effectiveness of breastfeeding peer support by saying that the current evidence base is contradictory, and I made the case for realist review to explore the experience from experiments in more depth, so as to elicit richer understandings about why breastfeeding peer experiments have and have not been successful to better inform decisions about intervention design (Thomson and Trickey, 2013). In Chapter 7, professional advocates confirmed that the experimental evidence base is influential for decision-makers, who use it to determine likely effectiveness of interventions and to inform funding decisions.

In this chapter I present my Phase 2 findings (See Figure 5, p.97). I have applied principles of realist review to breastfeeding peer support intervention cases that have been subject to experimental study in high income country settings (methods are described in Chapter 5, Section 5.5). I consider the findings of the review in the light of the three categories of understandings about how breastfeeding peer support works that are described in Chapter 7 and in the light of the discussion of ecological approaches and components of complexity thinking presented in Chapter 3.

The findings presented in this chapter address Research Question 3:

> RQ3: How can case studies drawn from the experimental literature extend professional advocates' understandings about how breastfeeding peer support works?

For the purposes of this thesis, I intended the realist review to help me,

1. Explore heterogeneity in theoretical underpinnings for breastfeeding peer support interventions and to compare the theory-reach with the understandings of professional advocates in Phase 1.
2. Identify propositional statements from cases that have been subject to experimental study to contribute to further theory building through stakeholder engagement in Phase 3.

Chapter summary

The chapter is structured as follows.

➢ In Section 8.2, I introduce 15 breastfeeding peer support intervention cases, identified from index experimental papers published between 2000 and 2017. I assess the quality of the cases for the purposes of realist review, noting that the cases tend not to include explicit specifications of intended theories of change.

➢ In Section 8.3, I consider differences between cases regarding the breastfeeding rates 'problem' the included interventions seek to address. I note that problems tend to be defined from a top-down public health perspective, that there is considerable variation in problem-specification between interventions, and the presence of inferred secondary 'problems' relating to maternal motivation, inequalities in health, management of resources and countervailing influences.

➢ In Section 8.4, I explore differences in the – largely inferred – theoretical underpinnings for the intervention cases. I discuss differences in adherence to the principle of homophily, in professionalisation of peers, and variation in compatibility with social learning theory, role-modelling and various components of the theory of social support. I note the interventions tend to have limited ecological reach and are restricted to 'care pathway' understandings of breastfeeding peer support identified in Phase 1 (Chapter 7).

➢ In Section 8.5, I report the results of thematic analysis of CMOs extracted from the intervention case studies to identify opportunities and weak points for breastfeeding peer support intervention design. I develop propositional statements relating to seven categories of design, which can be presented as a 'chain of mechanisms'. These are, 'congruence with local feeding norms', 'congruence with the existing care pathway', 'peer accessibility', 'peer qualities', 'interactions inside the mother-peer relationship', 'within-intervention feedback relating to the activity of peers' and 'legacy feedback' .

➢ In Section 8.6, I report the results of analysis of extracted CMOs in relation to the impact of experimental conditions on breastfeeding peer support intervention, noting that implementation failure under experimental conditions is common.

➢ In Section 8.7, I discuss implications of findings for breastfeeding peer support intervention development and theory testing.

The analysis presented in this chapter formed the basis of a peer reviewed article (Trickey et al, 2018). Contributions to the final published paper were noted as follows, '*Heather Trickey designed and led the research, managed the process of data collection and analysis, integrated intellectual content and produced initial drafting. Dr Gill Thomson, Dr Amiee Grant, Prof Julia Sanders and Prof Shantini Paranjothy contributed substantially to data collection, to data interpretation and to drafting. Dr Mala Mann designed the literature strategy. Prof Simon*

Murphy contributed to data interpretation and drafting. All authors contributed intellectual content and approved the final article.'

8.2 Fifteen cases of breastfeeding peer support

The review team identified 15 intervention cases from 16 index experimental study papers, using the search strategy method of case identification set out in Chapter 5, Section 5.5. A Prisma diagram indicating how breastfeeding peer support experiments were identified, developed by Dr Mala Mann, has been published (Trickey et al, 2018).

All the interventions meeting the inclusion criteria were based in the USA (9), UK (6) or Canada (1) – see Table 7 (p.180). Only six of the 16 experiments reported that the breastfeeding peer support intervention had been effective in increasing breastfeeding.

For the remainder of the chapter, I will refer to the intervention cases according to their case number assigned chronologically according to date of publication of the first index experimental study paper relating that intervention case; the relationship between case study and index paper is also presented in Table 7 (p.180).

Quality of the experimental index studies

Eleven index experimental study papers associated with 10 interventions (Cases 2 to 7, 10, and 12 to14) described RCTs. One intervention was evaluated using a quasi-experimental study design (Case 1), and four intervention cases were natural experiments (8, 9, 11, and 15).

Prof Julia Sanders and Prof Shantini Paranjothy conducted an assessment of the quality of the experimental studies according to Cochrane Criteria (Higgins and Green, 2008). Only three intervention cases were assessed as being free from bias (Cases 3, 5 and 12). More than half the experimental studies associated with the included studies were at risk of selection bias (Cases 1, 2, 8, 9, 10, 11, and 15), attrition may have affected the findings from five experiments (Cases 4, 6, 7, 9 and 13) and findings from the experiment associated with Case 14 were at risk of detection bias. Implementation issues affected 10 of the intervention cases. Among the five UK intervention cases there were difficulties in achieving the intended number of contacts (Cases 1, 3, 7, and 15) and in ensuring intervention fidelity (Cases 6 and 7). Of the nine US-based studies, five reported significant implementation problems (Cases 4, 10 and 12 to14).

Table 7: Index studies for the 15 cases, with results of associated experiments

Case	Index papers and country	Goal	Performance in relation to outcomes (intervention vs control)	Evaluation design	Additional case materials collected as part of realist review
1	McInnes et al (2000) UK	To improve initiation rates and continuation rates to 6 weeks to women of all parity living in a socially deprived, geographically defined population.	Significant increase in initiation (23% vs. 20%) after MLR analysis, no significant increase at 6 weeks (10% vs 8%).	Quasi-experimental	Process evaluation (McInnes & Stone, 2001); communication with lead author (August, 2017).
2	Dennis et al (2002b) Canada	To improve continuation rates to 3 months among a geographically defined population of first time mothers who had initiated breastfeeding.	Significant increase in continuation at 3 months (81.1% v. 66.9%).	RCT	Process evaluation (Dennis, 2002a); concept paper (Dennis, 2003); correspondence with lead author (Dennis, April 2017).
3	Graffy et al (2004) UK	To improve continuation rates at 6 weeks among women of all parity 'considering breastfeeding' but without a prior successful breastfeeding experience, in population defined by GP practice registration.	No significant increase in continuation to 6 weeks (65% vs. 63%)	RCT	Sibling study (Graffy and Taylor, 2005); Information about NCT training (NCT Breastfeeding Counsellor Training, n.d. accessed 2018); background breastfeeding rates from infant feeding survey 2005 (Bolling et al, 2005).
4	Chapman et al (2004a) USA	To improve breastfeeding initiation and continuation rates through the first six months among women of all parity who were 'considering breastfeeding' in a geographically defined population of WIC clients.	Significant decrease in non-initiation (9% vs 23%) decrease in discontinuation by 1 month (36% vs 49%) and 3 months (56% vs 71%).	RCT	Sibling study - Secondary Analysis (Chapman et al, 2004b), Communication with co-author - Anderson, May 2016).
5	Anderson et al (2005) USA	To improve exclusive breastfeeding rates at 3 months among women of all parity who were 'considering breastfeeding' among WIC clients intending to deliver in a particular hospital.	Significant decrease in non-exclusive breastfeeding over past 24 hours at 3 months (99% vs 79%).	RCT	Sibling study: Secondary Analysis (Anderson et al, 2007); Communication with lead author (May 2016).
6	Muirhead et al (2006) UK	To improve breastfeeding initiation and continuation rates to 4 months among women of all parity in population defined by GP practice registration	No significant increase in continuation at 6 weeks (31% vs 29%).	RCT	No additional case information

7	MacArthur et al (2009)	To improve breastfeeding initiation rates among women of all parity in a population defined by GP practice registration	No significant increase in initiation (69.0% vs 68.1%).	RCT	Communication first study paper lead (MacArthur, December 2016).
	Jolly et al (2012b) UK	To improve breastfeeding continuation rates at 6 weeks and 6 months among women of all parity, in a population defined by GP practice registration	No significant increase in continuation at 6 weeks (62.7% vs 645%) or at 6 months (34.3% vs 38.9%)	RCT	
8	Gross et al (2009) USA	To improve breastfeeding initiation rates and continuation rates among women of all parity, in a geographically defined population of WIC clients.	Significant increase in initiation (60.9% vs 47.3%).	Natural experiment	Sibling qualitative study (Gross et al, 2015); Training package (USDA, accessed 2017)
9	Yun et al (2010) USA	To improve breastfeeding initiation rates and continuation rates among women of all parity, in a geographically defined population of WIC clients.	WIC agencies using prenatal peer support had significantly higher initiation rates (51.1% vs 48.8%) after adjusting for confounders.	Natural experiment	Training package (USDA, accessed 2017)
10	Di Meglio et al (2010) USA	To improve breastfeeding continuation rates among adolescent mothers who had initiated breastfeeding who were WIC clients.	No significant difference in breastfeeding duration (median 75 days in the intervention group vs. 35 days in the control group).	RCT Low power	Training package (La Leche League, accessed 2017)
11	Olson et al (2010) USA	To improve breastfeeding initiation rates and continuation rates to 6 months among women of all parity who had themselves requested the breastfeeding peer support service, in a geographically defined population of WIC clients.	Significant increase in mean duration (unadjusted increase of 2.6 weeks). Significant increase in unadjusted initiation rates: (49.3% v 68.6%); continuation rates: (8.9% v 17.5%) breastfeeding at 3 months; and (15.3% v 8.6%) (P<0.01) at 6 months.	Natural experiment	Sibling study – health outcomes evaluation (Haider et al, 2014); Sibling study – Analysis of participant characteristics (Bolton, 2009); Training package (USDA, accessed 2017)
12	Chapman et al (2013) USA	To improve exclusive breastfeeding rates at 1 and 3 months among a hospital population of overweight /obese women who were 'considering breastfeeding' in a hospital-based population, hospital serving low income mothers.	No significant increase in initiation (99% in both groups). Non-significant increase in continuation (93% vs 84%) and exclusivity (81% vs 67%) at 2 weeks. After MLR no significant increase in continuation or exclusivity at any time point.	RCT Loss to follow up. Low power. Control contamination	Training package (La Leche League, accessed 2017)
13	Reeder et al (2014) USA	To improve breastfeeding initiation rates and duration and exclusivity rates at 3 and 6 months among women of all parity who were 'intending to breastfeed or considering breastfeeding' who were WIC clients. High background initiation rates – the focus on continuation and exclusivity.	Increased nonexclusive breastfeeding at least 3 months adjusted RR 1. 22 (95% CI (1.10–1.34), relative to a mean of 59%. Increases driven by increases in Spanish-speaking sub-population.	RCT Hawthorne effect indicated by external validity analysis	External validity study (Altindag et al, 2015); Final study report (Reeder, 2008); Communication with lead author (May, 2016); (USDA, accessed 2017)

| 14 | Srinivas et al (2015) USA | To increase any and exclusive breastfeeding rates at 6 months among women who were 'interested in participating' in the study in a hospital affiliated population of WIC clients. The study was designed to adjust for self-efficacy. | After adjusting for self-efficacy, increased continuation at 1 month (34% vs 28%) were significant. The intervention group was more likely to achieve their breastfeeding goal (43% vs 22%). No difference at 6 months (4% continuation in both groups). | RCT | Communication with lead author (May, 2016) |
| 15 | Scott et al (2017) UK | To improve breastfeeding initiation and continuation at 2 weeks and at 6 weeks among adolescent mothers in a geographically defined population. | Significant increase in prevalence of any breastfeeding at 2 weeks (69.6% in intervention period, compared to 33.8% in comparison period). No significant increase above trend at 6 weeks | Natural experiment | Communication with lead author (May, 2016) |

Quality of the intervention case for the purposes of realist review

Intervention cases, rather than the study papers from which the case was identified, were the unit of analysis for this realist review (as explained in Chapter 5, Section 5.5). Each case was built up from study papers, intervention protocols, training manuals and correspondence with study authors, and is considered in terms of its potential to contribute to theory building (See Table 7, p.180; final column).

The cases varied in their suitability to contribute to realist review, as described in Table 8 (p.184). The case-building process yielded additional contributing information pertaining for 14 of the 15 cases. With two exceptions (Cases 2 and 15) specification of intervention theory was weak. It was possible to obtain a description of the intervention components for all but one case (Case 9). All the included cases included some description of the infant feeding context, while the descriptions of the wider social and health service context were often incomplete. The cases tended to measure outcomes that were consistent with the underlying theory of change in as much as an underlying theory of change could be inferred; a possible exception was the Case 1 intervention whose intended mechanisms appeared to operate at the level of the community but which measured individual level outcomes.

Eleven of the 15 cases included discussion of implementation issues. This information was not collated for Cases 8 and 9 – compromising the contribution they are able to make to realist appraisal – and was incomplete for Cases 11 and 12. A published process evaluation was available for four intervention cases (Cases 1, 2, 11 and 13), additional published papers or reports containing information relevant to process was gathered from a further three cases (Cases 3, 5 and 15). Contact with the authors provided the only source of information about implementation for a further two cases (Cases 7 and 14).

Table 8: Assessment of case quality for purposes of realist review

Case quality for purposes of realist review	1 McInnes (2000)	2 Dennis (2002b)	3 Graffy (2004)	4 Chapman (2004a)	5 Anderson (2005)	6 Muirhead (2006)	7 McA./ Jolly (09/12)	8 Gross (2009)	9 Yun (2009)	10 Di Meglio (2009)	11 Olson (2010)	12 Chapman (2013)	13 Reeder (2014)	14 Srinivas (2015)	15 Scott (2017)
Explicit description of intervention theory?		✓													✓
Intervention components described?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wider social, infant feeding and health service context?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outcomes consistent with the (inferred) theory of change?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Implementation issues, take-up and received dose described?	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Process evaluation or published sources for process information?	✓	✓	✓		✓						✓		✓		✓
Overall coherence - was intervention theory tested?	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓

Key: ✓ = clearly described in the case study evidence;
✓ = some description in the case study evidence.

8.3 Heterogeneity in problem definition

To an extent, design components themselves – peer selection, peer training, timing, intensity and duration of the intervention, mode of delivery (face-to-face/ telephone/ text etc.), place of delivery (home, hospital setting, clinic setting) and degree of integration with the existing service – reveal implicit theory underlying interventions. However, breastfeeding peer support intervention designs are also inevitably influenced by a broader set of considerations. These include resource availability, time constraints, logistical or safety issues, current practice and existing policies as well as considerations relating to beliefs and values of the members of the intervention design team. Intervention design to achieve congruence with a (sometimes minimally articulated) theoretical basis is played out in relation to these competing pressures.

I compared the interventions in terms of their underpinning epistemological stance, the problems – both explicit and implicit, that each intervention was seeking to address, the 'fit'

between the interventions and theoretical constructs for peer support operating at the level of the peer-mother relationship, as well as the extent to which the inferred theory of intervention related to mechanisms operating at higher ecological levels and to the lay theories of peer support elicited from professional advocates (Chapter 7).

Heterogeneity of underpinning epistemological stance

Harris et al characterise peer support interventions as being framed within one or the other of two competing epistemological stances (Harris et al, 2013). Interventions underpinned by an *epidemiological health systems perspective* are characterised as taking epidemiological data as a starting point, and as being designed to reflect the values, goals and theories of causation held by public health professionals with outcomes of interest that reflect health system values. Another set of interventions are underpinned by a *community-based social perspective* and as beginning with the experience of people living in the community, designed to reflect the values, goals and lay understandings of causation gained from experience in the community setting, with outcomes of interest aligned with community values.

The 15 interventions could all be categorised as taking an epidemiological health systems perspective on the problem of low breastfeeding rates. Indeed they were included in the review precisely because, being linked to experimental studies, they have the potential to contribute the kind of data which – under traditional hierarchies of evidence assessment – are the preferred basis for public health planning decisions. In every case this formal 'problem' to be addressed appeared to have been identified 'top-down' from a public health planning perspective. With the exception of Case 1, the intervention cases contained little or no evidence of the target population or wider target community having been involved in intervention design. The action-research approach used in Case 1 was used to gain community level participation in intervention design after the intervention focus on breastfeeding rates had been set (McInnes and Stone, 2001).

The intervention cases exhibit variation in the extent to which these goals appeared to be superimposed on philosophies of support-giving that were on the one hand 'mother-centred', or mainly focused on meeting the mother's own feeding goals, at the other 'breastfeeding-centred', or mainly focused on improving breastfeeding rates (McInnes et al, 2013). For example, in Case 3 the intervention peers were highly trained (to Diploma level) in person-centred counselling skills:

> The foundation of the NCT breastfeeding counsellor approach to working with
> expectant parents, mothers and their families is effective listening. This requires self-
> awareness, a non-judgmental attitude and empathy. Mother-centeredness is
> paramount, rather than a problem-focused advice-giving approach.
>
> Muller et al, 2009, p.25 (Case 3, supplementary report).

Case 3 perhaps provides the clearest case of misalignment between epistemological stance underpinning peer training that values maternal feeding goals and an epistemological stance at the level of the experiment that values ability to meet public health goals. In fact, all the training packages that were examined described emphasising listening skills (Cases 3, 8, 9, 11, 13, 14 15) and Case 12 referred explicitly to peers using a motivational interviewing technique to work with the personal goals of mothers. It is not possible, given the data available to order the intervention cases on a spectrum of mother-centred to breastfeeding-centred (Hoddinott, et al, 2012), however clearly some sort of gradient exists.

Heterogeneity in the problem addressed

Despite their shared top-down epistemological underpinning, the 15 intervention cases addressed a range of breastfeeding rate 'problems'. Not only did the cases vary according to the nature and scale of the infant feeding 'problem' addressed, there were also implicit differences between the extent to which the intervention was required to address or overcome subsidiary problems; including problems of maternal motivation, health inequality, complex needs, scarce resources, wider social norms and an unhelpful health care context.

- *The type of infant feeding behaviour being addressed*

An intervention objective to improve breastfeeding rates formed part of the inclusion criteria for this review and intervention cases were included where they had been evaluated with respect to an intervention goal to increase the rate of breastfeeding initiation, continuation and/or exclusivity at any time point. However, comparison across the cases reveals that within this relatively narrow inclusion criterion there is considerable variation in the the scale and nature and of the specific 'rates' problem being addressed.

Nine of the interventions aimed to increase the number of women in the target population who started breastfeeding (Cases 1, 4, 5, 6, 7, 8, 9, 11, 15). Twelve studies aimed to increase the length of time that women continued to breastfeed – with primary outcomes related to 'any' (i.e. not only exclusive) breastfeeding at time points after the birth (Cases 1, 2, 3, 4, 5, 6, 7, 10, 11, 13, 14, 15). Among the intervention cases that focused on increasing breastfeeding durations, time point for measuring a continuation outcome measure varied considerably: outcomes for 'any breastfeeding' were measured at two weeks (Case 15), six weeks (Cases 1, 3, 6, 7 and 15); one month (Cases 4, 11, 14) three months (Cases 2, 4 and 11); four months (Case 3); and six months (Cases 7, 11, 14); and two intervention cases used average increased length of breastfeeding over the early months as the primary outcome measure (Cases 9 and 10). Six intervention cases were studied in terms of their impact on both initiation and breastfeeding continuation (Cases 1, 4, 5, 6, 7, 11, 15). Two studies had a primary focus on improving rates of *exclusive* breastfeeding rates; Case 5 measured exclusive breastfeeding at one, two and three months' post-partum, while Case 12 considered exclusivity at one, three and six months. Intervention Case 7 also considered exclusivity as a primary outcome although addressing exclusivity was not the main focus of this study**.**

The scale of the problem being addressed by the 15 intervention cases varied. I was not able to gather baseline initiation rates for the target populations for every intervention case (local background initiation rates were not obtained for intervention cases 4, 5, 9, 10). However of the nine intervention cases which aimed to improve breastfeeding initiation rates and measured this as a primary outcome, targeted populations tended to have baseline breastfeeding initiation rates below 55%. One UK study, based in Nottingham – Case 15 – targeted adolescent mothers who themselves had a background initiation rate of 48%, but who resided in an area in which the general population of mothers had low, but not very low, initiation rates (68.9%). Another UK study based in Birmingham (Case 7) aimed to improve initiation in a population with a background breastfeeding initiation rate of 70%, just a little lower than the 2010 national average initiation rate at that time (81%). By comparison, a US study – Case 13 – which measured breastfeeding initiation as a primary outcome (but which the study authors clearly indicate was designed primarily to address breastfeeding exclusivity) was delivered against background initiation rates of 90%.

Interventions which aimed to improve continuation rates were also introduced against widely varying background breastfeeding rates. For example, Case 1, an intervention which aimed to improve initiation rates and continuation rates in a low income Glasgow community was implemented against a backdrop of a breastfeeding continuation rates of around 10% at six weeks. In contrast, Cases 12 and 13, which also included continuation rates as primary outcomes, were delivered in the context of background initiation rates of 90% (the highest in the county of Oregon) to a low income population of Latina – predominantly Puerto Rican – women.

- *The problem of weak maternal-motivation*

Cross-case comparison revealed heterogeneity in the extent to which (lack of) intrinsic maternal motivation to breastfeed was perceived to be part of the 'problem' being addressed. The differing extent to which the breastfeeding peer support interventions set out to address maternal motivation is indicated by variation in inclusion criteria. None of the included interventions were targeted exclusively at women who intended to formula feed (i.e. women with very low/no motivation to breastfeed). However six interventions were designed to increase breastfeeding rates among all women meeting the inclusion criteria, regardless of pre-existing levels of motivation (Cases 1, 6, 7, 8, 9, 13). One UK London-based study included women who were 'considering breastfeeding' and who may have had prior 'unsuccessful' experiences but excluded those who had previously breastfed successfully (Case 2). Four studies included all women who were [at least] 'considering breastfeeding' (Cases 4, 5, 12, 13); one study included women who were 'interested in participating' in the intervention (Case 14); one study included women who had already requested the intervention breastfeeding peer support service (Case 11); two interventions were targeted to women who had already initiated breastfeeding (Cases 2 and 10), one of which was targeted to *first time* mothers who had already initiated breastfeeding (Case 2). Variation in inclusion criteria on the basis of maternal motivation has implications for cross-case comparison with regard to the

intended emphasis on the role of peer supporters to encourage/persuade women to breastfeed, as opposed to an emphasis on nurturing, affirming, enabling and facilitating access to help to achieve personal goals.

- *The problem of health inequality*

To different extents these interventions were underpinned by an implicit belief that the problem of lower-than-ideal rates in the target population being addressed was interrelated to a wider problem of health inequality, and an understanding that lower breastfeeding rates contributed to poorer health outcomes among socially disadvantaged groups. Only three intervention cases (one from Canada and two from the UK) were not specifically located/targeted to address the needs of mothers experiencing social disadvantage (Cases 2, 3 and 5); of these, the two UK cases (3 and 6) were in fact delivered to mothers living in areas with rates of deprivation that were higher than the national average. Two further UK studies were specifically located to reach mothers who were living in areas of relative social disadvantage (Cases 1 and 7), while all nine US studies (Cases 4, 5, 8, 9, 10, 11, 12, 13, and 14) were primarily or exclusively targeted at women receiving support from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) on the basis of financial disadvantage (USDA, 2016). Correspondence with the lead author of the Nottingham-based UK intervention (Case 15) indicated that this intervention was explicitly designed to address an identified health inequality in a subgroup that was both socially disadvantaged and less likely to breastfeed than the general population.

Intervention cases that specifically targeted breastfeeding peer support to parents of babies who were premature or experiencing complex medical needs were excluded from this review. However, four of the included intervention cases were designed to address additional complex needs (over and above disadvantage) relating to the situation of the mother. These included two intervention cases targeted at adolescent mothers (Cases 10 and 15). One US study sought to address the specific needs of mothers who were overweight or obese (Case 12). Another US case targeted breastfeeding peer support towards a population containing many recent immigrants (Case 14).

- *The problem of managing scarce resources*

The focus on lower socio-economic groups among the 15 intervention cases was linked to a wider agenda of reducing social inequalities and reflects funding criteria. All 15 interventions were intended to inform resourcing decisions to some extent. This concern was clearly foregrounded in WIC (Women, Infants and Children) funded US studies – the WIC programme is developed from federal grants provided to states for the purposes of providing supplemental foods, health care referrals and nutrition education for breastfeeding and non-breastfeeding mothers and to infants and children up to the age of five who are found to be at nutritional risk (USDA, 2016). Evaluation in this context was explicitly related to the question of whether integrating relatively low cost paid peers into the existing WIC care pathway improved

outcomes sufficiently to justify mainstreaming a breastfeeding peer support component within the WIC programme.

- *The problem of countervailing influences*

Across the case studies, baseline breastfeeding rates were often discussed as indictors of the problem of less-than-ideal social network or local community level feeding beliefs and practices. These norms were sometimes explicitly described as countervailing and were considered to be likely to work against the breastfeeding peer support intervention, so that the breastfeeding peer support would need to overcome the existing norms. However, with the exception of the community awareness raising work described as integral to the Case 1 intervention, the problem of wider social norms was intended to be addressed only indirectly (if at all) through the breastfeeding peer support intervention cases considered here, via direct interaction between the peer supporter and the mother. The beliefs and attitudes of mothers' immediate social networks are scarcely addressed within the case study interventions, though two interventions did make reference to encouraging peers to involve family members in discussions (Cases 1 and 4).

While all 15 interventions focused on change at the level of the individual mother, the authors of several studies indicated that aspects of the health care context compounded or contributed to the problem of low breastfeeding rates. Two UK intervention cases (Cases 1 and 6) were delivered in contexts where health professionals had ambivalent attitudes to breastfeeding and to peer support. Case interventions 1, 12 and 13 were delivered in a context of high rates of formula supplementation in hospital and parents eligible for inclusion in cases 12 and 13 were entitled to free formula milk via their WIC clinic.

8.4 Heterogeneity in theoretical underpinnings

This section addresses the first aim of the review, which was to explore heterogeneity in theoretical underpinnings for breastfeeding peer support interventions and to and compare the theory-reach with the understandings of professional advocates in Phase 1.

As described in Chapter 5, I used a two-pronged approach to identify intended theories; I searched for explicit references to theory and drew on the approach proposed by Leeuw et al (2003), reconstructing theoretical assumptions by working backwards from descriptions of the intervention components or methods. I also considered the intervention cases in terms of their relationship with common theoretical constructs associated with peer support interventions that operate primarily at the level of the peer-mother relationship. These included: the principle of homophily, the position of peers on a lay-professional continuum, theories of social learning and role modelling and theories of social support.

The principle of homophily

Most descriptions of the role of peer supporters were aligned with the principle of homophily (McPherson et al, 2001). For example, the Loving Support™ training programme that formed the basis of training for peers in five US intervention cases (Cases 8, 9, 11, 13 and 14) describes peer counsellors as,

> mothers who have personal experience with breastfeeding and are trained to provide basic breastfeeding information and support to other mothers with whom they share various characteristics, such as language, race/ethnicity, and socioeconomic status. Peer counsellors reinforce breastfeeding recommendations in a socially and culturally appropriate context, and promote breastfeeding as an important element in the healthy development of the mother and baby.
>
> USDA, 2016.

Close investigation of peer selection criteria demonstrated that cases varied in their congruence with the statement from the USDA – see Table 9, p.191. All 15 intervention cases recruited women who had personal experience of the desired behaviour – in other words, they were women who had themselves breastfed at some point in the past. With regard to other personal characteristics, five WIC-based US interventions explicitly incorporated attempts to match individual mothers to peers on the basis of either ethnicity or language within the intervention (Cases 4, 8, 10, 12, 13 and 14). In contrast, a UK study did set out to select peers who were representative of the ethnic mix within the community they served, but did not match mothers to peers at the individual level (Case 7). Of the four interventions targeted to specific population subgroups, both interventions which were targeted to adolescents used peers of the same age (Cases 10 and 15). An intervention which included many recent Spanish-speaking immigrants did match to peers on the basis of first language (Case 13), while the intervention designed to target mothers who were overweight or obese did not select peers on the basis of current or past BMI (Case 13).

Recruitment from the same locality was frequently used as a peer selection criterion, and this seems to have been intended as a proxy for a 'shared frame of reference', thereby improving the credibility and acceptability of information and support offered. For example, Case 1 appears to have been built on the peers' existing status as local mothers within a specific deprived community in Glasgow. The status of 'local mother' was important for all the US cases; the Loving Support™ training package specifies that 'peer counsellors are recruited and hired from WIC's target population of low income women' (USDA, 2016).

Table 9: Cross-case comparison of attention to the principle of homophily

Homo-phily	1 McInnes (2000)	2 Dennis (2002b)	3 Graffy (2004)	4 Chapman (2004a)	5 Anderson (2005)	6 Muirhead (2006)	7 McArthur / Jolly (2009/12)	8 Gross (2009)	9 Yun (2009)	10 Di Meglio (2009)	11 Olson (2010)	12 Chapman (2013)	13 Reeder (2014)	14 Srinivas (2015)	15 Scott (2016)
Has breastfed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
From target locality	✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shares a key characteristic	▨	▨	▨	▨	▨	▨	▨	▨	▨	✓	▨		✓	▨	✓
Further within-intervention matching				✓				✓		✓		✓	✓		

Key: ✓ = yes; cross-hatched = no key characteristic specified

A shared frame of reference based on shared setting was not universally considered to be a necessary quality in the peer. For example, Case 3 deployed NCT breastfeeding counsellors employed by a national charity who lived within a reasonable distance of the women they intended to support but who would not otherwise have anticipated mixing with them socially. Similarly, in Case 2 peers were not in any way matched to the target population. In both these cases – (Cases 2 and 3) – peers tended to be well educated and were working with mothers with mixed educational backgrounds.

The lay-professional continuum

In her concept analysis of 'peer support' interventions, as applied to a wide range of health topics, Dennis (2003) notes that peer support occurs along a continuum from 'lay' to 'professional (Chapter 1, Section 1.7). In my scrutiny of the intervention cases, I found it was not always possible to determine from the collated case information the extent to which the intervention was designed to make use of the peers' status as 'natural' embedded members of the community they served (as opposed to being 'created' helpers introduced into the community) – Table 10, p.192 provides an indication. Two further indicators of professionalisation are contained within Dennis's continuum. These are the extent to which peers are trained to have professional-type knowledge and the extent of 'professional involvement' with the peers. The 15 intervention cases varied considerably in relation to these indicators.

I used length of training as a proxy for the level of expertise intended; 12 of the 15 interventions used peers who had been given between 20-30 hours training, usually delivered over a period of several weeks. Case 4 peers received additional on-going training and shadowing

opportunities beyond the 30 hours. NCT breastfeeding counsellors (Case 3) were generally trained to university Diploma level over period of two years. In contrast, Case 2 peers were given only 2 hours training prior to delivering the intervention.

Table 10: Degree of professionalisation

Status	1 McInnes (2000)	2 Dennis (2002b)	3 Graffy (2004)	4 Chapman (2004)	5 Anderson (2005)	6 Muirhead (2006)	7 McArthur / Jolly (2009/12)	8 Gross (2009)	9 Yun (2009)	10 Di Meglio (2009)	11 Olson (2010)	12 Chapman (2013)	13 Reeder (2014)	14 Srinivas (2015)	15 Scott (2016)
Training															
Less than 20 hours training		✔													
Between 20-30 hours training	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
More than 30 hours training for the			✔	✔											
Integrated															
Employed and managed by health care system				✔	✔		✔	✔	✔	?	✔	✔	✔	✔	✔
Clear referral pathways professional-peer		✔		✔				✔	?		✔	✔	✔	✔	✔
Work on postnatal ward or clinic setting				✔	✔		✔	?	?			✔			
Embedded															
Experience of peer support in context	?			?	✔			?	?	?	✔	✔	✔	?	
Funding beyond life-span of the experiment	?							✔	✔	✔	✔				✔

Key: ✔ = yes; ? = unclear;

I have used two dimensions to compare 'professional involvement' – these are the extent of integration between the peer support service and the existing health care system and the extent to which the intervention was embedded within the health care context. The majority of cases used peers who were employed by and managed through the existing maternity health care system – cases 1, 2, 3 and 5 were exceptions to employment within the health care system, being managed by a voluntary agency or directly via the research project team.

Despite this, a clear referral pathway between the peer and the maternity system was present only in 8/15 cases. In four cases peers delivered support in hospital or clinic settings, working alongside health professionals. Not all the cases in which peer support was (in theory) integrated with the existing system of health care were embedded. Only four case context descriptions – Cases 5, 11, 12 and 13 – included evidence of prior experience of peer support being delivered alongside maternity health care. Only five intervention case context descriptions – Cases 9, 10, 11, 12 and 15 – indicated that funding for peer support would continue beyond the life-span of the experimental study.

Social learning and role-modelling

Only Case 15 referred explicitly to Social Learning Theory as part of the intervention design in published articles, while Cases 1 and 14 made reference to social influence or role modelling as a concepts underpinning intervention design; Cases 4, 5 and 8 referred to use of peer supporters as role models in the introduction to published articles.

The criteria for peer selection and detailed descriptions of training and intended roles allows further inference regarding the extent to which each intervention incorporated elements of Social Learning Theory as an underpinning construct. At one end of the spectrum, Case 1 peers were mothers who had children aged under five years and Case 10 peers were mothers who had breastfed in the past five years – the unarticulated intention underpinning these interventions seems to include new mothers observing peer supporters interacting with their own children, if not actually breastfeeding. In contrast, NCT breastfeeding counsellors (Case 3) were required only to have breastfed at some point in the past and would not have been visiting mothers with their own children in tow. The underpinning theoretical model for NCT breastfeeding counselling training is person-centred counselling (Rogers, 1951). The personal experience of the 'peer' is important to the extent that it can be used to contribute to the 'core conditions' for support-giving (Mearns and Thorne, 2013) – these being congruence (a willingness to transparently relate to clients), unconditional positive regard (acceptance, without conveying disapproving feelings) and empathy (a desire to understand the client's perspective). Within a person-centred approach, self-disclosure is used selectively and only when the supporter has reflected, weighed and judged disclosure to be in the best interests of the suportee.

Theory of Social Support

The intervention cases rarely make explicit reference to a theory of social support (Barnes, 1954; Cassel, 1976) in publications arising (Case 5 is an exception), however, the idea that the peer will help the mother to manage stressful events along a journey of feeding her baby clearly underpins each intervention intention to some extent. As discussed in Chapter 1 (Section 1.7), four types of social support have been distinguished (House, 1981); emotional support, instrumental support, informational support and appraisal support. Working back from

intervention descriptions, the intervention cases appeared to show different relationships with different aspects of social support.

Emotional support and *appraisal* support were clearly intended across all interventions, signified by a focus on listening skills in training materials. Collated material for eight cases (Cases 1, 2, 4, 5, 6, 10, 11, 12) indicates an explicit intention that the peer develop a trusting relationship with the mother. Intention to facilitate relationship development may also be indicated by designs that have a large number of planned contacts or which span periods lasting more than a few weeks (Table 11, p.195), though emotional support is sometimes clearly intended even when the intervention is designed to be low intensity (e.g. Case 3).

All the interventions intended *informational support* to some extent. However, there were different levels of emphasis on using education and persuasion to change mothers' feeding decisions. This seems to have been commonly intended as part of information-giving in interventions with antenatal contacts in Cases 1, 7, 12 and 13. In some cases informational support was used to remedy specific feeding-related beliefs. A particular example of this is intervention Case 12 which set out to address specific beliefs about the introduction of supplementary feeds in the target population.

The interventions varied in the extent to which they intended the peers to provide *instrumental support*. Several US interventions cases were delivered in a ward setting with expert support to overcome problems at the time of the initial feed (Cases 4, 5 and 12). Similarly, Case 3 breastfeeding counsellors were trained to observe feeds and provide skilled help to solve specific problems. In these cases the support was also intended to facilitate access to specific aids to solve problems, including breast pumps, slings and nipple shields. In contrast, Case 2 support appears to have been primarily emotional while Case 10 peers focused on providing social contact.

It was not possible to determine from intervention descriptions whether and to what extent perceived support was intended as a mechanism for behaviour change. However, there are clear design differences between the interventions in the extent to which the intervention was intended to be reactive (contact triggered by the mother) or proactive (contact triggered by the peer); these differences may bear some relationship to contrasting understandings about whether it is the offer of support or the contact with the peer that makes a difference.

Table 11: Planned contacts – as indictors of intended social support

Planned contacts (intended)	1 McInnes (2000)	2 Dennis (2002b)	3 Graffy (2004)	4 Chapman (2004)	5 Anderson (2005)	6 Muirhead (2006)	7 McArthur / Jolly	8 Gross (20089)	9 Yun (2009)	10 Di Meglio (2009)	11 Olson (2010)	12 Chapman (2013)	13 Reeder (2014)	14 Srinivas (2015)	15 Scott (2016)
Timing															
Antenatal contact	✓		✓	✓	✓	✓	✓	✓	?		?	✓	✓	✓	✓
More than one antenatal contact	✓						✓		?			✓	✓		
Within 72 hours of the birth		✓		✓	✓	✓	✓		?	✓		✓			✓
Focus on early weeks	✓	✓		✓	✓	✓	✓	✓	?	✓		✓	✓	✓	✓
Planned contact after 4 months	?	✓						✓	?		✓				
Intensity															
None planned – reactive			✓												
Fewer than 5 planned	✓						✓	✓	?				✓		?
More than 5 planned				✓	✓	✓			?	✓	✓	✓			?
'Negotiated proactive'		✓								✓	✓	✓			
Additional reactive	✓	✓	✓	✓	✓	✓	✓	✓	?	✓	✓	✓	✓	✓	✓
Mode - antenatal															
Primarily telephone							✓	✓	?				✓	✓	
Planned face-to-face	✓								?						
Clinic/ hospital									?						
Mother's home	✓		✓	✓	✓				?			✓	✓		✓
Mode - postnatal															
Primarily telephone		✓	✓			✓	✓	✓	?	✓	✓			✓	✓
Primary face-to-face	✓			✓	✓							✓			
Suppl. face-to-face			✓			✓	✓			✓				✓	✓
Hospital before discharge				✓	✓				?			✓			
Other clinic/hospital									?					✓	
Mother's home	✓		✓	✓	✓	✓	✓		?			✓			✓
Other community									?	✓					

Key: ✓ = yes; ? = unclear; cross-hatched = period not covered by the intervention

Five of the interventions for which information about frequency of intended contacts was available were intended to be low intensity, fewer than five planned postnatal contacts (Cases 1, 3, 7, 8 and 13) while six interventions were intended to be intensive (Cases 4, 5, 6, 10, 11 and 12) – information on number of planned postnatal contacts was not available for two intervention cases. In four intervention cases the mother had a role to play in negotiating the number of planned contacts (Cases 2, 10, 11 and 12). All the interventions for which information was available included a reactive element – the mother could ask for additional support over and above the number of planned contacts.

Ecological and theoretical reach

Having established that the interventions, whilst highly heterogeneous in form, had all been designed from a top-down epistemological stance, I then sought to establish ecological and theoretical reach. I considered the intended ecological reach by mapping my (largely) inferred understandings about what the interventions were intending to achieve against the modified ecological diagram of influences that I presented in Chapter 3, Section 3.5 (Figure 4, p.74). The results of this mapping are presented in Figure 16.

Figure 16: Intended ecological reach of case study experiments
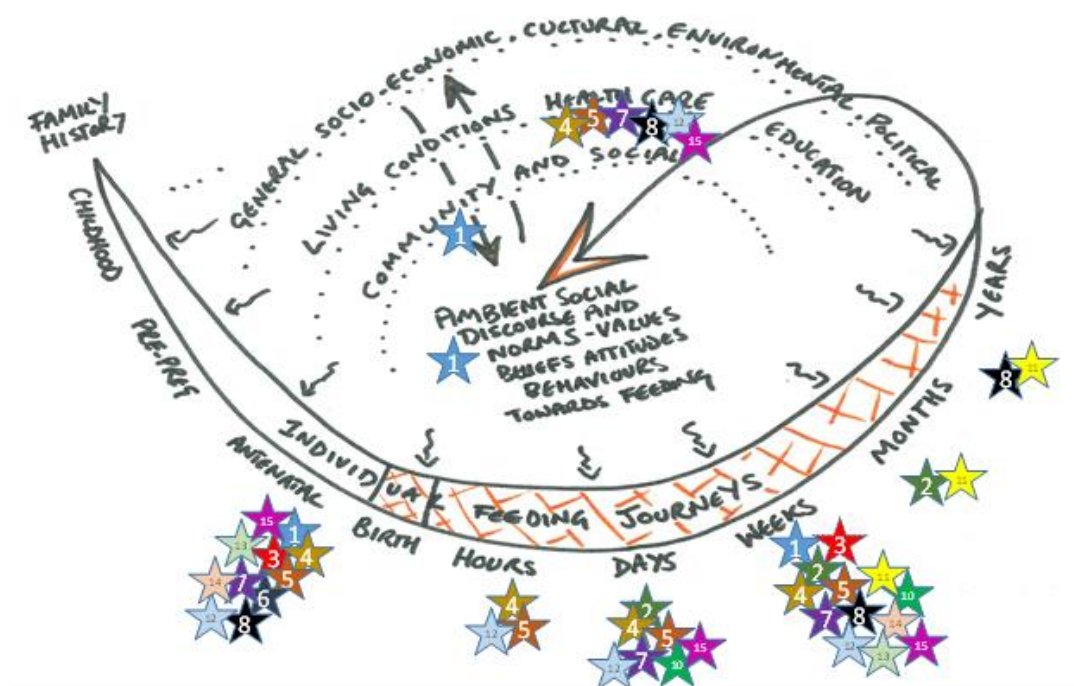
This mapping indicated that the included intervention cases can be considered as falling predominantly under the 'Care Pathway' register (Chapter 7, Section 7.3). This register is consistent with location of the problem to be solved at the level of the individual mother. In terms of mechanisms, and considering the system of influences as a whole, the primary site for change is in the interpersonal space between the peer and the mother. In terms of the

length of women's lives, infant feeding and parenthood journeys, this peer-mother interaction is predominantly anticipated in late pregnancy and in the weeks after the birth.

To the extent that in six cases peers were integrated with the existing care setting, it is clear that the breastfeeding peer support was intended to interact with the health system. However, beyond increasing overall capacity for breastfeeding support within the health care system – congruent with 'care pathway' understandings expressed by professional advocates in Phase 1 (Chapter 7; Section 7.3) the nature of the intended interaction is unclear.

A possible stand-out is Intervention Case 1 (McInnes et al, 2001) as it seems that elements of establishing new social norms through social action and social diffusion are intended (Chapter 7, Section 7.5) However, even in this case, these understandings about the way that peer support makes a difference to higher ecological levels within the system were not formally evaluated.

Several of the included interventions were introduced in the context of other initiatives, including Baby Friendly, WIC policy changes, and local campaigns; however, intervention descriptions tended not to be explicit about the intended interaction between the breastfeeding peer support intervention and initiatives operating at other ecological levels. Again, Case 1 is an exception. The intervention clearly intended to address the community context and clearly intended outcomes resulting from social action as part of the intervention – e.g. local awareness raising activity, and community-based peer support drop-ins. Case 1 peers were also directed to involve family members in their interactions with mothers. Nonetheless, these outcomes were not evaluated.

8.5 Design opportunities and weak points

This section addresses the second aim of the review, which was to identify propositional statements from cases that have been subject to experimental study and to combine them with findings from stakeholder engagement in Phase 3 to extend, contradict and nuance theory development for a Welsh context. The methods I used for CMO extraction, cross-case comparison, and identification of themes are discussed in Chapter 5 (Section 5.5). Appendix E provides an example case extraction sheet.

Taking an ecological framework as a starting point I was able to group extracted CMOs into seven categories of relationships that could be loosely ordered into an ecological hierarchy. These categories made most sense from a design perspective when arranged in a loose temporal sequence (See Figure 17, p.198). This sequencing illustrates their knock-on relationship to one another – mechanisms fired through intervention on the left hand side of the diagram will tend to influence the context as regards triggering or not triggering potential mechanisms in the next thematic category. The dominant temporal relationships between the categories are indicated by the arrows.

Figure 17: A chain of mechanisms.
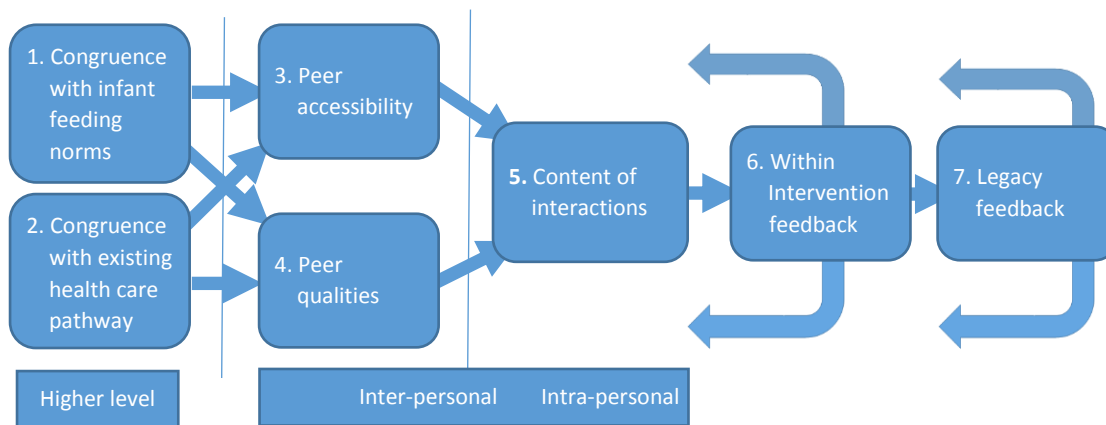
The first two categories (left hand side of Figure 17) concern the relationship between intervention design and higher levels of ecological context. Category 1 concerns the interaction between the intervention design and the social norms context for the target population, for example local social feeding norms. Category 2 is about the existing system of care and ensuring that the effects of the intervention are enhanced rather than contradicted by norms and processes in the existing care pathway. Addressing Category 1 and Category 2 was found to be important in guarding against perceived irrelevance or poor acceptance and consequent implementation failure.

The next two categories (Inter-personal) concern the qualities and availability of the peer supporter. Category 3 is about peer accessibility. While the timing of support needs will vary from context to context (and indeed with the motivation and experience of the individual mother) the need for the peer to be accessible – both in practical terms and in terms of overcoming social and emotional barriers to help-seeking – remains a constant, so that the design focus should be on ensuring a context-specific appropriate level of accessibility. Category 4 relates to the qualities embodied by the peer supporter. While the precise qualities will vary according to intervention setting (for example according to the characteristics, experience, attitudes and beliefs of the target community) the intervention will nonetheless need to trigger a mechanism whereby the mother accepts the peer and believes her to be competent to carry out her role. It is important to address issues identified in categories 3 and 4 to guard against low take-up of the intervention.

Category 5 contains mechanisms relating to the content of interactions between the peer and the mother. This is the level of intended therapeutic change – it is at this level that we discover how and for whom mechanisms such as 'role-modelling' and 'social support' are important. Interpersonal (peer-mother) interaction leads to a change at the intra-personal level in the way the mother thinks, feels or acts – for example, making a decision to breastfeed, to continue breastfeeding or to delay introducing formula milk. The knock-on relationships between

categories (Figure 17. p.198) becomes important at this stage. Achieving any interaction between mother and peer is predicated on a design that addresses Categories 1, 2, 3, and 4. A peer-mother interaction is less likely to take place if the intervention is culturally unacceptable, if there is a failure to integrate it with the existing health care service, if the peer is not perceived to be acceptable or competent or if there are barriers to accessing help. Failure to address higher level design issues can mean that intended mechanisms at the interpersonal level are not triggered.

Thematic categories 6 and 7 concern intervention feedback effects. Category 6 is based on extracted CMO relationships that enhance or dampen the operation of the intervention *over the period of delivery*. Category 7 concerns longer-term feedback effects, including changes to the context that endure beyond the life-span of the intervention and that then influence the context for future intervention.

To summarise, findings of the review indicated that a good design will ensure that:

- The intervention components, processes and goals are sufficiently congruent with existing infant feeding norms to be accepted by intended participants →
- and that the intervention is sufficiently congruent with the existing system of health care to be accepted and integrated →
- and that the peer is accessible to mothers and that she is perceived to embody the right qualities →
- and that the content of interactions between the peer and the mother cause the mother to feel/think/ act in line with the intervention goals →
- and that a positive intervention feedback effect amplifies intervention mechanisms in the direction of intended goals over time, →
- and that the intervention leaves a positive legacy with potential to maintain intervention gains or improve on these beyond the lifespan of the intervention.

I will now discuss the seven thematic categories, the contributing CMO extraction evidence and the propositional statements I developed in relation to each category.

Category 1: Congruence with infant feeding norms

In localities where it was socially normal for parents to give their babies formula milk beyond the early weeks, low-dose breastfeeding interventions that used antenatal intervention to educate and persuade were viewed as irrelevant by many mothers who simply did not want to breastfeed (Cases 1 and 6). Similarly, breastfeeding peer support interventions designed to improve continuation rates among a general populations of UK mothers in areas with low background breastfeeding continuation rates tended to be insufficient to motivate mothers

make use of the help at the point where they were deciding to discontinue (Cases 3 and 7). Two intervention cases indicated that target populations that have multiple competing needs arising from complex personal circumstances may not view the breastfeeding peer support intervention as a priority, for example low income adolescent mothers (Case 10) or recent immigrants (Case 12).

Breastfeeding peer support was not always unsuccessful in areas with low background breastfeeding rates. Quasi-experimental studies of two US WIC-based interventions showed improved initiation rates in a general population of mothers (Cases 8 and 9), however there is insufficient contextual information to draw transferrable lessons about interaction between the intervention and the wider context in these cases.

This evidence led to the development of the following propositional statement to inform future intervention design:

> PS1: The breastfeeding peer support intervention may not 'take' if mothers and key members of their support networks perceive the gulf between the intervention goal and their own pre-existing priorities to be too wide.

Category 2: Congruence with the existing health care pathway

The models of one-to-one breastfeeding peer support embodied by the 15 interventions all relied to some extent on integration with health professional practices and the existing health care pathway. Interventions that were already embedded within the setting and associated with a more professionalised breastfeeding peer support service tended to experience fewer implementation problems.

Poor referral pathways (Cases 6 and 15) and understaffing (Case 4) led to delayed postnatal contact; in settings where many mothers stop breastfeeding soon after the birth this severely compromised the intervention (Case 6). Referral to breastfeeding peer support was more difficult to achieve with respect to highly transient populations (Case 12). Where managers had prior experience of employing peer supporters (intervention cases 5, 8 and 9) sometimes to the extent that breastfeeding peer support referral was already seen as part of usual care (Case 11) – this may indicate that peers already had a perceived value to health professionals, and were seen as part of the team, so that they tended to be experienced by mothers as part of a seamless package of care. Case 8 and 9 breastfeeding peer support interventions were funded in anticipation of new restrictions on provision of formula milk to WIC clients resulting from congressional legislation. This may have meant that the intervention was introduced with some credibility among health professionals and WIC managers, ameliorating integration issues. The experiment associated with intervention Case 9 indicated that where the intervention 'peers' already held some other position within the WIC agency at the start of the intervention this led to improved initiation rates; furthermore, this study indicated that where Lactation Consultants were incorporated as part of the intervention team initiation rates were

higher. These individuals may have acted as champions for breastfeeding peer support within the setting as well as a source of ongoing supervision and support for peers.

Health professionals who were ambivalent or hostile towards breastfeeding peer support intervention presented important barriers to credibility and effective delivery. Mothers tended to receive mixed messages in circumstances where health professionals did not consider breastfeeding support to be valuable or important (Cases 1 and 6). Misaligned policies such as routine in-hospital supplementation with formula milk (1, 12 and 13) or provision of free formula milk to the target population (Cases 12 and 13) also worked against the peer support interventions, while a pre-existing BFI setting may have helped to improve goal alignment (Case 5).

This evidence led to the development of the following propositional statements to inform design with respect to congruence with the existing maternity care setting:

> PS2:   Ambivalent attitudes to breastfeeding among health care professionals and incongruent policies may lead to countervailing messages that undermine the credibility and practicability of the breastfeeding peer support intervention.
>
> PS3:   Well-specified role boundaries and referral pathways, positive prior experience of working alongside peer supporters, and the presence of a health professional champion, can enhance intervention acceptance and help peers to feel comfortable in their roles.

Category 3: Peer accessibility

I identified two dimensions of 'accessibility' as being important to successful delivery and receipt of breastfeeding peer support; these were:

- *Practical accessibility* – is the help available when the mother most needs it and when it can have most impact on outcomes? and,
- *Emotional accessibility* – does the mother feel inclined to make use of the available help?

Practical accessibility: The fact that the peer was not accessible in the days after the birth affected several interventions which were intended to provide postnatal support to enable breastfeeding continuation, including in all five UK-based studies. In some cases, proactive contact in the period soon after the birth was not a planned part of the intervention (Cases 1 and 3); in other cases contacts were often planned but not delivered (Cases 4, 6, 7, 13 and 15). For many mothers, anticipation that support might become available further down the line was not enough to help them overcome these initial challenges. In contrast, in intervention Case 4 – which in practice became a hospital based intervention – a combination of instrumental ('hands on') help and affirmational support in the immediate post-birth period may have led to improved initiation rates. Cases 5 and 15 suggest that receiving intensive (daily) support via a schedule of planned contacts soon after the birth may cause some mothers to

feel that their decision to breastfeed is valued and affirmed, so that they continue to breastfeed for longer than they otherwise would have done. However, there are also indications that in both these cases the motivation to continue was temporary and extrinsic – primarily maintained by continued contact with the peer – the improvements in breastfeeding rates were not maintained as the support from the peer began to tail away.

Emotional accessibility: Several studies indicated that mothers face powerful social and emotional barriers to help-seeking. The finding from Case 3 that reactive postnatal support was not taken up by a quarter of mothers and that many discontinued breastfeeding without contacting the breastfeeding counsellor is out of line with the notion drawn from a person-centred counselling model that handing over control of the helping relationship to the mother will improve her satisfaction with the intervention experience. At first glance, intervention Case 2 – a successful telephone support breastfeeding peer support intervention, in which the schedule of support is agreed in conversation with the mother – appears to suggest that reactive support can be effective. However, discussion with the author confirmed that the Case 2 breastfeeding peer support intervention could be described as 'negotiated proactive' rather than 'reactive' – mothers who were already very motivated to breastfeed (and who had initiated breastfeeding) were contacted soon after the birth and a schedule of contacts was then agreed between the peer and the mother. This time point for an offer of ongoing support seemed to be acceptable for mothers. It is notable that Case 2 mothers almost never took up the invitation to contact the counsellor for additional support on top of the contacts that had been scheduled in advance with the result that some mothers wished the peer had contacted them more often, even though they knew that they were free to contact the peer.

This evidence led to the development of the following propositional statement to inform design with respect ensuring that the peer is accessible:

> PS4: In-hospital support for early feeds can help mothers who have been unsure to firm up a decision to breastfeed.
>
> PS5: Timing of postnatal contacts should map to critical points for discontinuation as indicated by local feeding norms. For example, in low income UK settings where early discontinuation is common, failure to offer support in the early hours and days after the birth will mean that many mothers do not get the help when they need it and will not sustain a decision to breastfeed.
>
> PS6: Peer support that is provided reactively will tend to be taken up by mothers who are strongly motivated to overcome breastfeeding challenges and/or are unusually confident to seek help. This form of support is less likely to be used by mothers who are more ambivalent

or who are unsure about asking for help and is therefore unlikely to improve breastfeeding outcomes.

PS7: A negotiated proactive model of peer support, where a schedule of contacts is agreed with the mother within the framework of a minimum dose, can help the mother to feel that the intervention is meeting her unique needs. However, the support will not be perceived as satisfactory if the negotiated dose of contacts is too low.

Category 4: Peer qualities

It may be more important to ensure that peers are confident, friendly and prepared to be proactive and that they are well-integrated into the existing system of care, than to ensure that they have specific characteristics or specialised breastfeeding knowledge.

There was no consistent pattern in the relationship between the degree of similarity between the peer and the mother and behaviour change. In intervention Case 2 some peers did indicate that they would have been more comfortable had they been better matched to mothers, however this did not appear to affect receipt of the intervention overall. In intervention Case 3, the authors suggested that socio-economic differences between the NCT breastfeeding counsellors and the mothers they supported might have led lower income mothers to feel more reticent about help seeking because they did not relate to the counsellor as being 'like themselves'; however, it is difficult to disentangle the impact of a miss-match in socio-economic status from the fact that the support offered was reactive. It may simply be that a reactive model of support is more likely to be used by middle-class mothers. In some cases adherence to the principle of homophily in peer selection may have worked to undermine the intervention. For example, Case 10 deployed young mothers who, like the young women they supported, had '*multiple competing priorities, sparse social supports and responsibilities*' (Di Meglio et al, 2010, p.46). Many of these peers found delivering the intervention to be burdensome and challenging leading to poor training completion rates and a two-thirds rate of drop-out.

There is some evidence that matching according to specific characteristics can be helpful in cases where cultural or other characteristics directly affect feeding outcomes in the target population. For example, African-American peers deployed through intervention Case 8 were found to be aware of and able to empathise with culturally specific privacy concerns of African-American mothers. Similarly, in Case 13, mothers from a transient Spanish-speaking population who tended not to contact the Lactation Consultant felt comfortable with Spanish-speaking peers, so that Spanish-speaking mothers were more likely to receive all the planned calls and receive additional calls. In contrast, Case 12 mothers experienced additional barriers related to body size, but the intervention did not employ peers who were (or had been) overweight while breastfeeding; this may have made it difficult for them to understand or empathise with the additional challenges arising from countervailing biological mechanisms

including lactogenisis, mechanical mechanisms to do with attachment and positioning, or issues relating to embarrassment and body image.

Integration may have helped peers to overcome their own emotional barriers to making contact with mothers. Where support was highly integrated into a system of care with experience of employing peer supporters this may have meant peers felt valued as part of the health care team with a recognised role and set of contact targets (Cases 5 and11). Where the support was less integrated there is evidence that peers sometimes lacked confidence in working with clients who were less willing to engage (Cases 1 and 2). Case 10 peers often did not feel socially confident to make 'cold calls' to mothers, so that relationships failed to develop. The 'volunteer' status of peers in the Case 3 study may have presented an additional emotional barrier to support seeking among potential clients who 'may have felt unsure' about how much help it was reasonable to ask for, contributing to low take up. I was unable to discern a clear relationship between the extent of training that peers received prior to participating in the intervention and subsequent intervention acceptability or delivery. On the one hand, Case 2 peers, who received only two hours training tended to build successful relationships with their clients, whereas the Case 3 and Case 4 peers, who received extensive training, frequently did not.

This evidence led to the development of the following propositional statements to inform design with respect ensuring that the peer has the qualities needed to enhance the intervention:

PS8:	Peers do not need to be socially matched to mothers or to have specialised breastfeeding knowledge in order to be perceived as friendly and competent and to be experienced positively by the mother. Peers who are able and prepared to be proactive are more likely to be experienced positively.
PS9:	If participants have specific social, cultural or other attributes that directly impact on their feeding decisions, then using peers with experiential knowledge of the defining characteristic(s) may be helpful to bridge the gap in understanding between the mother and the peer and help the mother to overcome specific barriers.
PS 9:	If the target population has complex social needs and multiple competing pressures, then selecting and retaining peers who closely resemble this population will be challenging.
PS 10:	Feeling valued and integrated within the health care system can promote peer confidence, leading to improved peer retention and compliance with the intervention.

Category 5: Inside the peer-mother relationship

Several intervention studies cited the importance of the quality of the relationship between the mother and the peer in contributing to mothers' feeling affirmed and valued in their decision to breastfeed (Case 1, 6, 10) and in turn by valuing the focus on support for breastfeeding they

received (Cases 1, 2, 3, 6, 11), contacts could lead to improved self-efficacy (Case 14). Mothers and peers sometimes perceived the contact with the peer to have been instrumental in enabling mothers to overcome specific breastfeeding challenges (Cases 2, 3, 11). There is some evidence that the perception that support is available if needed (rather than actually taking up support) may provide a 'buffering effect' – so that a sense of being socially attached helps mothers to draw on internal or other available resources to overcome challenges (Cases 2 and 11). The sense that attention is being paid may also help mothers to respond more rapidly to signs that their baby is not well (Case 12).

The opportunity to build a long-term peer-client relationship was experienced positively by many mothers and peers (Cases 2, 11, 14), with contacts over a period of time allowing mothers to discuss and appraise their feeding decisions (Cases 2 and 11) facilitating deeper relationships (Case 2) and enabling the peer to act as a 'trusted advocate' for the mother (Case 11). Mothers and peers tended to find long-term relationships satisfying. However, relationships did not need to be long-term in order to be appreciated and perceived as helpful and long-term continuity of care from a single peer supporter does not seem to be an essential ingredient for breastfeeding peer support in enabling mothers to make and maintain decisions to breastfeed. Short term support was experienced positively by those who made use of the help (Case 3). Good relationships developed in cases where peers were similar to the target community and in areas where they had different social backgrounds.

Antenatal contacts as a form of informational support may cause some mothers to change specific feeding-related intentions and beliefs (Case 1, 3 and 6) and there is some evidence to suggest that first time mothers may have been more receptive to these messages (Case 6). However, a change in intention to breastfeed, or understanding about breastfeeding, did not consistently translate into changed decisions to initiate or continue breastfeeding (Cases 1 and 3). Against a context in which the behaviour promoted by the intervention is unusual, it may have been that intensive support from peers around the time of the birth provided additional extrinsic motivation to breastfeed (Cases 6 and 12), but this was insufficient to overcome countervailing messages from the mothers' immediate social network which gained prominence once the peer was absent.

This evidence led to the development of the following propositional statements to inform design with respect enabling relationships between the mother and the peer that facilitate pro-goal change:

PS12: Mothers who experience a warm and affirming relationship with the peer supporter often feel supported to overcome challenges and meet their breastfeeding goals.

PS13: Peer-mother relationships can deepen over time – continuity of supporter over several months can help mothers to appraise their feeding decision on an ongoing basis. However, short-term support can also be experienced as warm and enabling.

Category 6: Within intervention feedback

Peers' level of motivation to deliver the intervention improves when they feel valued and decreases when they feel that their support is not being used or appreciated. Peers tend to be more responsive to mothers who actively seek their support and convey their appreciation (Case 1, 3 and 14). They feel demotivated or despondent when mothers do not respond to offers of help or decide to formula feed their babies (Case 1, 2, 13 and 14). These feelings have a tendency to cause peers to focus support towards those mothers who seem most responsive – in other words, there is a tendency as the intervention progresses for support to be delivered to mothers who are most highly motivated to overcome barriers to breastfeed (in other words those who would, in any case, have been more likely to continue). For Case 1 peers, this tendency was informally recognised; finding that a large proportion of participants intended to formula feed led these peers collectively to decide to adapt the intervention goals towards enabling informed choice and supporting the needs of mothers who wanted to continue breastfeeding, rather than on persuading mothers to change their decisions.

Lone working or working in conditions where there was little opportunity to meet with other peer supporters tended to exacerbate feelings of de-motivation (Case 2 and 13), while the opportunity to meet socially or for ongoing training tended to improve peers' sense of engagement (Case 1 and 10) .

Statements: This evidence led to the development of the following propositional statements to inform design with respect to ensuring positive feedback within the intervention towards achieving the intervention goals:

Category 7: Legacy feedback

Exploring the longer term impact of an intervention can help identify context-mechanism interactions that sustained change rather than short term gains. The study papers relating to each intervention case tended to focus on short-term study period effects and longer-term impact tended not to be discussed in other sources. Only a subset of interventions continued to be offered to new mothers beyond the study period (Cases 1, 5, 8, 9, 11 and 15). There is some evidence that breastfeeding peer support interventions can benefit peers themselves in the longer term, as they gain skills and confidence from training, purposive activity and feedback from supervisors and colleagues (Cases 1-3 and 10). Broader impacts in terms of intervention legacy observed include increased community activism to improve acceptance of breastfeeding in the target community (Case 1), changes in the perceptions of health care professionals (Case 1) and higher expectations of support for breastfeeding among mothers (Case 14). However, these kinds of changes were not formally evaluated and it is not possible to say whether they were sustained.

The limited evidence to support this aspect of design led to the following propositional statement to inform design with respect to ensuring that the intervention results in an improved context for decision to breastfeed in the longer term:

> PS19: Potential positive legacy effects from breastfeeding peer support include changes in mothers' expectations, the skills and confidence of peers, health professionals' attitudes and beliefs, the policy framework for existing systems of care, and attitudes to and awareness of breastfeeding at community level.

8.6 Impact of experimental conditions

Viewed from a realist perspective experimental studies tell us whether a particular intervention 'worked' in a particular context at a particular time. Observed failure to meet implementation goals and achieve intended changes in behaviour are treated as aspects of the whole intervention case story – a description of 'the things that did or didn't happen' when *this* intervention was inserted into *this* context. The implementation issues attendant on many of the evaluation studies associated with the included intervention cases were also considered in detail through cross-case analysis to understand whether and how experimental conditions themselves contribute to observed outcomes. By looking across cases I was able to identify patterns of causality; for example, to explore how context and mechanism interact to result in a failure to deliver the intervention.

Many of the interventions were temporary, implemented explicitly for the purpose of experimental study (Case 1, 3, 4, 5, 7, 10, 13, 14 and 15), and in contexts with no prior experience of breastfeeding peer support being delivered alongside standard care. This temporary quality meant that the interventions tended to be poorly embedded, failing to cohere

with the existing health care pathway, with unclear referral relationships and low levels of acceptance and co-operation from health care staff. In individualised RCT studies a suggestion arises from Cases 3 and 7 that delivering the breastfeeding peer support intervention to a subpopulation undermined intervention credibility among health professionals (who did not see the intervention as 'standard' to care) and may also have led to compensating efforts directed to the control population. Several interventions had not been through a feasibility testing phase prior to full experimental study, so that during the experimental study period it was discovered that resources were inadequate to deliver at the intended dose, or that logistical issues led to failure of a particular mode of delivery (Cases 1, 4, 6, 7,10, and 12-14).

The effect of an intervention 'bedding in' is demonstrated most clearly in Case 15 – only 4 per cent of eligible women accessed the intervention during the first month, compared to 61 per cent during the final month. Furthermore, experimental conditions appear to have resulted in a Hawthorne effect in at least one studied intervention case (Case 13), as indicated by an external validity study which failed to replicate positive study findings. Intervention cases delivered in settings that were already familiar with breastfeeding peer support did not experience issues with intervention delivery or fidelity to the same extent as temporary breastfeeding peer support interventions (Cases 11, 12). Breastfeeding peer support was up and running prior to the experiments associated with Cases 8 and 9; the case material for these interventions provides little additional information about implementation success, however, both studies reported increases in breastfeeding rates in intervention communities.

The extensive evidence of implementation failure under experimental conditions led to the following propositional statement to inform design and evaluation of breastfeeding peer support interventions:

> PS20   Interventions that are designed for the purpose of experimental study tend to be weakly embedded within the health care pathway. This can lead to breastfeeding peer support having low credibility among health professionals and service managers and to implementation failure.

8.7 Discussion and implications for theory development

Turner and Shepherd (1999) found that their attempts to identify theoretical underpinnings for the peer education interventions were stymied by a lack of explicit theoretical justification. Their experience was reflected in my own attempt to scope theories underlying the 15 intervention cases included in this review. Study authors frequently failed to make the theoretical underpinnings for intervention explicit.

The review also draws attention to heterogeneity in intervention design and to considerable heterogeneity in the properties and scale of the breastfeeding 'problem' that the intervention addressed.

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Despite considerable heterogeneity in intervention design, the interventions associated with experiments are similar in having been driven from a top-down epistemological public health perspective. Considered in relation to the three registers identified in Phase 1, the included interventions tended to emphasise a 'care pathway' understanding of how peer support works; inferred theories predominantly related to the theory of 'social support' (Barnes, 1954). The range of intervention designs suggests that different components of social support were intended to be empahsised to varying extents within different interventions.

The realist review led to the development of a staged thinking tool (Figure 17, p.198) and a series of evidence-based statements as guidance towards intervention development. The 'stages' of the thinking tool suggest that a sequence of interactions need to be addressed, descending through ecological levels. There was a need to address interactions at higher ecological levels (social norms and the health care system) before seeking to activate the inter-personal mechanisms through which – according to the 'Care Pathway' register, identified in Phase 1 – the intervention's active ingredients are delivered. Close consideration of how the case studies played out *in practice* indicates that intervention theories need to incorporate mechanisms for change operating at higher ecological levels. The importance of interactions with existing social norms and with the system of health care underlines that peer support should be considered as an interruption in a CAS (Hawe et al, 2009; Fletcher et al, 2016).

The review confirms the impression of Phase 1 participants that background infant feeding norms can act as powerful countervailing mechanisms for intervention. Mothers living in areas with low breastfeeding rates who are not already considering breastfeeding are likely to be difficult to engage (McInnes et al, 2013). There may be a need for pre-intervention groundwork and a co-production approach to intervention development (Harris et al, 2015) to understand the capacity and appetite for change and to understand social norms.

A mismatch between public health goals (to improve breastfeeding rates) and underpinning mother-centred philosophies echoed the misalignment between formal policy goals and the visceral concerns of professional advocates that were described in Chapter 6 (Section, 6.3). From a public health planning perspective, it is possible to hypothesise that an intervention delivered by peers who have been trained to work towards mother-centred goals (such as satisfaction or meeting a personal breastfeeding target) is expected – if targeted to the right mothers and delivered at the right time with sufficient intensity – to contribute to delivering improved breastfeeding rates. Though not explicitly articulated in any of the case material, it seems that many of the interventions were underpinned by a belief that mothers' own goals and public health goals are sufficiently aligned to achieve a change in primary outcomes.

The review also confirms the experience of Phase 1 professional advocates that the quality of the interaction between the peer support intervention and the pre-existing health care pathway

matters. The review confirms findings from Harris et al (2015) that peer supporters are dependent on professional staff for 'buy in', that interventions needed support from NHS management to facilitate 'embeddedness' and that liaison with health professionals is needed to facilitate the acceptance of volunteers (Harris et al, 2015, p.56).

The review found that both practical accessibility and emotional accessibility are important, and that ensuring peer qualities that contribute to both aspects of 'accessibility' is imperative.

With regard to *practical accessibility*, the review confirmed that support needs to be available at 'pivotal points' on mothers' feeding journeys (Hoddinott et al, 2012) at times when decisions to change feeding behaviour are being made. Hoddinott et al contend that the specific temporal location of these points will be unique to each mother – and therefore support needs to be to some extent flexible. However, they also identify key periods where intervention is more likely to be needed. In a Welsh context where decline in breastfeeding rates is steepest in the first two days after the birth, early intervention is likely to be helpful. In light of this, the finding that breastfeeding peer support interventions trialed in a UK context have been unsuccessful (Jolly et al, 2012a) seems unsurprising as these generally failed to deliver additional support during the first few days.

The second aspect of accessibility identified – *emotional accessibility* – refers to mothers' comfort and willingness to make use of breastfeeding peer support. The review suggests a reticence towards help-seeking may be exacerbated by concerns about imposing on volunteer helpers (confirming the impressions of some Phase 1 participants). Certainly, the findings challenge the view that reactive models put mothers in charge of the relationship and are therefore experienced as more empowering (Seel and Seel, 1990). Nonetheless, the evidence does suggest that an element of maternal control – for example in co-planning a schedule of contacts – can be helpful as long this is based on a minimum proactive series of contacts. There may be some mileage in considering a *negotiated proactive* approach, led by a confident and proactive peer, mediated by the development of a relationship between the mother and the peer and underpinned by a schedule of planned contacts drawn up in line with existing feeding patterns in the target population.

The finding that the peer being similar to the recipient mother does not consistently emerge as an important quality for the breastfeeding peer support intervention cases included in this review is surprising – after all, isn't being a 'peer' what peer support is all about? This finding on the one hand contradicts the experience of Phase 1 professional advocates that the principle of homophily (McPhearson et al, 2001) is important, and on the other confirms their experience of difficulty in training and retaining peers in low breastfeeding rate areas. Similarly, expertise did not emerge as an important peer quality. It may be that if 'expertise' exists somewhere within the care pathway, and if peers are confident and understand the boundaries of their own roles and how to refer, then experiential knowledge and the skills to connect the mother to further expertise may be enough.

This review confirmed the value of *emotional support* to mothers; across different settings and whether or not the intervention was found to be effective in relation to predefined outcomes, mothers who used the support tended to appreciate the emotional connection that came with the peer contact. It is not possible to identify from this review any aspects of training, or ways of delivering the support (e.g. face-to-face/telephone), that consistently led to the development of the kinds of relationships that mothers appreciated across different contexts. As far as can be established, an emphasis on listening to the mother appears to have been intended across all the included cases, though the extent of training to ensure listening skills varied. This review does not enhance our understanding as to whether a structured approach to teaching listening skills to peers – via development of person-centred counselling skills or via a motivational interviewing approach – leads to more effective or appreciated support for mothers than would be achieved without specific training. Indeed, there is evidence (from Case 2) that peer supporters who have had only two hours training in telephone listening skills are frequently perceived as warm and helpful. Neither does the evidence from this review help us understand whether it is better for peers to share information about themselves and their own experiences (tending towards operating in the mode of 'experienced friend') or to withhold such information (tending towards operating in the mode of counsellor).

There is some evidence that health information provided by peers in the antenatal period should be specific, addressing problematic beliefs rather than generalised and that peers should target information to mothers who are more receptive of behaviour change messages. There is no reason to contradict the conclusion from Harris et al that '*Health information must be offered opportunistically, when participants are interested, and ready to receive it'* (Harris et al, 2015, p.80).

The review highlighted a tendency among breastfeeding peer supporters to direct time and emotional energy towards mothers who are most appreciative. This behaviour is understandable and very human. It is also worth considering whether peers may be enacting a rational distribution of their personal resource (time and motivation) by directing their energies in the direction in which they perceived they are making the greatest difference and avoiding wasting resource where they perceive is not possible to make a difference. The feedback effect observed re-enforces the need (discussed above) to ensure that the target population shares the intervention goals, including identifying subgroups (e.g. first time mothers) who may be more open change. An alternative is to realign the intervention goals to better fit with the capacity for change within the intended intervention population – for example, towards meeting mothers own breastfeeding goals (as occurred in Case 1), improving the overall experience of feeding a baby, or ameliorating potential adverse effects of formula feeding.

Even a broadly receptive target population will include individuals with varying levels of pre-existing motivation and support. An intervention to improve breastfeeding rates will be most effective if directed to those who are likely to stop breastfeeding without support but can be

encouraged or helped to continue. These individuals are unlikely to be the mothers who are most receptive to the intervention goals. Clearly breastfeeding peer support interventions that are low contact or reactive and that do not challenge peers to make contact with difficult-to-reach mothers are less likely to reach the mothers who are unsure or moderately motivated. Because working with less motivated mothers is harder, designing opportunities for peer sharing and learning is likely to improve intervention sustainability.

Finally, the review identified several potential impacts of the intervention that might be anticipated to last beyond the intervention period. These included changes in the health care pathway and in the wider community setting. This suggests that registers other than 'care pathway' may need to be considered when developing intervention theory, and that outcomes other than changes in breastfeeding rates may need to be incorporated.

What's missing? What's next?

Case studies contributing to Phase 2 findings had a good intended fit with the 'care pathway' register of understandings elicited from Phase 1, but did not explicitly speak to the 'mothers and sisters' or 'ripples in the pond' registers. However, it is notable that close study of the story of these interventions indicates that social norms are a key controlling factor – and that peer support interventions that fail to engage with social norms will fail – and hint at impact of peer support intervention beyond the confines of the intervention itself. There is a need for further work with stakeholders to understand whether these 'other' registers have resonance for peer support in a Welsh context.

In terms of care pathway effects Phase 2 findings confirm the importance of integration for care pathway models, but also indicate that this is difficult to achieve, particularly under temporary conditions. There is a need to better understand barriers to and facilitators of peer support integration in a Welsh context, particularly given the lessons from Phase 1 about the complex and contested nature of infant feeding intervention delivery.

The findings from this Phase relating to social similarity are surprising, and tend to contradict the instinct of professional advocates gathered in Phase 1. Drawing on the experiences of peer supporters and parents themselves may help us understand the role of social similarity. Furthermore, Phase 2 findings tell us very little about the mechanisms at play *inside* the peer-mother relationship. Yes, the relationship needs to be warm and affirming, but theory building would be helped by understanding what it is that peer supporters actually do and what goes on inside the peer-mother conversation.

In Chapter 9, I draw on the experience of Welsh parents, peer supporters and health professionals to extend, nuance and contradict findings from previous phases.

Chapter 9: Stakeholder perspectives to extend, contradict and nuance theories of breastfeeding peer support

9.1 Introduction and contribution to the thesis

In this Chapter I present findings from Phase 3 of my empirical research (see Figure 5, p.97). The purpose of this phase was to extend, contradict and nuance ideas about how peer support works, building on the three registers of understanding that were identified from conversations with professional advocates in Phase 1 (presented in Chapter 7), and on the findings of realist review of the experimental literature in Phase 2 (presented in Chapter 8).

The findings presented in this chapter address Research Question 4:

> RQ4: How does the experience of Welsh parents, peer supporters and health professionals, extend the understandings about how breastfeeding peer support works, which were gathered from professional advocates and through realist review?

The primary source of data contributing to this phase of the research comprised nine focus groups conducted with Welsh parents, peer supporters and health professionals either at Stakeholder events or gathered separately. Additional sources of data included ice-breaker cards completed by 80 participants at a stakeholder engagement event, and group-completed enhanced ecological diagrams. Methods of data collection and analysis are set out in Chapter 5 (Section 5.6).

Chapter summary

The chapter is structured as follows.

➢ In Section 9.2, I report findings of a preliminary thematic analysis of ice-breaker cards, noting that brief answers to the question '*What difference do peer supporters make?*' speak to the same three registers of understandings for peer support identified in research Phase 1.

➢ In Sections 9.3 – 9.9, I extend findings from Phase 2, using the intervention development thinking-tool (Figure 17, p.198) as a guide for discussing the experiences of stakeholders taking one box at a time. In the discussion of each box, I iterate between findings for the realist review in Phase 2 and my Phase 1 findings, extracting stakeholder perspectives and adjudicating between points of view.

o In Section 9.3, I extend findings relating to interaction between peer support intervention and local feeding norms, highlighting an understanding that in areas with low breastfeeding rates there is a need to locate peer support in the places that expectant and new mothers already are, and to be inclusive of mothers who are formula feeding.

o In Section 9.4, stakeholders confirm a Phase 1 understanding that the Welsh health care pathway for breastfeeding is unreliable and a Phase 2 understanding that integration between the peer support intervention and the existing care context is needed. In the context of an unreliable pathway, peer support can become a repository for 'too difficult' cases.

o In Section 9.5, stakeholders affirm the importance of the dimensions of practical and emotional accessibility identified in Phase 2, and highlight problems in ensuring provision in areas where few women breastfeed.

o In Section 9.6, stakeholders extend findings from Phase 1 and 2 relating to 'professionalisation', highlighting a potential tension between being a 'friend' and maintaining confidentiality, and contradict Phase 2 findings that social similarity between mother and peer are important.

o In Section 9.7, stakeholders extend understandings gathered from Phases 1 and 2 mechanisms at the level of the peer-mother interaction: a) highlighting the role of peers in providing embodied experience of the 'reality' of breastfeeding; b) in enabling other mothers to successfully negotiate a broken care pathway; c), in engaging with mothers' own social networks; and d) in causing women to gradually change their beliefs about what is a 'normal' or 'acceptable' period to breastfeed a baby for.

o In Section 9.8, I confirm that stakeholders have understandings about how peer support works that are congruent with the 'ripples in the pond' register identified in Phase 1 and the within-intervention and beyond-intervention feedback understandings gathered form Phase 2. I note that stakeholders consider peer supporters to be underutilised in terms of their potential wider impact on community and society.

o In Section 9.9, I present a table summarising the ways in which propositional statements developed through Phase 2 realist review have been extended, contradicted and nuanced, drawing on the experience of Welsh parents, peer supporters and health professionals.

➢ In Section 9.10, I consider discuss key findings from Phase 3 of the research in the light of earlier phases. The discussion focuses on interactions with social norms and with the existing care pathway, the importance of social similarity and the role of peer supporters in providing a window into the lived reality of breastfeeding.

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The reporting in this chapter is based on thematic analysis of ice-breaker cards (see Appendix F) and on CMO extractions from the eight focus groups (Appnendix I). Details of the groups are given in Table 6 (p.126). Groups A-D were peer supporters, Groups E-F were mothers living in low breastfeeding rate communities, Group G comprised Fathers living in low breastfeeding rate communities, and Group H were health professionals. Details of CMO extraction from these groups and method of analysis are provided in Chapter 5 (Section 5.6).

9.2 Preliminary analysis – ice-breaker cards
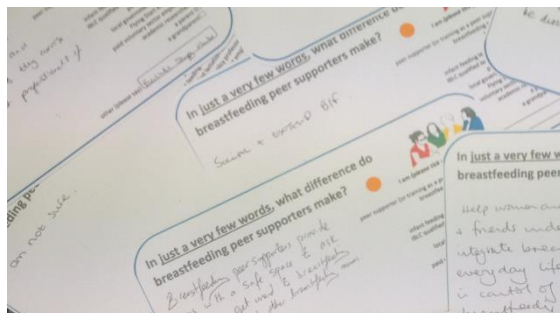
In all, 108 peer supporters, voluntary sector workers, policy makers and health professionals attended the Health Challenge Wales stakeholder event. Ice-breaker cards, which asked participants to describe *'In just a few words, what difference do breastfeeding peer supporters make?'* were completed by 80 participants, of whom 76 ticked a box to describe the perspective informing their response. Nearly all participants self-identified as having more than one role relevant to the delivery of breastfeeding peer support. Ten participants indicated that they had roles in providing support on a voluntary basis *and* providing support on an employed basis as a health care professional or local government/Flying Start employee. Forty-eight participants indicated that they were drawing on their experience as a 'parent' alongside other experience.

The free-text responses on the cards ranged from one or two words to short paragraphs. I categorised responses thematically in relation to the three registers of peer support gathered from Phase 1 (Chapter 7). I found that all three registers of understanding identified in Phase 1 were reflected in the brief responses that stakeholder participants provided (Table 12, p.218).

Card responses and a 'care pathway' register of understandings

Many responses confirmed the finding from Phase 1 and Phase 2 that integration of peer support with the existing system of health care is important, so that peer supporters had an important role to play in working *'alongside'* health professionals, in '*becoming part of the team'*.

The ice-breaker cards confirmed Phase 1 findings that that breastfeeding peer support is seen by stakeholders as both additional *and* remedial to existing breastfeeding support from midwives and health visitors. Some participants believed peer supporters could '*complement NHS staff and help mums sustain breastfeeding'* because they

'*bridge the gap'*. Responses suggested that peer supporters could provide more '*intensive*' '*locally responsive'* support as well as '*continuity of care'*, which would enable women to overcome problems that might otherwise have prevented them from continuing. Of the 72 completed cards, 32 included a spontaneous comment to the effect that the existing care pathway in Wales is inadequate to meet mothers' feeding support needs, confirming the perceptions and experience of IFL/Cs (Chapter 6). These cards referred to volunteer peer support role as compensatory, for example noting that peer supporters are able to attend '*when the midwife is unable to visit'*. One participant wrote, '*In my area they are the main source of support for breastfeeding'* and other said that peer supporters were '*more helpful than the midwives'*.

Participants' responses also reflected an understanding from the Phase 1 research that peer supporters enhance mothers' experiences of the care pathway by introducing a different *style* of support-giving. In line with findings from Phase 1, participants believed that the fact that peers were '*non-professional'* changed the way that support was given and received – making peer support less authoritarian and intimidating. Again in line with Phase 1 findings, several responses noted that peer supporters applied a different underlying philosophy to support-giving compared to health professionals; specifically, peer supporters were understood to focus on empowering the mother, working towards mother-centred goals and building maternal self-esteem. Several participants highlighted that individual peers could serve as a '*role-model'* and others thought that peer supporters differed from health professionals because they were free to share their own direct experiences of breastfeeding with the mother.

Card responses and a 'mothers and sisters' register of understandings
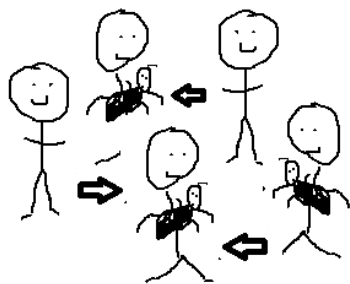
The most common response gathered from the ice-breaker cards was that peer support made a difference by providing a community in which breastfeeding – and particularly longer-term breastfeeding – is normalised.

Confirming findings from Phase 1, peer support groups were understood to provide a '*safe space'* and a '*relaxed and friendly context'* for establishing and overcoming problems. Eighteen participants referred to the importance of mutuality in delivering different aspects of social support, and of the importance of group experiences and friendship as part of enabling breastfeeding. Mechanisms that were understood take place in groups included mothers learning from one another, de-bunking myths together and drawing on one another's experiences through tricky periods. Several participants felt that peer supporters were well placed to enable women to integrate their breastfeeding journeys with other aspects of parenting.

Card responses and a 'ripples in the pond' register of understandings
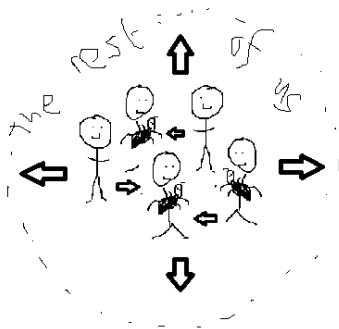
Eight cards referred to peer supporters changing '*community attitudes*' and several responses mentioned peer supporter '*passion*' as a mechanism by which individual peers were able to make a difference to the attitudes and behaviour of others. A handful of cards referred to peer supporters as activists, '*championing'* the cause of breastfeeding support within their local communities and beyond, improving local services and pushing back against wider societal pressures to formula feed.

None of the above

In retrospect, I reflect that the question I posed on the ice-breaker cards was leading. It assumes that the participants believed peer support *does* 'make a difference' and may tend to imply that this difference will be positive. A few Health Challenge Wales event participants rejected the premise of the question posed on the card. Four cards indicated that participants were unsure whether breastfeeding peer support had any effect at all. Three cards indicated that the participants felt that peer support could be unsustainable or have poor reach. Two participants highlighted a risk of a negative impact from peer supporters giving mothers poor or inconsistent advice.

Table 12: Thematic analysis of ice-breaker card responses – 'What difference do peer supporters make?'

Phase 1 category	Aspect of category	What difference do peer supporters make?	No. of cards
Care Pathway	Remedial	Being the service in the absence of a service (filling gaps in provision / freeing up HP time	16
		Providing support that enables women to sustain breastfeeding for longer (continuation)	7
		Continuity of care / more intensive support	7
		Providing support on the ward	2
	Linking to support	Links between health professionals and mothers / signposting / part of the team	12
	Social support	One-to-one advice/ knowledge / help establish and sustain breastfeeding/ trouble-shooting	12
		One-to-one emotional support / compassion / empathy / listening	12
		One-to-one giving / signposting information or breastfeeding aids/ facilitate choice	11
	Different approach	Direct role model / mother benefits from peer sharing own experience of breastfeeding	14
		Empowerment / confidence/ mothers' own goals / mother in control / self-esteem	11
		A non-judgmental / mother-centred / non-hierarchical way	8
		Facebook support	1
Mothers and Sisters	Normalising	Normalising breastfeeding in a community / social network setting	21
		Providing a safe space for breastfeeding / relaxed and friendly context	10
	Mutual support	Shared experience / group/ reassurance / mutual support / social / friendship	18
	Part of parenting	Linking to broader parenting issues/ confidence in parenting/ part of life	6
	Family context	Linking with family, including partners and grandparents / a buffer for family attitudes	4
Ripples in the pond	Empowered peers	Benefits in terms of skills/ empowerment for peers themselves	3
	Changing community	Change in community attitudes	8
		Sharing passion or enthusiasm (infectious)/ being a 'champion'	9
		Re-empowering communities by disseminating knowledge and skills	4
Not accepting premise	Makes no difference	Not sure / makes no difference	4
		Unsustainable intervention / shot term/ poor reach	3
	Makes things worse	Potentially detrimental inconsistent advice	2

Responses were provided by 80 participants. Many participants indicated more than 'difference' on each card

9.3 Feeding norms – including mothers using formula
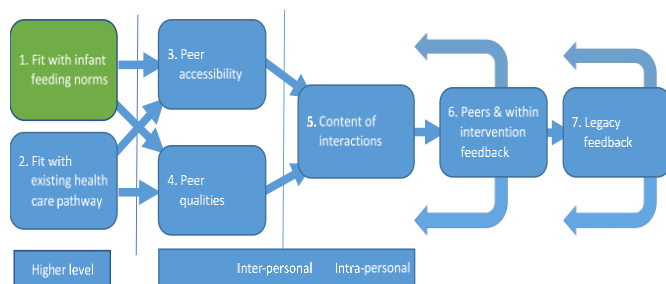
Mothers, peers and health professionals affirmed the perception of Phase 2 advocates that peer support provides a sub-culture in areas where breastfeeding rates are low. They also confirmed findings from Phase 2 that intervention goals need to be compatible with local feeding norms.

Peers working in low breastfeeding rate areas confirmed that women's social networks contain myths about the kinds of women who can't breastfeed; for example, women who have had a caesarean, and may lack access to a sufficiently strong counter-message. Mothers living in low income areas could come to feel isolated once health professional support was withdrawn.

Focus group data confirmed a common understanding that peer supporters, and particularly peer support *groups*, provided a context for *'normalisation'* of breastfeeding (**Group D peers**)*.* Confirming the finding from professional advocates in Phase 1, that peer support group can provide a sub-culture, or, as one peer supporter put it, an *'alternative village'* (**Group B peers**).

Peer supporters and mothers living in low breastfeeding rate areas suggested that, by attending a group, mothers developed confidence in breastfeeding and were helped to integrate the practice of breastfeeding within 'normal' parenting, including breastfeeding older babies. In the context of a breastfeeding-poor social network, peer supporters felt that their role in providing social support for breastfeeding mothers, was as important as their role in problem-solving.

> **Participant 4:** Any issues I'd have would have been dealt with at home and then, funnily enough, as soon as I could I wanted to come and meet other mothers who were breastfeeding, that's when I, as a mum breastfeeding, before being a peer supporter I came along to this group. I wanted to be around other people breastfeeding **(M)**.
>
> **Participant 7:** Purely because it's not in, it's not so accepted in society, I don't know many people **(C)**.
>
> **Group D, peer supporters**

On the other hand, stakeholders believed that in areas with low breastfeeding rates, peer support needs to include mothers using formula milk, while upholding and enabling the decisions of women who planned to breastfeed (**Group A peers, Group B peers, Group F mothers, Group H health professionals**). Peers and mothers felt that providing help in a neutral venue visited by mothers regardless of feeding status -– such as a soft play area or attaching to baby massage – could help avoid mothers who were formula feeding feeling excluded (**Group A peers, Group B peers, Group E mothers**). Mothers pointed out that in communities where most women formula feed, a breastfeeding a mother will be likely to have friends that are formula feeding (**Group F mothers**). If the group excludes formula feeding mothers, then she will be less likely to attend.

I have never been to a breastfeeding group, probably because none of my friends were [breastfeeding] **(C),** because I went to Baby Massage, which is in the same building, but I picked up with some friends that none of them went to [the breastfeeding group] **(M).** We went to other groups, so that breastfeeding group just fell by the wayside, and I had every intention of going, but it got so long, and no one was going, I just didn't go **(O).**

Participant 5, Group F, fathers

One peer supporter said that they had changed the name of their group from 'breastfeeding support' to 'mum-to-mum' specifically to make it more welcoming to mothers who were using formula milk.

In summary, stakeholders confirmed propositional statement relating 'infant feeding norms' that was developed in Phase 2 and extended the findings through a process of aggregation and CMO comparison – described in Chapter 5, Section 5.6 – this led to me developing an additional propositional statement – see Table 13 (p.238).

> PS21: In areas with low breastfeeding rates, peer support groups are more likely to be attended if they are located in places that expectant and new mothers already attend and if they are inclusive of mothers using formula milk, while upholding and enabling decisions to breastfeed

9.4 The care pathway – patching potholes
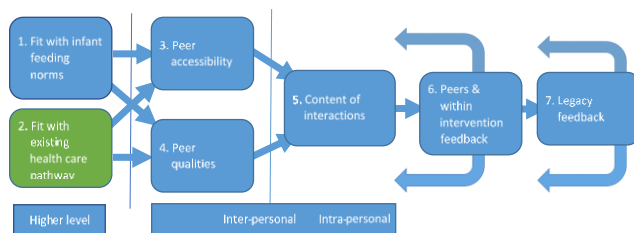
Mothers, fathers, peer supporters and health professionals shared a perception that usual care for breastfeeding in Wales is variable and that there are aspects of usual care-giving that tend to actively undermine mothers' breastfeeding goals (**Group A peers, Group B peers, Group C peers, Group D peers, Group E mothers, Group F mothers, Group G fathers**). Parents and peer supporters tended to be more negative than health professionals; with some of the most negative beliefs about the impact of usual care being held by mothers and fathers living in areas with low breastfeeding rates.

Consistent with the experience of Phase 1 participants, stakeholders tended to perceive that midwives were time poor (**Group E mothers, Group F mothers**). Participants shared examples of mothers who had intended to breastfeed leaving hospital without breastfeeding having been established and then switching to formula feeding as a solution to unresolved problems (**Group A peers, Group E mothers**). One father described his wife as having experienced '*conveyer belt'* care. One peer supporter suggested that lack of time sometimes led midwives to take short-cuts, for example by physically handling the mothers' body directly, rather than enabling the mother to learn how to feed her baby or express milk herself,

> [The baby] wouldn't feed properly **(C)** and the midwife in the hospital just basically manhandled me **(M),** she did it, she didn't say, *'Do you know how to manually express?'*

She didn't have the time **(C),** she just did it **(M)**. And, I was like, *'Oh!'* Like horrified! And, erm… so I didn't learn how to do it **(O)**, she was doing it all for me, whereas, if you are hands off …

<div align="right">**Participant 7, Group D peers**</div>

One mother living in a low breastfeeding rate area believed that midwives simply don't have time to be empathetic and could come across as '*harsh'* (**Group F mothers**). Lack of time was also linked to failure to pass on key information; for example, mothers felt that they would have benefited from knowing that frequent feeding in the early days is usual (**Group E mothers**) and that it is possible to combine breast and formula feeding (**Group E mothers**).

Echoing perceptions from Phase 1 that the experience and belief of the supporter matters, mothers perceived that midwives who had not breastfed had given *'text book'* help, which lacked empathy (**Group F mothers**). Peer supporters also suggested that some health professionals lacked the skills and confidence to help mothers who were struggling with breastfeeding,

I don't want to get into Health Visitor bashing, because some of them are amazing, but I had one when I had my second daughter and, I've only met her once, and in the half hour I met her she said the phrase – I don't think it was intentional – *'well, one of the problems with breastfeeding…' four* times **(M).**

<div align="right">**Participant 5, Group A, peers**</div>

Hospital practices that require babies to be feeding adequately before the mothers and baby are discharged were also experienced as working against decisions to breastfeed.

I was desperate to go home, I was. And then all they kept saying to me is*, 'until he's feeding regularly, you can't go home. So, if he's feeding […] by 6.00pm tonight, then you can go'* **(C).** So basically, they came to the curtain and I pretended he was latched on **(M).** I said *'He's feeding absolutely perfect, I'm going. I'm not staying any longer'*. I thought, once I get home, I'll sort it out.

<div align="right">**Participant 1, Group E Mothers**</div>

Peer supporters believed that they had a responsibility to get to know the local health professionals and to build up relationships of trust, thereby facilitating appropriate referrals (**Group A peers, Group B peers**). Peers and mothers and health professionals all felt that if a mother turned up at a peer support group with an issue that was beyond the skills of the supporter the peer supporter should be able to put the mother in touch with a professional who could provide additional highly skilled help to solve the problem (**Group B peers, Group F mothers, Group H health professionals).** However, in practice peers found that if health professionals were over-stretched or under-skilled, the referral pathways would work in the opposite direction, with health professionals referring mothers with difficult-to-solve problems to the peer support group (**Group A peers**).

Stakeholder groups confirmed an observation from the interviews with professional advocates, that because the whole care pathway was under-resourced to meet mothers' breastfeeding support needs,

the peer support group was sometimes used as a repository for *'too difficult'* problems, passed on by health professionals,

> It was mums coming with problems that, actually, we felt, as peer supporters, we weren't equipped to deal with **(O).** Lots of mums coming and saying, *'Oh, I've been sent by…'*. We had one mum come and say she was sent by her GP to ask the peer supporters to diagnose if the baby had a tongue-tie, *from the GP!* **(M)** But that impacts negatively **(O),** because sometimes… I think at one point we had some health visitors who were almost seeing it as, *'right, let's get rid of this one because we don't' know what to do with them, we'll send her to the group'* **(M).**
>
> **Participant 4, Group A peers**

Similarly, peers working in a ward environment felt that if a mother they were supporting was running into difficulties, and the lactation consultant (usually the hospital's infant feeding lead) was unavailable, the midwives on the unit might be unlikely to be able to solve the problem (**Group B peers**). Mothers were concerned that the patchy and inconsistent care might lead peer supporters to take on more voluntary work than they could handle (**Group E mothers**).

Peer supporters believed that health professionals are key to integration, achieving this by raising awareness at antenatal clinics by referring breastfeeding mothers for help soon after the baby was born (**Group A peers, Group B peers**). This was considered especially important when women are returning from hospital. As one peer supporter working in a low breastfeeding rate area put it, *'Our biggest problem is getting them before they've stopped'*.

Some peer supporters had found that where referral from health professionals was *'patchy'* or if Health Professionals were *'not on board'* with peer support, there would be a low through put of mothers and periods of poor attendance, causing groups to *'grind to a halt'* (**Group A peers**). While peers appreciated Health Professionals dropping-in on the peer support groups, some found that they were often too busy to keep up this level of commitment (**Group A peers**). Peers found that mothers were sometimes unaware of community-based support.

> The information isn't available to new mums **(C).** I found out about this place when [baby] was five weeks old. It was [peer supporter] I think they forget with breastfeeding, you need support in days, in hours, in minutes. It's immediate. If you don't' get that support immediately **(M)** then you're going to stop **(O).**
>
> **Participant 3, Group D Peer Supporters**

In summary, stakeholders confirmed the propositional statements relating 'the existing health care pathway' that were developed in Phase 2 and extended the findings through a process of aggregation and CMO comparison – described in Chapter 5, Section 5.6 – this led to me developing an additional propositional statement – Table 13 (p.238).

> PS22: If the care pathway is under-resourced and health care professionals have a lack knowledge and skills, there is a risk that breastfeeding peer support will become

9.5 Accessibility – ensuring timely help

Participants recognised a need for peer support to be delivered in hospital or shortly after a return home. Help at this time viewed as necessary because mothers tend to leave hospital before breastfeeding is firmly established. As one father put it,

> **Participant 1:** I think sooner rather than later. When the baby is born, you could be in there a few days after you get home. So, if you don't latch on or anything in that time **(C),** it could put you off doing it at all, whether you've got help at home or anything then. I think it needs to be there when the baby is actually born **(M),** they can go through it with everyone, show them how it's done properly **(M).**
> **Heather:** What do other people think?
> **Participant 2:** I agree.
> **Participant 3:** Yeah. My wife was left to herself.
>
> **Group G, fathers**

Stakeholders felt that support needed to be continuously available through the early weeks to be effective (**Group A peers, Group B peers, Group D peers, Group F mothers**). A crisis point could occur happen at any time, *'in days, hours or minutes'* (**Group D peers**). In crisis, women needed emotional support and reassurance, to be listened to and encouraged to hold off a decision to switch to using formula milk,

> You know, if somebody could just answer the phone and say, *'It's okay, you're okay'*, just explain the situation, not necessarily go to the house, but just talk to you **(M),** because breastfeeding is 24 hours, you don't stop **(C),** there's not like a '*Oooh, I can clock off now?*'
>
> **Participant 5, Group D peers**

Stakeholders recognised that peer support provision is patchy (**Group A peers**). Where available, groups might only run once a week and the support might not be within walking distance (**Group A peers, Group D peers**). Furthermore, stakeholders experience was that peer support was less likely to be available in deprived areas (**Group H health professionals**) as fewer mothers breastfed and fewer could be encouraged to take up training. In line with Phase 1 and Phase 2 findings, peers felt that groups in deprived areas were difficult to sustain (**Group D peers**).

In line with findings from Phases 1 and 2, peers were understood to be subject to financial and family constraints so that 24-hour access was an unrealistic proposition (**Group D peers**). Peers felt that voluntary support in hospital would be unsustainable if the travel and childcare expenses of peers were not covered (**Group D peers**). In the absence of group-based help, participants suggested alternatives

to obtaining peer help, including contacting a peer supporter by telephone (**Group D peers)** or by text (**Group F mothers**), or by joining a Facebook support group (**Group D peers, Group F mothers**).

Peers confirmed Phase 2 findings, that mothers need proactive help. Mothers confirmed that they felt uncomfortable about asking for help (**Group E mothers, Group F mothers**). Peers (**Group C peers, group D peers**) and mothers (**Group F mothers**) thought that an opportunity to meet the mother in the antenatal period might facilitate relationship-building, though some felt that contact too early in pregnancy would cause the mother to forget that the support was there (**Group D peers**). However, mothers in also identified the possibility of feeling pressurised as a possible downside to proactive contact from a peer in pregnancy (**Group F mothers**).

> You're thinking, '*No. Just give me…*' I don't like being told what I want to do **(C),** I wouldn't like having someone four weeks before the baby is born, giving you so much advice (M) and, you know, which… whether you want to go without someone telling you, and then you get it wrong and to, '*Oh, I give up. Just give me a bottle'* **(O).**
>
> **Participant 4, Group F, mothers**

Postnatally, one father suggested that contact from the partner to a peer supporter after the baby was born would help ensure timely help (**Group D peers**). Mothers and peer supporters (**Group A peers, Group B peers, Group E mothers**) felt that attending a group for a first time could be daunting, and that ensuring that a mother is accompanied on her first visit would help her to feel more confident. One mother suggested that a soft entry into help seeking, for example via a peer support Facebook page, might help mothers to feel that they were working to their own agendas (**Group F mothers**).

In summary, stakeholders nuanced and extended the propositional statements relating 'accessibility' that were developed in Phase 2, through a process of aggregation and CMO comparison – described in Chapter 5, Section 5.6 – this led to me developing four additional propositional statements – Table 13 (p.238).

PS23:	In-hospital breastfeeding peer support assumes a high level of care pathway integration, which may not be realistic.
PS24:	In low-income, low-breastfeeding rate areas, the presence of fewer breastfeeding mothers, with limited spare resource, means that ensuring accessible peer support for mothers in crisis situations is problematic.
PS25:	Too much breastfeeding-centric peer support contact before the baby is born may lead mothers to feel that they are being pressured to breastfeed.
PS26:	Involving partners in facilitating negotiated proactive support may improve the likelihood of this being taken up.

9.6 Peer qualities – not 'suited and booted'
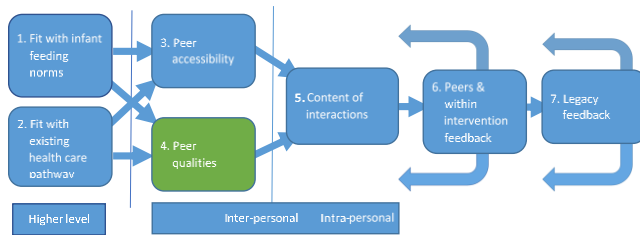
Stakeholders extended findings from Phase 1 and Phase 2 findings about the 'professionalisation' of peers and about the principle of homophily.

Para-professional or 'friend'

Paid professional advocates (Phase 1) had indicated that that a non-hierarchical relationship between the mother and the peer could be helpful and thought that some mothers found peer supporters to be more approachable than health professionals. Realist review findings (Phase 2) suggested that it is more important for peers to be perceived as 'friendly' and competent than it is for them to be extensively trained.

Peer supporters thought that mothers did not always view health professionals as being on their side (**Group A peers**); indeed, they were sometimes perceived as '*checking up*' on the mother, making it risky for mothers to communicate non-ideal feelings or behaviour, such as falling out with one's partner or being unsure about one's love for the baby (**Group G fathers**). Fathers living in low-breastfeeding rate areas tended to view of health professionals as intimidating (**Group G fathers**). Several fathers indicated that their partners did not feel that midwives and health visitors were people of whom *'stupid'* questions about feeding could be asked.

> **Participant 2:** […] I know she wouldn't talk to no midwives about breastfeeding and all that. **(O)**
> **Heather:** She wouldn't talk to midwives about it?
> **Participant 2:** No. […] if she had another, like a *friend* come to talk to you about it, she might consider it then. **(M)**
> **Heather:** So, there's something about it not being a midwife, is it?
> **Participant 2:** Yeah.
> **Heather:** What is it, about them not being a midwife?
> **Participant 2:** Before, they give you the wrong information, or they don't bother talking to you properly about stuff. So, she's not bothered with the midwives, she won't listen to them **(M)**.
> **Heather:** Okay, she doesn't' really trust them?
> **Participant 2:** No. **(C)**
>
> **Group G, fathers**

Focus groups confirmed findings from Phase 1 that non-professional status of peers and mutuality in support meant that peer support can be qualitatively different from health professional help. Peer supporters had found that mothers feel able to disclose imperfections in their lives that would feel risky

to disclose to health professionals, with the result that mothers come to feel that their imperfect reality is socially acceptable (**Group A peers**).

> So even that training you've had **(C),** almost is negated **(O),** because she's chatting to you as a friend **(M)**. And this is where I think the difference is. She might say to you **(O),** *'My husband and I had this huge row last night, blah, blah, blah, it was about this, about that, I told him bleep and dah-de-de-de'*. She wouldn't' say that to the health professional **(O),** I don't think, because it's that fear of some form of judgement or being, *'Oh they've had a row, oh maybe there's another agenda'.* Mums have got a fear about health professionals, whether it's a realistic fear or not [...] but they feel, '*Oh gosh, if I say that they might think this…'* **(M).**

> **Participant 4, Group A, peers**

In line with the 'mothers and sisters' register identified in Phase 1, a group setting was perceived to blur the distinction between mother and peer, for example, peers who have second and third babies use the group for their own support needs (**Group D peers**). Because the support comes from mothers, peer supporters were seen as well positioned to talk about the experience of breastfeeding (**Group E peers**). Because peer supporters talk *'honestly'* about the *'realities'* of life with a new baby based on their own personal experience (**Group A peers, Group D peers**) they were perceived to propose more credible solutions (**Group H health professionals**).

Stakeholders shared an idea that to be truly on the side of the mother peer supporters needed to embody some of the qualities of a *'friend'*, someone who would not *'look down'*, or be *'suited and booted'*, someone of whom the mother could ask embarrassing questions (**Group F mothers**). A person who would not be intimidating when she came to the house (**Group E mothers, Group F mothers**),

> **Participant 6:** I would rather it was a peer supporter than the midwife. No disrespect… It's their approach, isn't it? If you know what I mean.
> **Heather:** That's interesting. [...] So, what is it you see differently?
> **Participant 2**: It would be a very different relationship. [...] The midwives have an agenda. Don't they? Whereas a peer supporter, they can be a bit more like, friendlier. [...] **(M)** I'm not saying midwives aren't friendly. They are, some are, some are not. But, no disrespect. It's different.

> **Group E mothers**.

Because of their peer status, peer supporters' ideas could be treated as *'suggestions rather than instructions'*, making it easier for mothers to feel that they had come to decisions *'on their own terms'*. Many stakeholders pointed out that peers were not there to 'give advice'. However, the question of advice giving is not straightforward. One health professional participant pointed out it is difficult, perhaps unrealistic, for peers to be perceived (or perceive themselves) as not giving advice. In a help-giving context, slipping into advice-giving might be inevitable. As such, the enabling and neutral peer may represent an idealised version (**Group H health professionals**).

There was a tension in the data between a positive perception of the quality of friendship and a perceived need for peers to maintain their boundaries. Mothers expressed a fear that if the rules of confidentiality were unclear, a peer might inappropriately share information, undermining trust in the relationship (**Group E mothers**). Health professionals were concerned that peers might strike the wrong balance between talking about her own experiences and problems and those of the mother (**Group F mothers**). Some mothers felt that supervision would be necessary to enable the peers to maintain their 'boundaries' (**Group F mothers**). Across all focus groups, the description of the relationship between mothers and peers veered between friendly and embedded (as described above) to self-protecting and bounded, as, for example,

> You've got to have strict guidelines and you've got to sit down with them on the Number
> 1 visit and say, *'This is my role'* […] **(M)** so they know your role and what support you
> need to give, and you've just got to have strict guidelines and explain it to them […]. I feel
> if the parent asked me something [beyond my boundaries] I would have to say, *'Within*
> *my role, I'm not capable of doing that'* **(M),** and maintain a professional relationship **(O).**
>
> **Participant 7, Group D, LEA peers**

The same peer recognised that the tension in her role between being a 'friend' and being an 'expert-helper' meant that she often needed to make their own judgments, based on the circumstances, around the boundaries of the support she was giving. For example, here she discusses a boundary rule about peer supporters not intimately touching the mothers they are supporting,

> It's a grey area isn't it. It's black and white, the rule is simple, *'You don't touch'* **(C).** But
> as you get to know people and they become your friends as well **(M),** it is really, really
> hard not to say, *'Can you just help me move the head'* or something (O), it's really hard
> not to instinctively do that **(O).** But, I mean, when I've done that with friends, I've said to
> them, *'I'm doing this as your friend, not as your peer supporter'* **(M).**
>
> **Participant 7, Group D, LEA peers**

The peculiar boundary for peer support is implied here – A *friend* can touch with permission, a *health professional* can touch with permission. But a *peer supporter* cannot – within her peer supporting role – touch the mother.

In contradiction to the findings from Phase 2, stakeholders tended to feel that similarity between mothers and peers was important, particularly in group-based settings. Peer supporters confirmed an observation from Phase 1, that groups based in low income areas with low breastfeeding rates often catered for women living in better-off areas who are particularly motivated to get help **(Group B peers).** They observed that this infiltration could make low income women feel that if they don't fit the demographic for breastfeeding. One peer had observed that new mothers, who were perhaps ambivalent about breastfeeding and undetermined about how long they would continue, could be put-off by seeing mothers feeding much older babies, leaving them feeling *'this group is not for me'*.

> There are mothers who are vulnerable in their breastfeeding **(C),** so they might … come
> along to a group – if I meet them at the door and bring them in **(M)** – but then if there are

three mums feeding children with *actual hair*, walking around and talking **(M),** they'd be like, 'no way!' **(O).**

Participant 4, Group B, peers

In summary, stakeholders contradicted the propositional statement about the role of 'social similarity' that was developed in Phase 2 and confirmed and extended other Phase 2 propositional statements relating to peer qualities, through a process of aggregation and CMO comparison – described in Chapter 5, Section 5.6 – this led to me developing three additional propositional statements – Table 13 (p.238).

> PS27: In social contexts where mothers hold ambivalent or negative attitudes towards health professionals, a peer supporter who is socially similar and clearly not a professional may be experienced as less intimidating and their suggestions may be easier to take on board.
>
> PS28: A group situation provides an opportunity for peer supporters to put mothers in touch with other mothers who are or have been struggling with a similar issue.
>
> PS29: Where the status of the peer (professional or non-professional) is unclear, this can lead to peer supporters feeling unsure about the boundaries of their role.

9.7 Mother-peer relationship - inside the conversation(s)
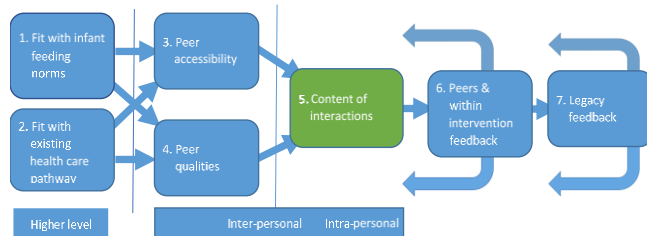
In Phase 2, it had proved difficult to elucidate from the case studies of experiments mechanisms that were triggered at the inter-personal level. The peer-mother relationship tended to be treated as a 'black box' in experimental studies. In contrast, stakeholders provided a paper-stack of experience-based understandings about how change happens at the level of the peer-mother relationship. This confirmed the role of peers in providing social support, particularly emotional support; in helping mothers to negotiate a care pathway; in informing about and role-modelling the 'realities' of breastfeeding; in engaging with partners and family; and in contributing to a slow change in attitudes to breastfeeding.

Emotional support

Stakeholders affirmed the importance of all aspects of social support as relevant, with emotional support understood to be the predominant active ingredient in peer-mother relations. Stakeholders believed that simple listening help, given in the context of a goal to enable decisions to breastfeed, often averted crisis decisions to switch to using formula milk (**Group A peers, Group F mothers, Group H Health professionals**).

Peer support groups were widely perceived as safe spaces, women could afford to be upset, secure in the knowledge that other mothers had had similar experiences and that another women might have a comparable need for emotional support, if not this week then next week.

> It's not uncommon […], when mine were first born, to be sat sobbing our hearts out **(C)** and having the other mums go, '*You know what, we did it too*' **(M)**. So that's really important.

<div align="right">**Participant 4, Group D, LEA peers**</div>

Sharing intimate experiences was found to enhance feelings of intimacy, re-enforcing the relationship (**Group B peers**). Peers believed that sharing experiences could lessen with feelings of 'failure' among women who were struggling or who stopped before they wanted to (**Group A peers, Group B peers**).

A consistent view was that peers were more acceptable when they were mother-focused rather than breastfeeding-focused (**Group A peers, Group B peers, Group E mothers, Group F mothers, Group H health professoinals)**. In contrast, '*evangelical'* peers (**Group H health professionals**) could leave mothers using formula milk feeling punished and defensive,

> We aim to be different from midwives and health professionals … we are clear we are only giving information **(M).** We are not *'this is how you breastfeed'* we are *'what are you hoping to do?'*. So, with some mothers you might talk about doing the first two feeds and that's it … and then we don't talk about breastfeeding after that.

<div align="right">**Participant 2, Group B HCW, peers**</div>

Non-judgmental help enabled mothers to explore and generate solutions to feeding problems by making genuinely informed choices that they might not otherwise have considered, possibly leading to them continuing to breastfeed when they would otherwise have stopped (**Group A, peers, Group E mothers**)

Problem-solving could occur as a side effect of mothers telling their own stories,

> You're not actually peer supporting, you are saying what happened to you. But, you know, subconsciously, somebody's taking that on board and thinking, '*Yeah, so and so said they did that, let me try that and, you know, it does help, and I definitely found that when I came initially'*.

<div align="right">**Participant 2, Group D, LEA peers**</div>

Attending a peer support group was understood to enable problem-solving by providing opportunities for learning from multiple breastfeeding journeys, increasing the likelihood that the mother would find someone to talk to with direct experience of her problem and compassionate support, grounded in empathy (**Groups A, B and D, peers**). Peer supporters sometimes encouraged this kind of experience-based problem-solving by matching mothers with others whose babies were of a similar age, or introducing them to mothers whose babies were several weeks older (**Groups A and B, peers; Group E mothers**). One peer supporter pointed out this approach would not work if the peer support group

was primarily viewed as a 'clinic', with mothers moving on once their problem had been solved (**Group A, peers**).

Some peer supporters believed that the mere presence of a breastfeeding peer support group in a community might act as a psychological buffer during difficult times – a physical signal that help would be available to the mother should she need it.

> She's got somewhere else that she can turn when she's getting all the negative feedback **(M).** She's got a group she can go to which is positive about breastfeeding, so it makes a difference.
>
> **Participant 3, Group H, health professionals**

Role modelling the 'reality'

Confirming findings from elsewhere about mothers need for a 'real' rather than 'ideal' picture of how feeding will go (Hoddinott et al, 2012; Trickey and Newburn., 2014), peers were perceived to give new parents the reality check they needed to endure tough times. For example, peers were positioned to provide a real-life alternative to an official line that *'breastfeeding is easy'* or *'shouldn't hurt'*.

> But you need somebody to actually ***tell you***. *'You've just got to get on with it unfortunately, yeah, it's going to be sore.'* (M) I think people don't tell you that, do you know what I mean? They don't say […] *'you're going to have cracked nipples…'*
>
> **Participant 4, Group E LEA mothers**

Peer supporters believed that in giving new parents a realistic expectation they were helping mothers to accept some suffering along their breastfeeding journey, and that mothers were more ready to draw on emotional support from others who had *'been there'*.

> **Participant 7:** […] because I think the positives get pushed quite a lot, so you can… but the negatives don't **(M)** so, yeah, you get this false perception **(M)**, so then you suddenly start breastfeeding, thinking this is the easiest thing in the world and …
> **Participant 3:** It's not …**(O)**
> **Participant 7:** It's not. And that's the hardest thing **(O),** and somebody needs to tell them at some point **(M),** not to put them off, it's just to have that wider information **(M).**
>
> **Group D, LEA Peers**

Tough times could be normalised once it was apparent that these were periods that almost every mother goes through on her feeding journey (**Group A and B peers**).

> Sending a mum home knowing that she's not cracking up **(O),** or she's come in a complete state **(C)** and she goes home thinking, okay, it's not better but, actually, this is very normal **(O)**. Five other people in the room said they'd had exactly the same experience **(M)**, and I'm going to get through the next week **(M)**, and I can come back and I know my baby will still be alive, and I'll still be alive, and it'll all be okay.
>
> **Participant 1, Group A peers**

As a role model, the peer embodies a *'successful breastfeeder'* **(Group H health professionals)** – but this does not carry the implication that breastfeeding is easy. The mother thinks '*if you can do it I can do it'* **(Group F mothers)**.

Negotiating the care pathway

In the context of an uneven care pathway, stakeholders saw the peer supporter's role as both connecting mothers to professional support *and* providing a push-back against poor health professional support and advice, confirming and extending Phase 1 findings.

Prior contact with peer supporters sometimes gave mothers the courage to ignore health professional advice that they believed was undermining their decision to breastfeed,

> They kept on insisting I gave her formula, but I had the confidence, because I'd been associated with [the peer support group] to know they didn't know what they were talking about. […]
>
> **Participant 5, Group D, peers**

Over time peer supporters tended to build up local knowledge about different health professionals who would, or would not, be able to help with breastfeeding. They would sometimes use this knowledge to direct the mother away from individuals they had experienced as giving poor advice or who undermined breastfeeding decisions.

> I do tend, possibly not a good idea, I do tend to ask mums who their health visitor or midwife is **(M)**, and … well, there are a couple of names that recur, because women tend to come to the group which is in their locality, and so you get mums who'll say the same name and you think, '*I've heard this before'*.
>
> **Participant 5, Group A, peers**

Some peers felt that part of their role involved re-framing discouraging language about breastfeeding,

> [When the health professional says] *'there's a problem with breastfeeding'* **(C).** I think, as peer supporters, one of our jobs is to spin that round **(M)** and [say], *'Actually, breastfeeding is normal for the human baby, so the way your baby is behaving is also completely normal. Just not particularly convenient for you right now'.*
>
> **Participant 5, Group A, peers**

However, mothers also recognised that conflicting advice along the care pathway could leave the mother feeling confused (**Group E mothers**) and health professionals in particular were concerned that contradictory advice could lead to a breakdown of trust (**Group H health professionals**).

Engaging with partners

Mothers, fathers and peers working in low breastfeeding rate communities believed that breastfeeding rates could be improved if antenatal peer support was inclusive of partners or close members of the

family who would be around in the period after the birth, so that the mothers' significant others would learn about breastfeeding, as this would mean that he was better positioned to be helpful in helping the mother to achieve their breastfeeding goals (**Group D peers**, **Group F mothers, Group G fathers**). Ideas about this function of peer support tended to be aspirational rather than based on real life experience.

Participants in the fathers' group felt that that because support from health professionals tended to be exclusively directed to the mother this caused fathers to miss key information **(Group G fathers)**. One father suggested that an opportunity to talk with the peer supporter would have helped him to identify broader ways of being supportive – for example, by taking responsibility for bathing the baby **(Group G fathers).** One father pointed out that the partner is the person most likely to be there when the mother experiences a breastfeeding crisis, and that his emotional response to that crisis and the knowledge that he could bring to the situation might make a difference to breastfeeding outcomes (**Group G fathers**).

> So, the dads are all in the situation, really. Not to feel helpless when mothers are struggling to breastfeed **(O)** and they don't know what to do to help, and it's all about emotional support beforehand, from [a peer supporter], to kind of say, *'You are going to be there many times when you partner is crying and you don't know what to do and you are helpless'* **(M)** And just have techniques, perhaps, for them to show them how to latch on **(M)** and just be that extra support.

> **Participant 1, Group G, LEA fathers**

Some peer supporters believed that welcoming fathers into peer support groups could help to normalise an idea that fathers could take responsibility for other aspects of looking after the home, making it easier for mothers to continue to feed (**Group A peers**).

Some peer supporters had found that when grandmothers were invited to peer support groups they were able to de-brief their own infant feeding experiences, and to reflect on how and why advice had changed, so that, if they had formula fed, they would be less likely to recommend that their daughter also formula fed when things got tough (**Group A peers**). One Health Professional stakeholder suggested that in areas where many generations of women had not breastfed it would be worth engaging grandparents, who had themselves formula fed, in peer support training (**Group H health professionals**).

Drip-feeding to change attitudes

Stakeholders tended to confirm the Phase 2 finding that peer support would be unlikely to change the mind of a woman who intended to formula feed from the start. Many fathers (**Group G fathers**) and peer supporters (**Group D peers**) living in low income areas felt that if a mother was unreceptive or ambivalent about breastfeeding before the baby was born, she would be very unlikely to continue for long. Fathers (**Group G fathers**) tended to feel that an antenatal visit would not and should not modify a mother's firm prior decision to formula feed,

Peer supporters tended to believe that intervention could be effective in changing the attitudes of mothers who were ambivalent about making a decision to breastfeed, and that the experience of peer support could lead to changes in beliefs and attitudes around longer-term breastfeeding (in line with the experience of Phase 1 advocates).

Several peers had observed that, over time, mothers' attitudes to breastfeeding continuation evolved because of group participation. Less confident mothers, introduced to the group, would be *'drip-fed'* ideas about feeding and parenting that were outside of the norm for her existing social network, leading to changes in beliefs and attitudes (**Group A peers**). For example, peer supporters noted that the presence of mothers feeding older babies could lead to a change in mothers' understandings about the *'normal'* age of weaning (**Group A peers**). Where the group was heterogeneous in breastfeeding behaviour, peers found that group participation enabled the mother to pick and mix approaches that worked for her, drawing on a range of experiences (**Group E mothers**). Others observed that over time group attitudes and opinions tended to converge, for example around approaches to parenting that favoured an 'attachment' style **(Group A peers)**.

In summary, stakeholders considerably extended the propositional statements about mechanisms underpinning the 'peer-mother relationship' that were developed in Phase 2. Through a process of aggregation and CMO comparison – described in Chapter 5, Section 5.6 – this to me developing six additional propositional statements – Table 13 (p.238).

PS30: Mutual support, involving multiple relationships within a group setting context mothers can help mothers to feel supported to overcome challenges and to meet their breastfeeding goals.

PS31: Being aware of the presence of a peer support group in a locality may help breastfeeding mothers to feel that help will be there when they need it.

PS32: Mutuality increases the probability of sharing stories, so that mothers are given a 'real' rather than 'ideal' picture of what breastfeeding is like, leading them to see challenges as 'normal' and surmountable.

PS33: In the context of a health care pathway that is less than ideal, peer support can help mothers to negotiate to avoid negative influences and access professional support.

PS34: When peer supporters include and engage with a mothers' existing family support network, this can help to improve the context for breastfeeding beyond the peer support group.

PS35: Over time, postnatal engagement with a group of mothers who are breastfeeding can lead to a change in mothers' perceptions about what is 'normal' in terms of length of time a baby should be fed.

9.8 Feedback and ripple effects
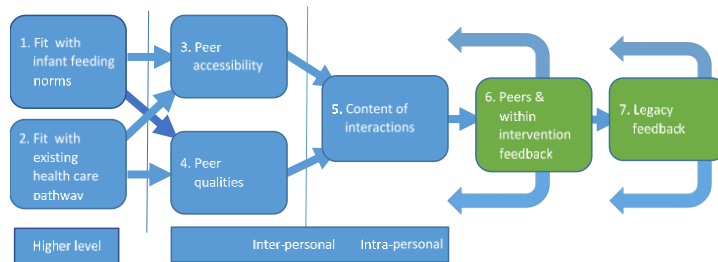
Stakeholders gave examples of within-feedback effects and longer-term legacy effects of peer support intervention, in line with understandings articulated in Phases 1 and 2.

Within intervention feedback

Health professionals and peers related ways in which they had observed peers becoming demotivated over time. Health professionals noted that peers become demotivated when they are underutilised or began to feel they are being undervalued by health professionals, in line with findings from Phase 2 (**Group H health profesionals**). Demotivation was also linked to excessive delays to getting peers up and engaged with the service due to a need to complete DBS checks; this represented a negative feedback effect arising from a procedural issue, in line with professional advocates' experience described in Phase 1 (**Group D peers**). In line with Phase 2 findings about poor embeddedness of experiments, health professionals believed that the temporary nature of the funding for peer support undermined intervention goals, as supervision was withdrawn they believed the quality of support in areas with support groups rapidly reduced (**Group H health professionals**).

Ripple effects

The primary 'ripple effect' from peer support intervention articulated by stakeholders was that the experience of having been a recipient of peer support would cause a change in the supported mothers' feelings, attitudes and behaviours, so that they began to *'pass on a message of hope'* (**Group B peers**) to other women within their social network and community. Over time, the positive messages might be passed on to their own children, resulting in an inter-generational effect in the direction of encouraging breastfeeding (**Group A peers**). Stakeholders extended this understanding by introducing the idea that some mothers would be more willing 'diffusers' than others – with some women becoming very conscious of a motivation to '*give something back'*. There was also a sense that different mothers would be causing ripples at different ecological levels. At the level of the social network, peer supporters perceived that having experienced support themselves, some supported mothers were talking more confidently and comfortably about their breastfeeding experiences (**Group A peers**), leading to a change in tone and substance of chat *'at the bus stop or at the school gate'*, in turn, encouraging more women to breastfeed (**Group A peers**).

At the level of the community, stakeholders in all groups noted that a proportion of supported mothers tended to feel motivated by their own experience to train as peer supporters themselves, leading to a community-level change in capacity for problem-solving (**Group A peers, Group E mothers, Group H, health professionals**).

The one lady I actually approached **(M)** in the mums and toddlers group in the local church and said, '*Oh, I noticed you were breastfeeding*'. And she said, '*Oh God, I'm really sorry, am I not allowed to do it in here?*'. And I said, '*No, I just wanted to tell you about the peer support group if you know about it, blah, blah, blah*'. And she came along **(M),** she's done the peer supporting [training] **(M).** But the group of friends she was in at the time, she was with six people and she was the only breastfeeder **(C).** They are now on their second babies and because of her experience **(M)** and her becoming a peer supporter **(M),** all five of her friends have breastfed their second baby **(O).**

<div align="right">**Participant 4, Group A, peers**</div>

For women who had '*been through the fire*' (**Group B, peers**) with a breastfeeding experience, and perhaps experienced poor support from health professionals or from within their social network, the alternative perspective presented by being a recipient of peer support could be consciousness raising. Peer supporters indicated that they not only wanted to directly help women who were coming up behind them and struggling to breastfeed, but also to address the wider 'injustice' indicated by the 'gaps' in the system that they had come up through (**Group A peers, Group B peers**).

An indirect 'ripple effect' mechanism from peer support intervention was considered to arise from women feeling more confident to breastfeed babies out and about in their own communities. Stakeholders understood these women to be providing a vicarious experience of breastfeeding outside of the 'safe' space of home or a breastfeeding group (**Group F, mothers**). The normalising effect of coming to see more and more women breastfeeding in public places was understood to result in in a change in attitudes in the community more broadly (**Group A peers, Group B, peers**), including a change of attitudes about feeding older babies (**Group A, peers**).

Because, you know, if somebody's also done it [feeding a baby in a public place], you're going to think, '*Okay, if somebody else can do it, I can do it*' **(M).** And go out and do the same **(O).**

<div align="right">**Participant 4, Group F, LEA mothers**</div>

Group A peers noted that these ripple effects – whereby a supported woman goes on to provide support and/or campaign for a better context for other mothers – would be stifled if peer support was delivered only in a 'problem-solving' way, and if groups *'dismissed'* peers once their individual feeding issues had been addressed (**Group A Peers**). A motivation window could also be passed by if funding and opportunities for training were not made available to women at the right time (**Group H, health professionals**).

While stakeholders did not focus on the 'ripple' or 'legacy' impact of breastfeeding peer support in their discussions, the group-completed ecological diagrams suggested that they saw potential for peer supporters in influencing beyond the care pathway. The five group completed diagrams from the two Stakeholder events all indicated that stakeholders see peer supporters as having the potential to be more influential in changing social network attitudes, the community context and the wider cultural context for breastfeeding decisions (Figure 18, p.236).

Figure 18: Peer supporters – Where can peer support make a difference?
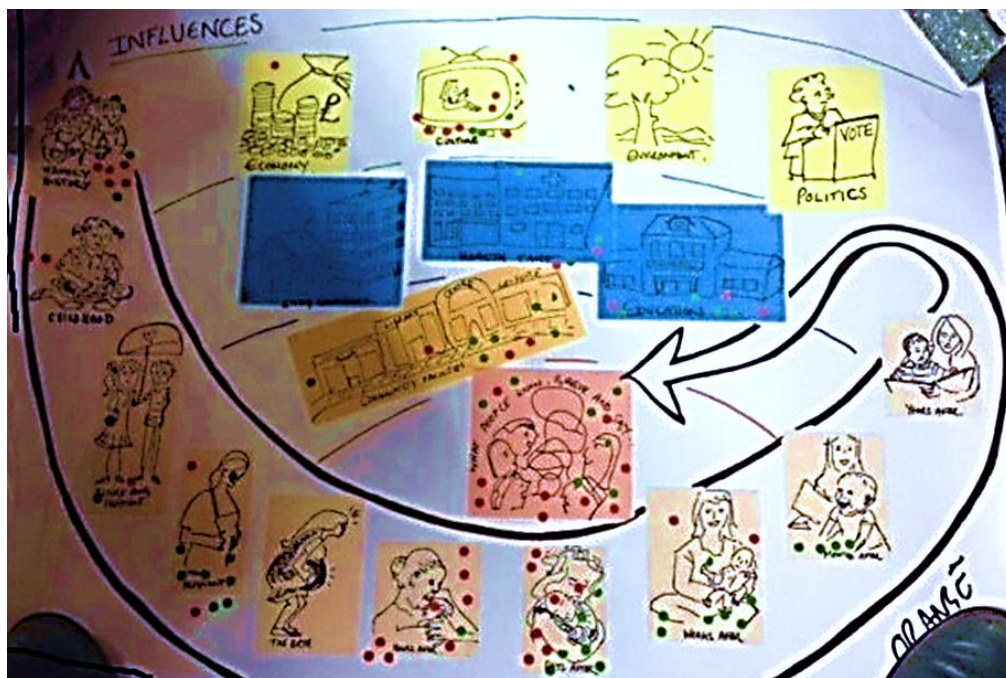
[RED dots - What are the most important influences to tackle next to make a difference to mothers' experiences of feeding their babies? GREEN dots - Where can peer support make the greatest difference to mothers' experiences of feeding their babies?]

Stakeholders extended the propositional statements about 'within intervention feedback' and 'legacy' effects that were developed in Phase 2. Through a process of aggregation and CMO comparison – described in Chapter 5, Section 5.6 – this led to me developing one additional propositional statements about within-intervention feedback,

> PS36: Peers feel demotivated by excessive delays caused by bureaucratic barriers to pathway integration and when they are underutilised by health professionals.

and three additional propositional statements relating to legacy feedback – or ripple effects,

> PS37: Experience of having been a recipient of peer support can lead to more positive feelings, attitudes and beliefs about breastfeeding, which are passed to the wider community.
>
> PS38: Experience of support can increase confidence to breastfeed whilst out and about, leading to increased vicarious experience of breastfeeding at community level
>
> PS39: Experience of poor care can cause mothers to want to address injustice indicated by gaps in the care system.

- See Table 13 (p.238).

9.9 Summary of Phase 3 extension work

The 20 Phase 2 propositional statements were nuanced, contradicted and extended through discussion with parents, peer supporters and health professionals in Phase 3, leading to the addition of a further 19 statements as set out in Table 13 (p.238).

Table 13: Phase 3 extension of Phase 2 propositional statements for intervention in a Welsh Context

Position in chain of mechanisms	Phase 2 propositional statement	Confirmed, extended, contradicted, nuanced?	Additional statements generated by Phase 3
1.Congruence with infant feeding norms	**PS1**: The breastfeeding peer support intervention may not 'take' if mothers and key members of their support networks perceive the gulf between the intervention goal and their own pre-existing priorities to be too broad.	Extended, with new statement	**PS21**: In areas with low breastfeeding rates, peer support groups are more likely to be attended if they are located in places that expectant and new mothers already attend and if they are inclusive of mothers using formula milk, while upholding and enabling decisions to breastfeed.
2.Congruence with the existing health care pathway	**PS2**: Ambivalent attitudes to breastfeeding among health care professionals and incongruent policies may lead to countervailing messages that undermine the credibility and practicability of the breastfeeding peer support intervention.	Extended, with new statement	**PS22:** If the care pathway is under-resourced and health care professionals have a lack knowledge and skills, there is a risk that breastfeeding peer support will become a repository for problems that are too difficult or time consuming for health care professionals to address.
	PS3: Well-specified role boundaries and referral pathways, positive prior experience of working alongside peer supporters, and the presence of a health professional champion, can enhance intervention acceptance and help peers to feel comfortable in their roles.	Confirmed	
3. Peer accessibility	**PS4**: In-hospital support for early feeds can help mothers who have been unsure to firm up a decision to breastfeed	Nuanced, with new statement	**PS23**: In-hospital breastfeeding peer support assumes a high level of care pathway integration, which may not be realistic.
	PS5: Timing of postnatal contacts should map to critical points for discontinuation as indicated by local feeding norms. For example, in low income UK settings where early discontinuation is common, failure to offer support in the early hours and days after the birth will mean that many mothers do not get the help when they need it and will not sustain a decision to breastfeed.	Extended, with new statement	**PS24**: In low-income, low-breastfeeding rate areas, the presence of fewer breastfeeding mothers, with limited spare resource, means that ensuring accessible peer support for mothers in crisis situations is problematic.

Position in chain of mechanisms	Phase 2 propositional statement	Confirmed, extended, contradicted, nuanced?	Additional statements generated by Phase 3
	PS6: Peer support that is provided reactively will tend to be taken up by mothers who are strongly motivated to overcome breastfeeding challenges and/or are unusually confident to seek help. This form of support is less likely to be used by mothers who are more ambivalent or who are unsure about asking for help and is therefore unlikely to improve breastfeeding outcomes.	Nuanced, with new statement	**PS25**: Too much breastfeeding-centric peer support contact before the baby is born may lead mothers to feel that they are being pressured to breastfeed.
	PS7: A negotiated proactive model of peer support, where a schedule of contacts is agreed with the mother within the framework of a minimum dose, can help the mother to feel that the intervention is meeting her unique needs. However, the support will not be perceived as satisfactory if the negotiated dose of contacts is too low.	Nuanced, with new statement	**PS26**: Involving partners in facilitating negotiated proactive support may improve the likelihood of this being taken up.
4. Peer qualities	**PS8:** Peers do not need to be socially matched to mothers or to have specialised breastfeeding knowledge in order to be perceived as friendly and competent and to be experienced positively by the mother. Peers who are able and prepared to be proactive are more likely to be experienced positively	Contradicted	**PS27**: In social contexts where mothers hold ambivalent or negative attitudes towards health professionals, a peer supporter who is socially similar and clearly not a professional may be experienced as less intimidating and their suggestions may be easier to take on board.
	PS9: If participants have specific social, cultural or other attributes that directly impact on their feeding decisions, then using peers with experiential knowledge of the defining characteristic(s) may be helpful to bridge the gap in understanding between the mother and the peer and help the mother to overcome specific barriers	Extended, with new statement	**PS28**: A group situation provides an opportunity for peer supporters to put mothers in touch with other mothers who are or have been struggling with a similar issue.

Position in chain of mechanisms	Phase 2 propositional statement	Confirmed, extended, contradicted, nuanced?	Additional statements generated by Phase 3
	PS10: If the target population has complex social needs and multiple competing pressures, then selecting and retaining peers who closely resemble this population will be challenging	Confirmed	See **PS24** above.
	PS11: Feeling valued and integrated within the health care system can promote peer confidence, leading to improved peer retention and compliance with the intervention	Extended, with new statement	**PS29**: Where the status of the peer (professional or non-professional) is unclear, this can lead to peer supporters feeling unsure about the boundaries of their role.
5. Inside the peer-mother relationship	**PS12:** Mothers who experience a warm and affirming relationship with the peer supporter often feel supported to overcome challenges and meet their breastfeeding goals	Extended, with new statement	**PS30**: Warm, affirming and *mutual* relationships with a group of mothers can help mothers to feel supported to overcome challenges and to meet their breastfeeding goals
	PS13: Peer-mother relationships can deepen over time – continuity of supporter over several months can help mothers to appraise their feeding decision on an ongoing basis. However, short-term support can also be experienced as warm and enabling	Confirmed	
	PS14: A buffering effect of perceived breastfeeding peer support is available when needed may help mothers to overcome challenges.	Extended, with new statement	**PS31**: Being aware of the presence of a peer support group in a locality may help breastfeeding mothers to feel that help will be there when they need it.
	PS15: Antenatal education can change specific feeding-related beliefs	Extended (and partially contradicted), with new statement (see also PS25)	**PS32**: Over time, postnatal engagement with a group of mothers who are breastfeeding can lead to a change in mothers' perceptions about what is 'normal' in terms of length of time a baby should be fed.
	PS16: Presence of the peer at pivotal points may cause extrinsic motivation to initiate or continue breastfeeding; this may not translate into intrinsic motivation once the peer is absent	Not directly addressed	

Position in chain of mechanisms	Phase 2 propositional statement	Confirmed, extended, contradicted, nuanced?	Additional statements generated by Phase 3
		New statement	**PS33**: Mutuality increases the probability of sharing stories, so that mothers are given a 'real' rather than 'ideal' picture of what breastfeeding is like, leading them to see challenges as 'normal' and surmountable.
		New statement	**PS34**: When peer supporters include and engage with mothers' existing family support network, this can help to improve the context for breastfeeding beyond the peer support group.
		New statement	**PS35**: In the context of a health care pathway that is less than ideal, peer support can help mothers to negotiate to avoid negative influences and access professional support.
6. Within intervention feedback	**PS17:** Peers feel motivated when they feel valued by mothers and demotivated when offers of help are rejected or breastfeeding ends. Consequently, peers tend to focus their resource towards mothers who seek support and who appear to value it most strongly.	Not directly addressed	

Position in chain of mechanisms	Phase 2 propositional statement	Confirmed, extended, contradicted, nuanced?	Additional statements generated by Phase 3
	PS18: Peers' enjoyment and motivation tend to be improved by opportunities to bond with one another and to learn within their roles.	Not directly addressed	
		New statement	**PS36**: Peers feel demotivated by excessive delays caused by bureaucratic barriers to pathway integration and when they are underutilised by health professionals.
7. Legacy feedback	**PS19:** Potential positive legacy effects from breastfeeding peer support include changes in mothers' expectations, the skills and confidence of peers, health professionals' attitudes and beliefs, the policy framework for existing systems of care, and attitudes to and awareness of breastfeeding at community level.	Extended, with new statement	**PS37**: Experience of having been a recipient of peer support can lead to more positive feelings, attitudes and beliefs about breastfeeding, which are passed to the wider community.
		New statement	**PS38:** Experience of support can increase confidence to breastfeed whilst out and about, leading to increased vicarious experience of breastfeeding at community level
		New statement	**PS39:** Experience of poor care can cause mothers to want to address injustice indicated by gaps in the care system.
Experimental conditions	**PS20:** Interventions that are designed for the purpose of experimental study tend to be weakly embedded within the health care pathway. This can lead to breastfeeding peer support having low credibility among health professionals and service managers and to implementation failure	Not directly addressed	

9.10 Discussion and implications for theory development

In Phase 3, I have drawn on the experiences of Welsh parents, peer supporters and health professionals to contradict, nuance and extend professional advocates' experience of the implementation context (Chapter 6), professional advocates' three registers for understanding breastfeeding peer support (Chapter 7) and findings from the realist review (Chapter 8).

Icebreaker cards, focus group discussions and the group interactions with the diagram indicated that parents, peer supporters and health professionals held ideas about breastfeeding peer support that spoke to all three registers identified from interviews with professional advocates in Phase 1 (Chapter 7). I drew on the data generated from focus group discussions with Welsh parents, peer supporters and health professionals to extend the 20 propositional statements that I developed in Phase 2. This led to the development of a further 19 propositional statements (Table 13, p238).

Looking first at interaction between peer support intervention and existing social norms, there is an apparent tension in the evidence from across the thesis as a whole as to whether interventions should be designed around an intention to support the development of a breastfeeding sub-community. Professional advocates in Phase 1, and parents, peer supporters and health professionals in Phase 3, all confirmed that peer support – and peer support *groups* in particular – have a key role to play in providing a protective sub-culture for breastfeeding in communities where generations of mothers have tended to formula feed beyond the early days. They understand these groups to compensate for a lack of encouragement and support from women's existing social networks. Translated into the language of control theory, peer support groups may weaken attachment to existing baby feeding norms and provide conditions in which 'delinquency' (in relation to those norms), becomes possible (Hirschi, 1969).

Clearly, if the intention is to change feeding behaviours then the values of the intervention (and any created subculture) cannot completely align with an existing formula feeding culture. However, Phase 1 interviews suggested, and the Phase 2 review revealed that if the intervention goals are set too far from existing parenting practices and existing social norms then parents will consider the intervention irrelevant and it simply will not 'take'. In Phase 3, parents, peer supporters and health professionals affirmed a need for interventions to be 'parenting context' aware – they tended to emphasise the importance of involving mothers who are formula feeding and providing infant feeding support in spaces that mothers and babies are already occupying. They also highlighted a need to ensure that the intervention does not exclude mothers using formula milk.

In focus groups, stakeholders confirmed the importance of a reasonable fit between the peer support intervention and the existing health professional care pathway, particularly with

respect to referral arrangements and role boundaries. However, Phase 3 advocates delivered a clear confirmation of professional advocates' experience that infant feeding interventions are inserted into a complex and highly contested context and that the Welsh health care pathway for infant feeding support is at best unreliable. Peer supporters and health professionals felt that a good fit would be difficult to achieve with consistency, and that there is a danger that peer supporters are primarily compensating for, or even displacing, health professional care. These perceptions raise issues for evaluation in a Welsh context – evaluations considering impact of breastfeeding peer support on breastfeeding rates need to consider whether displacement is occurring.

In terms of ensuring accessibility of peer support, stakeholders confirmed that in Wales the first few days after the birth as critical. They added that mothers often need immediate or crisis 'emotional support'. Stakeholders often linked this early need for help to the limited nature of support in hospital, short hospital stays, and insufficient professional postnatal care. Peer supporters and health professionals highlighted that peer support groups can fill a gap as a source of help for longer-term breastfeeders as support for these mothers is not mainstreamed elsewhere along the care pathway.

Stakeholder focus groups contributed contradictory evidence about the importance of social similarity. Their reflections on the principle of homophily (McPherson et al, 2001) were, at first sight, contradictory to findings of the Phase 2 review, which argued that social similarity is of secondary importance compared to providing peers who are confident and friendly. Welsh parents, peer supporters and health professionals tended to believe that interventions would stand or fall based on whether mothers perceived peer supporters as being 'like me'. This apparent contradiction may be resolved by considering the 'register' with in which those designing, delivering and receiving the intervention frame the work of peer support – whether the intention is to improve a professional 'care pathway' or provide a source of friendly mutual support. If peer supporters are acting primarily to improve the 'care pathway', are successfully integrated into that care pathway and are providing proactive help (as for example in Dennis et al, 2002b), it may not matter all that much whether they are similar to the mother. In contrast, if peer support is intended to provide local sub-community of breastfeeding 'friends' for sharing stories and integrating breastfeeding with other parenting practices, then social similarity may make a big difference.

Stakeholders confirmed that 'emotional support' is a crucial component of 'social support' and also that a non-directive, mother-centred style of support-giving is valued by parents (Schmeid et al, 2011, McLeish et al, 2015). The research also confirmed that mothers value peer supporters because they provide insight into the *lived reality* of life with a new baby. This allows mothers to appraise their own experiences and challenges in relation to the experiences of others, rather than in relation to a simplified public health policy ideal of how things 'should be' (Trickey and Newburn, 2014; McInnes et al, 2013). There is confirmatory evidence from the Phase 2 review and from Phase 3 stakeholders that just knowing that help

will be there when you need it – 'perceived support' is valuable (Dennis, 2002a). While intervention cases included in the Phase 2 realist review used peer supporters to provide 'hands on' instrumental help with getting breastfeeding started, peer supporters contributing to Phase 3 tended to feel that 'hands on' support, involving helping to position a baby at a mother's breasts, might be beyond the boundaries of their role as a peer supporter. In Phase 3, both Parents and peers confirmed that in the context of an uncertain care pathway informational and instrumental support about how to access the best professional help (and avoid negative health professional influences) is an important part of what peer supporters do. This suggests that to understand which components of social support are likely to be relevant, it will be important to map the existing care pathway.

Health professionals and peer supporters extended the findings relating to feedback within the intervention itself, pointing up the impact of bureaucratic barriers on peer motivation. In line with the Phase 2 findings relating to experimental conditions, stakeholders also noted that instability of funding could undermine the success of interventions.

The focus group conversations incorporated the register of 'ripple' effects. Primarily, stakeholders described mechanisms by which peer supporters – and the mothers they supported – began to change the conversations at social network level. At community level, health professionals and peer supporters considered a dissemination mechanism of vicarious experience (seeing more women breastfeed) as an important by-product of peer support. Peer supporters themselves also felt that under the right conditions women who had struggled themselves would be motivated and facilitated to campaign for better services.

What's next?

In Chapter 10 I look back over the study and consider the study's strengths and limitations. I then highlight high level implications for the development of peer support intervention in a Welsh context.

Chapter 10: Conclusions and recommendations

10.1 Introduction and contribution to the thesis

My empirical chapters, Chapters 6-9, each concluded with a discussion section, in which I reflected on the empirical data accumulated at each phase, cross-referencing with findings from earlier phases – so that in Chapter 9, I was able to look across the three phases highlighting key themes and contradictions and relating findings to existing theoretical frames. In this final Chapter I re-cap the key findings from the three phases of empirical investigation and then discuss some of the broader implications of the findings of this thesis in relation to the overall aim of this study, which was,

> To explore and extend theories of breastfeeding peer support and to consider their application in relation to a Welsh infant feeding context

Chapter summary

- ➢ In Section 10.1 I discuss the strengths and limitations of the research and in Section 10.2 I provide a re-cap of the staring position for the study.
- ➢ In Sections 10.3-10.7, I highlight implications for developing interventions in a Welsh context arising from this research.

10.2 Strengths and limitations of the study

This was a mixed-methods study which progressed through a process of emergent fit (Artinian et al, 2009). Overall, I found that a critical realist framework and a focus on identifying perceived causal relationships worked well as way of holding the phases of the research together. Once the clear focus on understanding breastfeeding peer support had been established, CMO notation provided a helpful analytical tool, enabling me to join the dots between propositional statements developed from CMOs identified in Phases 2 and 3. However, I found the intended thematic approach to analysis worked less well in making sense of my Phase 1 exploration of policy advocates' experiences, where I needed to incorporate a narrative approach to analysis as alongside coding the data thematically.

This research was successful in enfolding the perspectives of multiple stakeholders – policy makers, health professionals, peer supporters and parents – who are positioned variously in relation to the wider system of influences on infant decisions. For the most part, I found it was possible for me to maintain transparency with participants about the research agenda. In Phase 1 in particular, I found that taking a transparent approach to identifying themes and

issues improved the progress of the research, leading to important qualitative insights about the implementation context. However, not all study participants had access to the same level of transparency about the purpose of the research. In Phase 3, I relied on secondary analysis to elicit the perspectives of mothers and fathers living in low breastfeeding rate communities. This was less than ideal as parents themselves are both the end point recipients for intervention and, arguably, the least empowered stakeholders within the system.

The use of reflexive accounts and memos throughout helped me to maintain awareness of my own position in the research process and highlighted the impossibility of standing outside of the complex system I was studying (Midgely, 2000). By being transparent in bringing my own prior experience and developing ideas into the research I found I was able to open up prior hunches and emerging themes to challenge and nuance. The use of interviews and focus group methods to generate qualitative data had the advantage of allowing participants to reflect across the breadth of their experience. However, this approach may have over-privileged verbal accounts. I was not able to fulfil my initial intention to incorporate a focused case study of breastfeeding peer support in a low breastfeeding rate community; such a Phase 3 case study would have strengthened the research by contributing observational data, enabling me to directly observe real processes in relation to the propositional statements I had developed in Phase 2.

Through realist review I followed an approach devised by Greenhalgh et al (2007), reverse applying principles of realist investigation to a systematically identified collection of interventions that have been subject to experiment. This approach was successful in unpacking the experiments, and in nuancing the headline outcome-focused findings from an existing highly influential evidence base. The experience of this approach, and the lessons generated from having a direct read-across to the experimental data, suggests that reverse-applying principles of realist review could provide a useful complement to systematic reviews for other complex public health intervention topics. This research provides a complement to findings from the existing and more traditionally conducted realist review of peer support interventions to improve health literacy and reduce health inequalities (Harris et al, 2015). A downside of the focus on experiments was that included interventions were associated with only one of the three registers for understanding peer support intervention that I identified in Phase 1 (the 'care pathway' register) and tended to be based on one-to-one models of peer support. In consequence, the lessons and recommendations generated through the review may be less readily applied to peer support interventions developed within other registers.

The purpose of the study was to generate lessons for theory to inform the development of breastfeeding peer support intervention in a Welsh context. The findings from Phase 2 – the realist review of experiments – was based on case study interventions from three high-income countries, albeit tending to focus on low income populations within those countries. However, the qualitative phases of the research (Phases 1 and 3) focused on the experience of

stakeholders from Wales, including stakeholders with experience of low and (relatively) high breastfeeding rate communities from North and South, rural and urban Wales. In consequence, the study has high local validity, but the Welsh-focus may limit validity of findings to other national settings. Nonetheless, it is likely that the propositional statements and lessons generated will apply across other UK contexts, and to other developed country settings that have followed a similar historical trajectory in terms of influences on breastfeeding decisions and changes in breastfeeding rates, and because infant feeding policy across the UK is played out against a common discourse context.

10.3 Re-cap of the study rationale

I began the thesis with an overview of infant feeding policy in Wales, highlighting that by international standards, Wales has very low breastfeeding rates, with few Welsh women breastfeeding exclusively beyond the early weeks (McAndrew et al, 2012), and with Welsh women living in more deprived localities being more likely to formula feed (Brown et al, 2009). In Wales, as across the UK as a whole, many women who *do* decide to breastfeed have disappointing experiences; many who formula feed from the start, or who stop breastfeeding in the early weeks, feel guilty or ashamed, while, at the same time, women who continue to breastfeed often feel under pressure to stop or feel shamed for continuing (Hoddinott et al, 2012; Trickey and Newburn, 2014; Thomson et al, 2015).

At policy level, an 'ecological' understanding that influences on infant feeding decisions are multiple and that they operate from different positions within a wider system of influences, is well established. This understanding has underpinned Welsh policy thinking for several decades, leading to the introduction of a 'settings' approach to intervention as part of the All Wales Breastfeeding Strategy in 2001 (National Assembly for Wales, 2001) and was evident in 2018, when PHW adopted of the Becoming a Breastfeeding Friendly Country programme (Pérez-Escamilla et al, 2012). There have also been calls to integrate complex adaptive systems thinking with intervention development (Pérez-Escamilla and Hall-Moran, 2016). To date, however, this policy-level understanding of ecological influences appears to have little attributable impact in terms of delivering a change in breastfeeding rates. While initiation rates have risen incrementally – perhaps helped by the slow progress towards implementation of BFI in maternity settings – social and geographical patterning persists. We don't have a more recent measure of the '*disappointment rate'* (Trickey, 2016a) than the 2010 Infant Feeding Survey (which estimated that 8/10 women who stopped breastfeeding in the first six weeks stopped before they planned to do so), however, a persistent high early discontinuation rate in Wales – in as far as this can be gleaned from current routine data (Welsh Government, 2018b) – suggests there has not been a substantive change in the overall quality of women's early breastfeeding experiences.

Equally well-established, is an understanding that the knowledge, experience and beliefs of family members and natural social network peers have an important influence on women's

infant feeding decisions. When we enter the bewildering world of new parenthood, we rely most heavily on the people who are prepared to invest time and energy in providing us with support, who help us to make decisions at pivotal points as we progress along our infant feeding journeys (Hoddinott et al, 2012; McInnes et al, 2013). In Wales, over the last century, the maternity care system and, thereafter, generations of women, lost confidence in breastfeeding. This has led to formula feeding becoming the default social in many less well-off communities, while introducing formula milk became the 'go to' solution for common early breastfeeding problems. In the first decade of the 21st Century, the Welsh policy response to this landscape was to act on recommendations from the World Health Organisation (WHO, 2002) and from NICE (NICE, 2008), by setting aside pockets of funding for peer support training to provide lay community-based sources of breastfeeding knowledge and expertise for new mothers to draw on. In practice, delivery of peer support training in Wales has been non-strategic and impact has been poorly monitored. In 2012 an influential systematic review of experiments of breastfeeding peer support concluded that this intervention form might be unlikely to work in the UK (Jolly et al, 2012a). This conclusion, combined with the findings of a Health Improvement Review of Welsh public health interventions (PHW, 2013) led to decision-makers within PHW agreeing that central funding for peer support training would no longer be allocated unless the training was being delivered as part of a public health research project (PHW, 2016).

I began my empirical work by articulating a position that dismissing the potential utility of peer support intervention in Wales was premature (Trickey, 2013a; Thomson and Trickey, 2013). This position was based on my reviews of the literature as presented in Chapters 1-3; wherein, I considered the theoretical underpinnings for peer support intervention (Chapter 1), the evidence for breastfeeding peer support intervention (Chapter 2) and the wider landscape of influences on infant feeding decisions (Chapter 3). First, I argued that peer support is an ill-defined and variously-theorised intervention form (Turner and Shepherd, 1999) and that observed outcomes in experimental cases may be the result of multiple poorly articulated interacting causal pathways, in which peer support itself may or may not be an active ingredient. Intervention theory articulates intended causal processes, meaning that interventions can be considered 'theories incarnate' (Pawson and Tilley, 1997). A lack of clarity about the intended intervention theory underpinning any given intervention – the anticipated causal pathways for change – means that it is impossible to know whether mechanisms can be replicated in scale-up or whether an apparently similar intervention can be expected to lead to the same intended outcomes in a new setting. Second, I considered the contradictory evidence from international studies, the findings of process and qualitative studies and the findings of UK-based experimental studies. I suggested that design and implementation issues, as well as complex interactions between the intervention and the wider contexts into which they were inserted would be likely to have contributed to intervention failure in many instances (Thomson and Trickey, 2013). Third, I argued that theorisation of breastfeeding peer support needs to respond to the call to draw on complexity thinking (Pérez-

Escamilla and Hall-Moran, 2016), and to take account of the status of breastfeeding peer support as a 'wicked problem (Rittell and Webber, 1973); that there is a need to encompass interaction between the wider context and the intervention (Rickles et al, 2007; Hawe et al, 2009) and to take account of the impact of life journeys of mothers, some of whom go on to be peer supporters.

My empirical research was structured around four research questions, which provided a guide to my journey into exploring and articulating stakeholders' understandings and experiences of breastfeeding peer support in a Welsh context, and into iterating between these and the experience of experiments of breastfeeding peer support delivered in high-income country settings. This journey of exploration led to a series of insights, giving rise to implications for theorising peer support intervention.

10.4 Implications arising from intervention in a complex system

My first research question asked,

RQ1: Is a complex-ecological-systems approach to the development and implementation of breastfeeding peer support interventions justified in a Welsh delivery context?

My interviews with professional advocates in Phase 1 and the focus groups with parents, peer supporters and health professionals in Phase 3 indicated that a complex systems perspective on the infant feeding policy implementation context is justified. Participants' experiences of implementation were congruent with an understanding that there are multiple interacting influences on feeding decisions operating across system boundaries and strongly conditioned by system history. Peer support interventions need to reflect the different role of these interacting components in their design, implementation and evaluation; in particular, this study confirms that intervention design needs to consider appropriate interactions with existing feeding norms and aspirations and with the existing care pathway. Identifying the ways in which peer supporters can have greatest impact on the system as a whole will be important.

The research highlighted three aspects of complexity thinking that are particularly worthy of consideration with respect to theorising breastfeeding peer support interventions, the implications of which will be discussed in more detail below. First, participants' perspectives on the issue of 'low breastfeeding rates' resonated with the concept of a 'wicked problem' (Rittel and Webber, 1973) to the extent that the rationale for promoting breastfeeding is underpinned by shifting formal and informal rationales that are difficult to pin down. Second, the interviews confirmed findings of previous research indicating that the contested quality of the UK infant feeding policy implementation landscape takes an emotional toll on health

professionals (Furber and Thomson, 2008). A third related point is that the research indicated a need for intervention theory to pay attention to the role of personal experience in triggering powerful feedback effects, wherein individuals who are often powerfully motivated by their own positive and negative personal experiences of feeding babies use their agency to change the context for other mothers coming up behind them.

Implications of working with a shifting conceptual frame

Wicked problems tend to be underpinned by insecure conceptual frameworks (Rittel and Webber, 1973; Wexler, 2009). The Phase 1 interviews with professional advocates indicated a shifting conceptual landscape and revealed that formal public health policy rationales for breastfeeding promotion (reduced morbidity and mortality) only partially articulate participants' personal beliefs about 'why breastfeeding matters'. In fact, professional advocates' motivations are often *primarily* rooted in a desire to see mothers empathetically helped through challenging and negative experiences.

Stakeholders in Phases 1 and 3 related many stories of breastfeeding journeys that incorporated feelings of distress, abandonment, pain and disappointment. However, although I set out with evidence from prior research (Brown and Lee, 2011) and from personal experience (Box 2, p.85) that pleasure and enjoyment are part of the reason that many women continue to breastfeed, I found that positive stories of women's feeding journeys were less common in this study. The dearth of positive stories in the stakeholder focus groups in Phase 3 may have been a consequence of the agenda of the research at this stage, and my transparent approach to conveying that agenda to participants. Participants knew that they were helping to develop understanding about 'how peer support works'. Accounts of 'things going well' do not fall easily within the construction of a causal narrative – situation → event → outcome – and do not make for good storytelling, so it is perhaps not surprising that simple positive accounts were rare. However, even in the Phase 1 interviews, where there was more time to develop rapport, when the agenda was more open, and when participants themselves were trying to recount their own positive experiences, there was a struggle to convey. In the attempt, these professional advocates for infant feeding policy fell back into the language of biology (e.g. oxytocin) or public health policy (e.g. 'attachment') or religion ('spreading light'), or else resorted to translating their meaning into embodied gestures. The recent policy shift towards emphasising the concept of 'attachment' (Unicef UK, 2013) seems to be attractive to professional advocates partly because it serves to bridge the gap between (perceived to be) *admissible* evidence that breastfeeding promotes long-term health and well-being and (perceived to be) *inadmissible* personal feelings that breastfeeding can simply be a lovely thing to do.

Overall, the research seems to confirm my initial hunch (Box 2, p.85) that as a society we lack an acceptable discourse for the positive emotional hit that women often get from suckling their babies. It is likely then that intervention designs – including peer support interventions - may be failing to take account of these powerful ineffable positive feelings. This may be restricting

our ability to take in the full scope of what peer supporters 'do' and why they do it, and may also be contributing to an unaddressed conceptual alignment between 'what really matters' and 'what decision-makers say they care about'. This misalignment was manifest in many of the case study interventions that were included in the realist review in Phase 2, where there was often a mismatch between formal intervention goals (to increase breastfeeding rates) and the tacit goals underpinning delivery (to improve mothers' experiences). That these agendas would somehow overlap (that improved experiences must sit somewhere on the causal pathway to improved breastfeeding rates) seemed to be taken-for-granted; *how* these agendas relate to one another was not fully articulated.

Implication 1: There is a need to develop hypotheses that explicate the relationship between maternal experience and health policy goals. Stakeholder perspective is likely to matter in the way that these goals are prioritised (for example, mothers themselves may value their own personal *experience* over population health outcomes). To improve congruence between agendas, there may be a need for interventions that explicitly intend and articulate multiple, co-produced, simultaneous outcomes.

Implication 2: There is a need to consider the development of interventions that recognise maternal experience as being important, quite aside from any relationship between infant feeding and health outcomes. Peer supporters are not bound to speak the language of public health policy. Peer support interventions may provide time and invitation for conversation about both negative and positive emotional and embodied experiences of feeding babies; including communication through non-verbal vicarious experience. Articulating this function of peer support intervention in upholding experiential benefits will involve providing some 'eff' for the ineffable. The challenge is to articulate in a way that avoids re-translation into the currency of 'health benefits'.

Implications of working in a contested context

Wicked problems are characterised by a lack of consensus about the nature of the problem being addressed and the solutions that are being proposed to solve it (Rittel and Webber, 1973; Wexler, 2009). Lack of consensus that breastfeeding matters, or that key established interventions – including adoption of the BFI – are worth the work of implementing, was evident in the accounts of Welsh stakeholders garnered in Phases 1 and 3, and also contributed to implementation problems in a number of the intervention cases that were included in the realist review in Phase 2. The study confirmed findings from other research that health professionals trying to deliver improved support for breastfeeding mothers often experience their work as emotionally exhausting (Furber and Thomson, 2008).

To negotiate this contested context, professional advocates (Phase 1) had developed strategies for communicating their advocacy goals that were highly tuned to the perceived unspoken personal experiences and beliefs of other stakeholders in the system. Failure to nuance – perhaps by being 'too passionate', or by using language that could be construed as blaming and shaming mothers who formula feed, or by talking to the wrong people at the wrong time in the wrong way about the health benefits of breastfeeding – was seen as problematic, potentially even undermining the careful advocacy work of others. Professional advocates with both policy and practitioner (IBL/C) roles, tended to have a strong sense that nuanced advocacy skills took experience to develop, and that newbies – including peer supporters – sometimes struggled to achieve appropriate nuance. To set against this perspective, the Phase 1 research showed that the IFL/Cs, who told me about how hard they worked to maintain a nuanced approach, were themselves sometimes considered too strident in their advocacy work by policy participants – so, there seems to be no secure standpoint from which to decide how much passion is *too* much. Furthermore, as some of my participants pointed out, being perceived as 'difficult' may be what is needed to fulfil an advocacy agenda.

There is a need to consider the contested quality of the implementation context in relation to the training that peer supporters receive, with respect to their roles in providing acceptable support to mothers and in negotiating with other stakeholders. A metasynthesis of experiences of support confirms that mothers themselves prefer peers who represent an *'authentic presence'* (Schmied et al, 2011, p.51) and who have skills associated with a person-centred approach to support-giving. However, it is unclear whether these qualities of support-giving can be 'trained in'; the realist review found that two hours orientation could be sufficient to enable peer supporters to develop good relationships with mothers (Dennis et al, 2002b). Equally unclear is whether it is possible to 'train out' approaches to support-giving that lead to what Schmied et al (2011) have termed '*disconnected encounters'* (p.51). The process of peer selection may provide the key to providing peers who can speak a language that is helpful to the intervention – findings from Phase 2 of this study suggests that personal warmth and capacity and confidence to engage will trump knowledge of the physiology of breastfeeding.

In terms of negotiating with other stakeholders, it is clear from the research that advocates themselves greatly value being part of a community that facilitates opportunities to confer, co-create and nuance messages around breastfeeding promotion, and that individual advocates have different views about which sorts of messages play best in which circumstances. Public insight research may help policy professionals to understand which sorts of advocacy messages are most effective with which sorts of audiences, and why. However, insight will not be enough to inform intervention development. It needs to be acknowledged that any decision about advocacy messages will ultimately be values-based. Work is needed to elucidate tensions within the current loose affiliation of perspectives that underpin breastfeeding advocacy work – for example, there could be a clearer understanding that advocacy work can tend to be maternal experience-centred or health outcomes-centred; can tend to be focused on changing individual behaviour or on changing services and societal norms (Trickey,

2016a); decision-makers need to adjudicate between different underpinning values when designing, implementing and evaluating interventions.

Complexity thinking requires agents who wish to intervene in systems to reflect on their own understandings of the *boundaries* of the system they are addressing (Leischow and Milstein, 2006), as well as the boundaries between those who are involved and may benefit from intervention, and those are not and may not. It is noted that boundary judgements and value judgements may be closely linked, for example powerful sets of actors within the system may be able to influence the process of drawing system boundaries in a way that constrains the values that can be pursued through intervention, excluding the values of other, less powerful, stakeholders (Midgely 2000; Midgley, 2006). Midgley argues that the overlap between boundary judgement and value judgement implies that an ethical approach to defining the system boundary must involve engaging with a wide set of stakeholder values and concerns.

The fact that in any intervention context there will be multiple perspectives from stakeholders who each have an interest in defining values, combined with the finding from Phase 2 that interventions are unlikely to 'take' if the goals are too distant from the current feeding norms of mothers, suggests a need to co-produce interventions, involving stakeholders in agreeing what a desirable outcome should look like and setting out how this should be achieved (Innes and Booher, 1999). Midgley discusses various approaches to gaining such inclusion – including interactive planning, soft systems methodology, and critical systems heuristics – and asserts that that boundary critique will be especially important when addressing issues relating to disadvantaged and socially excluded groups who may be relatively powerless compared to those responsible for determining how resources should be distributed (Midgley, 2006). Consensus building, and other forms of collaborative planning are increasingly used for dealing with shared power and conflicting values to address problems arising from complex systems (Innes and Booher, 1999; Savona et al, 2017). Those designing peer support interventions may benefit from considering these approaches.

Implication 3: There is a need to acknowledge the contested quality of the implementation context in the process of intervention design. Specifically, a local context assessment may need to be conducted to consider the extent to which health professionals, with whom the intervention is intended to interact, believe that the intervention goals are important and that the intervention itself can help deliver those goals.

Implication 4: There is a need to for those who are designing and delivering interventions to be explicit about the intervention's underpinning values – there is a need to reflect those values in the training that peer supporters receive. This will be particularly important where communicating intervention messages alongside giving support is intended as part of the intervention.

Implication 5: A co-production approach, to involving a range of stakeholders, including health professionals, peer supporters and parents, should be considered in defining

Implications arising from incorporating maternal agency

In Chapter 3, I noted that current descriptions of the context for infant feeding interventions (for example, Rollins et al, 2016) tend to reflect a top down understanding of influences and do not speak to the role of maternal agency. I proposed a simple complexity-enhanced visual model of the landscape of influences on infant feeding decisions (Figure 4, p.74), which incorporated the idea that each mother's journey will feeds-back into her context. I took this model forward into my empirical work.

This visual aid achieved a high level of resonance with the stakeholders who engaged with it in Phases 1 and 3. A clear message from these phases of the research is that powerful feedback effects arise from the personal experience of individuals, so that, depending on where those individuals are positioned within the system – for example, as policy makers, health professionals or grandparents or as new mothers with capacity for some additional training in breastfeeding peer support – they may be highly motivated to influence the infant feeding journeys of others and also the wider system of influence through which those journeys take place. In Phase 1, professional advocates spoke about the importance of their own feeding journeys as the root of their 'passion' to change circumstances for others, frequently leading them to work over and above in their advocacy roles. The finding that personal experience is highly motivating was repeated in Phase 3 for peer supporters. This 'feedback' from advocates' own journeys is clearly important in driving change. The experience of Phase 1 professional advocates was that this personal journey feedback effect also acts in the opposite direction, so that indviduals who have themselves had unhappy experiences of breastfeeding can later come to act as barriers within the sytem of influences to attempts to promote breastfeeding.

The review of the wider literature on breastfeeding peer support reported in Chapter 2, and the study of intervention cases that have been subject to experimental study in Phase 3 (reported in Chapter 8), suggests that ideas about the role of maternal agency in changing the context for decision-making are under-developed in the literature on breastfeeding peer support. In fact, there has been a tendency for interest in the impact of intervention (particularly in the experimental evidence discussed in Phase 2) to start with a trained peer supporter and a new mother and to end at the point at which mothers have or have not been supported to achieve a desired feeding outcome.

A lack of theoretical focus on the prior and ongoing experience and actions of mothers (before and after the time when they are pregnant or feeding a baby) is surprising given that by definition breastfeeding peer supporters are mothers who have been sufficiently motivated by their own experience to train in order to 'feedback' to others from that experience. And also

when we consider that feedback from personal experience is the engine that drives most voluntary support organisations. The contributions to this study indicate that 'feedback' mechanisms include both *stories* (positive and negative) and *actions,* such as helping a friend or instigating a campaign. It is worth considering whether this time-limited view of peer support interventions is reducing the multiplicative potential of this as a feedback effect from support (Byrne, 1998; Hawe et al, 2009).

Introducing the notion of feedback will challenge our ideas about how intervention 'success' is measured. For example, a measured and recorded policy 'success' – in the form of a mother who initiates breastfeeding – may mask a process that is in fact working against a policy goal of normalisation. For example, a mother who breastfeeds for several weeks but subsequently has a negative experience of breastfeeding feeding support may diffuse this negative experience back into her social network; similarly, a mother who breastfeeds for a few days but loves it and encourages others to do the same may be having a more positive impact on breastfeeding rates. It may be possible to identify barriers and facilitators to different sorts of feedback – perhaps demonstrating a tendency to amplify prevailing social norms. For example, a mother who has a good personal experience of breastfeeding, in a context in which the prevailing discourse is negative, may feel inhibited in describing her positive experience to others, in breastfeeding in front of others (providing vicarious experience), or in providing lay peer support to members of her social network.

Implication 6: In relation to a goal of achieving sustained change in infant feeding decisions at community level, the stories that individuals tell themselves and others about their own experiences matter because of their direct and indirect impact on the feeding decisions of others. Consideration should be given to the role of stories as intermediate outcomes in the development of a community-level theory of change. It is worth considering that a good story about breastfeeding could emerge from a relatively short breastfeeding journey; also that an unhappy story could emerge from a longer journey.

Implication 7: Intervention design could give consideration to specifically targeting recruitment towards peers who are positioned within a system (e.g. a social network) to have credibility, social reach, or an ability to facilitate a change in local resources.

10.5 Registers as a starting point for theory extension

My second research question asked,

RQ2: How do professional advocates for Welsh infant feeding policy understand breastfeeding peer support to work?

A starting point for this research was that peer support is an undertheorised concept. (Turner and Shepherd, 1999, p.235). Evaluators from traditions of realist philosophy of science and from complexity theory have argued that there is a need for greater use of substantive theory to guide evaluation (Pawson and Tilley, 1997; Westhorp, 2012). The purpose of the research presented in this thesis was to explore case studies from the literature and the range of understandings about how peer support works in the minds of stakeholders and to extend, contradict and nuance existing ways of thinking about how peer support might 'work'.

Several IFL/Cs I interviewed in Phase 1 of this research had been frustrated by negative findings for peer support arising from the experimental literature (MacArthur et al, 2009; Jolly et al, 2012a), as they felt this did not capture their own experience of the effectiveness of breastfeeding peer supporters. This suggested that understandings about 'how peer support works' that had underpinned the interventions that had been subject to experiment were not chiming with the understandings of IFL/Cs. Furthermore, policy leads tended be concerned about the opportunity and economic costs of recommending peer support interventions that were not theoretically informed, in line with the findings fo the PHW Health Improvement Review (2013).

The first phase of my research revealed that policy and IFL/C professional advocates for breastfeeding peer support intervention have a variety of ways of understanding how peer support works. I was able to identify three *registers* – generalised ways of understanding and articulating causality that sit somewhere between discourses and mechanisms – to explain these collections of implied causal processes. I labelled these registers as 'care pathway', 'mothers and sisters' and 'ripples in the pond'. These three registers are distinguished by different levels of implied mutuality and different kinds of relationships with wider contextual influences (Figure 19, p.259).

Figure 19: Illustrated registers for breastfeeding peer support
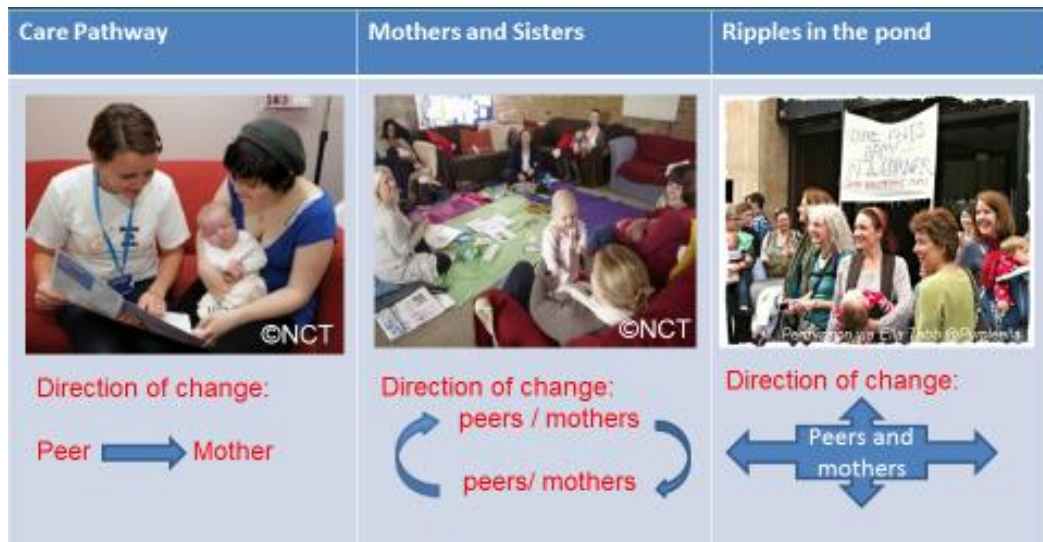
The three registers conceive of mothers as 'embodied actors' with different levels of passivity/ activity in relation to the wider complex system of influences on infant feeding decisions (Gatrell, 2005). The three registers were confirmed through discussion with parents, peer supporters and health professionals contributing to Phase 3.

Relating the registers to existing theories applied to peer support

In Chapter 1, I highlighted that the theoretical landscape for peer support interventions is dominated by theories involving mechanisms that operate at the level of the peer-mother relationship, with outcomes anticipated at the level fo the individual who is supported (for example, a change in decision or behaviour). Existing theory frameworks most commonly associated with peer support included Social Learning Theory (Bandura, 1986) and the Theory of Social Support (Barnes, 1954; Cassel, 1976; House, 1981); while the Principle of Homophily (McPhereson, 2001) was also frequently considered to be underpinning.

I also noted that the Harris et al, (2015) review had identified several interventions that were based on theories whose mechanisms operated at the level of the community setting. These were understood to lead to outcomes that reach beyond a change in the behaviour of an individual person supported by an individual peer. These included Control Theory (Hirschi, 1969) and Diffusion of Innovations Theory (Rogers, 2010). The review by Harris et al (2015) also identified peer support interventions that were based on Socio-Ecological Frameworks, with intervention occuring at multiple levels within a system of influences.

This thesis does not intend to adjudicate between a set of contending theories for breastfeeding peer support. Neither are the 'registers' identified through the research in themselves 'theories'; they do not replace existing theoretical frameworks. However they *do* provide a waysign to clusters of theories that are worthy of further investigation within each

register category and all three registers highlight a need for intervention designs to include theories that cross ecological levels.

A key finding of the research is that the most commonly applied 'candidate' theories for peer support, which tend to operate at the interpersonal level, are insufficient on their own to support intervention design because they tend to be decontextualized. It is important to note that their insufficiency does not render them irrelevant to future intervention design. Rather, intervention designs may need to 'layer' theories to take account of different interactions occruing at different levels within embedded systems,

> It is entirely possible that different systems will be needed to describe [sub-systems]. Evaluators can thus embed theories within one another in the same way as systems are embedded within each other. In simpler language, 'layering' theories to deal with the 'layers' of the systems can hep to capture this feature of reality.

<div align="right">Westhorp, 2012. p. 411</div>

Depending on the register within which peer support is developed, existing concepts and theories may be more or less useful. For example, the need for adherence to the principle of homophily (McPhearson et al, 2001) seemed to be diminished within the 'Care Pathway' register, but to be more important for the 'Mothers and Sisters' register (See Chapter 9, Section 9.10).

Broadly, the research findings are consistent with approaches that emphasise relationship building, and all three registers identified in this thesis are capable of encompassing existing interpersonal theories, such as Social Support. However, the research reveals a need to break open the black box that is loosely labelled 'social support' and to consider which aspects of 'social support' are needed in any given context, the ways in which these might be triggered, and how they should be evaluated. All three phases of this study confirmed findings from previous research that emotional support is highly valued, and often considered key to enabling women to breastfeed (Schmied et al, 2011). However, Phase 2 and 3 findings suggest that emotional and appraisal support may be necessary but not sufficient depending on contextual conditions, including the amount of instrumental and informational support already available in the existing care pathway. While Dennis argues that instrumental (or practical) support is not a common feature of peer support interventions (Dennis, 2003), more recent research suggests that practical help can be a key component of peer support interventions, particularly when delivered to disadvantaged women, with this form of help acting as *'an expression of caring and a means of building trust'* (McLeish and Redshaw,

2015, p.12). In this study, intervention cases included in the Phase 2 realist review used peer supporters to provide '*hands on*' instrumental help with getting breastfeeding started.

Existing theories that operate at higher ecological levels and across ecological levels may help to enhance design of peer support interventions. In particular, as discussed in Chapter 9, (Section 9.10), qualitative findings from focus groups with stakeholders suggest that Control Theory (Hirschi, 1969) may provide a starting point for understanding how groups of mothers create subcommunities making a 'deviant' behaviour socially safe. Further theory development work might focus on the conditions that facilitate the development of such sub-communties. Similarly, Diffusion of Innovations Theory provide a useful starting point for designing interventions within the Ripples in the Pond register. Further theory development work could consider the qualities that make created peers effectrive 'diffusers', and the mechanisms by which they carry out their diffusion work.

Implications for intervention design within the three registers are discussed in the sections that follow. It should be noted that further work is needed to translate these registers into theoreitically informed interventions with pre-specified mechanisms so that they can be evaluated. Here, I merely propose that recognising and thinking in terms of these three registers may help those involved in intervention design to consider different sorts of implications for intervention development.

> *Implication 9:* Theoretical approaches that rely on triggering mechanisms at the interpersonal level – such as the theory of social support - are likely to be helpful as part of intervention design, however, they are insufficient to guide the design of peer support interventions as they tend to be decontextulalised.

Issues to consider when employing a 'care pathway' register

The care pathway register of understanding assumes a unidirectional relationship with support delivered by the peer *to* the mother, so that the peer enhances or compensates for the existing health care professional pathway, with the intention of changing the behaviour of individual mothers, principally via various mechanisms that come under the umbrella of social support (House, 1981) towards public health goal aligned changes in infant feeding outcomes. The effect of care pathway support is *additive* (Hawe et al, 2009)*,* with extra doses of support having the potential to enhance or extend individual mothers' breastfeeding journeys. Peer supporters are understood to be drawing directly or indirectly on their own feeding journeys to provide support to others however, the onward agency of the individual peer supporter is confined to impact the several other mothers that she supports, and mothers themselves are really understood only to have agency over their own feeding journeys.

The 20 propositional statements identified from realist review (Chapter 8) are based on experiments of care pathway interventions and therefore provide a rich source of guidance for intervention design. Clearly interaction between the intervention and the wider context is important. In particular, all three phases of the research found that if there was poor integration with the existing care pathway then peer support would be likely to be under-used. All care pathway interventions imply an acceptance that the existing health care professional pathway for breastfeeding help is not enough to meet the support needs of mothers. Paradoxically, when a pathway is weak and unreliable and might be thought most likely to benefit from peer support enhancement (either because of low capacity or because the attitudes and beliefs of health professionals work against decisions to breastfeed) there tends to be greater difficulty in achieving effective integration. An unreliable pathway is difficult for a peer support intervention to attach to. Furthermore, a weak pathway presents problems for evaluation as there is an increased likelihood that the intervention will not be well-embedded and that issues of displacement will arise.

This suggests that intervention design may be enhanced by incorporating a pre-intervention stage, involving careful mapping of the existing care pathway in the intervention context. First, this would enable those designing the intervention to consider whether barriers to integration can be overcome, or whether remedial work to fix the pathway is required before a 'care pathway' intervention can be considered. Second, this would help guide a context-driven design, enabling identification of weak points in the pathway that peer support could most helpfully fill and ensuring that peer supporters have the qualities needed to enable them to negotiate the care pathway. Phase 3 revealed that peers are sometimes the end point for referrals for feeding problems and are often instrumental in helping women to negotiate the health care pathway. Context-driven consideration needs to be given to discerning which aspects of social support that are needed to ensure that these are facilitated so as to maximise impact – this includes taking a realistic view of the balance between care pathway compensation and enhancement that peer supporters will be required to undertake.

In terms of evaluation, this register of understanding does focus on outcomes at the individual level (or at the level of the (mother-infant dyad) and therefore may be considered suitable for RCT. However, Phase 2 highlights ways in which experimental conditions make it more likely that mechanisms associated with implementation failure will be triggered. Furthermore, even for within this register of understandings, where the focus is on individual change, the study indicates a need to take account of contextual influences (Bonnell et al, 2015) and to integrate realist principles into evaluation designs (Fletcher et al, 2016). Any RCT of care pathway support will need to integrate process evaluation into intervention design (Moore et al, 2015).

> *Implication 9:* The 20 propositional statements and visual thinking tool (Figure 17, p.198) developed from realist review and set out in Chapter 8 provide a guide to development of 'care pathway' interventions.

Issues to consider when employing a 'mothers and sisters' register

The 'Mothers and Sisters' register for breastfeeding peer support implies a reciprocal relationship between mothers and peers. Peers provide a sub-community in which breastfeeding is normalised and experiences can be shared so that mothers overall *experiences* of breastfeeding are enhanced with the practice of breastfeeding being integrated into the wider parenting culture. This register of understanding appears to have some cross-over with concepts of 'weak' and 'strong' social bonds drawn from Control Theory (Hirschi, 1969).

The 'mothers and sisters' register expands the temporal window for maternal agency beyond that of the 'care pathway' register - encompassing an understanding that as the mother's journey progresses she is herself able to pass on what she has learned to several other mothers, informally as a result of occupying the same social space, well as (potentially) by training as a peer supporter. This register also includes an understanding that certain conditions will tend to facilitate the growth of a sub-culture whilst others will work against. As discussed in Chapter 9, there is as need to consider the extent to which community-based peer support interventions should be established to align with or challenge existing social norms. The Phase 3 findings produced propositional statements relating to difficulties in sustaining community-based interventions (Table 13, p.238). This research extends the existing evidence around sustaining and establishing peer support groups in community settings (Dykes, 2005b).

The 'peer-ness' of peers (the principle of homophily) seems to be more important for this register of understandings about peer support than for the care pathway register. Phase 1 and Phase 3 participants for this study indicated that social similarity would be important in facilitating the development of social bonds, particularly in areas with low breastfeeding rates. As for 'care pathway' understandings, warm and affirming relationships are believed to be important, however unlike 'care pathway' relationships, relationships in this 'mothers and sisters' register are multiple and multi-directional. This register also suggests slightly different mechanisms of social support compared to the 'Care Pathway' register, with more gradual effects. For example, this register implies a greater emphasis on the medium-term impact of vicarious experience of other mothers' feeding behaviours, opportunities to integrate breastfeeding with wider parenting practices and to negotiate between the attitudes of a group of breastfeeding mothers and the pre-existing beliefs and attitudes in a woman's social network, so that beliefs and attitudes change gradually over time.

The 'Mothers and Sisters' register implies a lesser degree of integration with health professional support compared to the 'care pathway' register. Previous research suggests a detrimental impact of conflicting advice for mothers' feeding experiences (Schmied et al, 2011), and health care professionals contributing to Phase 3 of this study were concerned that peer supporters might give conflicting advice or incorrect help. Furthermore, Phase 1 and Phase 3 stakeholders highlighted the importance of health professional input in sustaining groups. However, it was also clear from Phase 3 feedback that part of the function of peer support under a 'mothers and sisters' register is to provide an alternative source of help and advice *both* to women's existing social networks and to health care professionals.

This register for understanding suggests outcomes measured at the level of mothers' social networks – perhaps with a focus on the impact of altered social networks on changes in attitudes, beliefs and willingness to consider making culturally divergent feeding decisions. The degree of mutuality and exchange implied by this register of understanding suggests that individualised RCTs are unlikely to capture the impact of a peer support intervention, and that cluster-RCTs may be necessary to pick up impact. Any such evaluation would need to explore, test and refine a theoretical relationship between improved support networks and public health driven outcomes.

Implication 12: There is a need to specify mechanisms operating at the level of groups of women and to distinguish these from mechanisms operating at the level of one-to-one support, so that the impact of these mechanisms can be evaluated.

Implication 13: Individualised RCTs are inappropriate for evaluation of theories based on mechanisms operating within the 'mothers and sisters' register.

Issues to consider when employing a 'ripples in the pond' register

The 'Ripples in the Pond' register introduces a diffusion-based understanding of how change happens (Rogers, 2010), and has strong links to the discussion above concerning feedback from maternal agency. The 'Ripples in the Pond' register begins to expresses the idea of maternal agency in a fuller sense than 'Care Pathway' and 'Mothers and Sisters' understandings; individuals are understood to contribute to change through conversations with members of their existing social networks as well as through activism and campaigning work. Positionality of the peer supporter within a wider system of influences is considered important.

Although, in this study, this was the least clearly articulated register of the three, it does appear to offer potential from a public health planning perspective. Faced with the wicked problem of low breastfeeding rates this form of intervention may seem worth trying. Phase 1 findings suggest that individuals can be highly motivated to make a difference – it is possible that the *right* individuals in the right sorts of positions within a wider system of influences might create the *right* relatively small change in key control parameters at the *right* point in the system (a

bifurcation point) may cause a switch from a negative (stabilising) feedback relationship between components to a 'positive' (re-enforcing or accelerating) feedback situation. This register might seem to hold out the promise of a 'big', *multiplicative*, self-sustaining, population level change (Byrne, 1998). This register is untested for breastfeeding. There may be potential to learn lessons from peer diffusion interventions developed for other public health issues, including HIV prevention (Kelly et al, 1991; Latkin et al, 2003) and smoking prevention among teenagers (Campbell et al, 2008).

> *Implication 14:* Formal theories of breastfeeding peer support have not tended to utilise the concept of diffusion, although the idea that infant feeding behaviours *are* socially diffused is integral to many stakeholders understanding. Intuitively, stakeholders recognise that position within the system of influences and the characteristics of particular mothers will determine their suitability as diffusion agents. There is a need to formalise and test these ideas. Diffusion models developed in relation to other public health issues should be considered as a basis for intervention development.

10.6 Challenges to unpacking experiments

My third research question asked,

> RQ3: How can case studies drawn from the experimental literature extend professional advocates' understandings about how breastfeeding peer support works?

The realist review of experiments, conducted as Phase 2 of this research, resulted in a thinking tool and 20 propositional statements to inform the development of breastfeeding peer support interventions (Chapter 8). The review demonstrated that the current experimental evidence base consists of interventions that are poorly theorised and underpinned by just one of the three registers for understanding breastfeeding peer support intervention – a 'care pathway' understanding take on what peer supporters do. Despite the fact that these interventions are predicated on mechanisms operating at the level of the individual, the review strongly indicated the impact of higher ecological level influences on intervention outcomes – in the language of complexity, existing baby feeding norms and the condition of the existing care pathway could be viewed as 'control parameters' (Byrne, 2005) for breastfeeding peer support intervention. The review also found that poorly embedded, temporary interventions can exacerbate issues of poor goal alignment between health care professionals and peer supporters – problems related to poor-embeddedness arose for cases included in the review when interventions were delivered for the purpose of experiment, but this issue may also apply to interventions based on insecure, short-term funding.

A complexity-informed understanding of context for infant feeding decisions (Pérez-Escamilla and Hall-Moran, 2016) presents a broader challenge to interpreting findings from experiments

of breastfeeding peer support. The interventions included in the review tended to have been evaluated as if isolated from the surrounding context, and from the history of the systems into which they were inserted. They were also inserted in the absence of any over-arching community-level theory of change to which they can attach (Trickey et al, 2018). Recent guidance recommends that,

> Researchers should systematically incorporate considerations of context at all stages of the development and evaluation of population health intervention research

> Craig et al, 2018

Without a fully-theorised community-level understanding of how change in feeding norms happens it is difficult to know whether a single intervention cog – such as breastfeeding peer support – is working with or against other influences in the wider context. It is unclear what sort of change is reasonable to expect in what kinds of conditions. There is a lack of clarity about the relationship between intermediate goals – for example changes in intentions or attitudes – and long term goals, and next to no discussion of how the pathway to change might vary between communities with different parenting and infant feeding norms.

Implication 15: Learning from the 39 statements set out in Table 13, Page 238 should be incorporated into the design of breastfeeding peer support interventions.

Implication 16: Decision-makers should be made aware of interpretation difficulties from headline findings from systematic reviews of breastfeeding peer support and that these reviews do not test the full range of potential peer-interventions.

10.7 Designing breastfeeding peer support for a broken pathway

My fourth research question asked,

> RQ4: How does the experience of Welsh parents, peer supporters and health professionals, extend the understandings about how breastfeeding peer support works, which were gathered from professional advocates and through realist review?

Parents, peer supporters and health professionals engaged in Phase 3 consistently confirmed the view of paid policy advocates in Phase 1, that intervention alignment and embeddedness are difficult to achieve in a Welsh context, in part because Welsh health care professionals are *not* consistently supportive of interventions intended to promote breastfeeding. Phase 3 of this research indicated that Welsh peer supporters experience similar tides of resistance to breastfeeding promotion initiatives to professional advocates. Phase 3 Welsh peer supporters and parents found that support from health professionals varied considerably, with some viewing their role as peer supporters to be compensatory. Many Welsh women leave hospital

without having established breastfeeding. Many are unsupported in the early days and stop breastfeeding before they plan to do so and before they reach peer support groups, which tend to cater for mothers who are sufficiently motivated to continue breastfeeding for several weeks. The objectives of a peer support intervention need to take account of this contextual reality. The conditions of an unreliable pathway have implications for evaluation. Without a secure understanding of the quality of the existing pathway and degree of embeddedness of peer support within that pathway, and without ongoing process evaluation to determine the interaction between the peer support intervention and the care pathway, it will be difficult to determine whether it enhanced care, displaced care, or had no effect.

There is a need to describe the care platform on which breastfeeding peer support interventions are intended to stand and acknowledge areas where the local pathway falls short of an intended level of quality. A mapped care pathway could provide a basis for action planning to inform intervention development - identifying capacity/timing/quality gaps that need to be filled by the intervention to support population needs. A mapping exercise could also indicate whether there is a need to undertake remedial work prior to breastfeeding peer support intervention initiation. Thereafter, there is a need to be clear about the mechanisms by which peer support is intended to improve experiences or outcomes.

Implication 17: A full local systems analysis, taking in local infant feeding norms and aspirations as well as the condition of the care pathway, my help those planning interventions to determine how peer support interventions should be weighted with respect to the three registers described above, and may help determine how to breastfeeding peer support can be best deployed to stimulate latent potential towards a critical point for change.

10.8 In conclusion

The work for this thesis has led to a series of propositional statements (Table 13, p.238) intended to inform the development of breastfeeding peer support interventions in a Welsh context. In this chapter I have highlighted 16 broader considerations for breastfeeding peer support intervention development.

The research contributes to an agenda to develop infant feeding support interventions that are context and complexity aware (Pérez-Escamilla and Hall Moran, 2016). The research highlights a need for those designing interventions to give consideration to the ways that interventions interact across open systems, and a need to pay particular attention to achieving sufficient congruity with existing social norms and sufficient integration with the existing care pathway for support, while still enabling the intervention to change social norms and to challenge and improve the care pathway. The research indicates a need to re-focus on intervention mechanisms rather than intervention labels (such as 'peer support') or intervention components (such as timing, training, mode of delivery etc.). Initiatives with

particular configurations of components that are successful in one area will not necessarily be transferable to other contexts, however, the propositional statements I have developed through this research *are* intended to be transferable; they can be observed, tested, confirmed, rejected or refined according to how they operate in new settings.

Complex adaptive systems thinking provides a framework for understanding interactions between influences within which other theories can be layered and embedded. The work for this thesis suggests that our theories of breastfeeding peer support interventions could be developed in line with theories that operate above the level of the individual and that understand mothers themselves to be potential agents of change in the contexts that they occupy. Wexler (2009) highlights that wicked problems may ultimately be *untameable*, no matter how well problem-solvers attempts to research and understand the system within which they are embedded. However, the international, inter-regional and inter-temporal variations in breastfeeding rates do suggest that the complex challenge of increasing breastfeeding rates is tractable. The research for this study suggests that interventions to date may have been self-limiting in not making use of maternal agency or of intervention registers that stand outside of a 'care pathway' understanding of how change happens.

There is an opportunity to examine the theoretical basis of Welsh infant feeding policy as part of the current Welsh Action Planning process (Welsh Government, 2018a). It will be important to ensure that the Strategic Group's thinking is aligned with overarching strategic goals that are aligned with the aspirations the women themselves and with credible and testable hypotheses about how change happens. A co-production approach to understanding the concerns of Welsh mothers is needed, incorporating wider experience of postnatal care, and recognising the causes and impact of a high breastfeeding 'disappointment rate' and continued social patterning in breastfeeding decisions. The Becoming Breastfeeding Friendly project, is intended to help governments assess readiness for change at national level (Pérez-Escamilla et al, 2012). At a local level there is a need to develop priorities driven by locally identified goals. For example, planners need to ask, 'Should the focus be on improving initiation rates?' 'Should policy makers be focusing on helping those who plan to breastfeed to continue?', 'What should the message be for mothers who plan to formula feed?'

Finally, there is a need to consider the underpinning motivation for policy. This research demonstrates a mismatch between women's informal motivations to support one another and formal public health policy discourses. Failure to recognise this mismatch and to accommodate a concern for the *experience* of feeding as being important in and of itself may be undermining infant feeding policy to extend health benefits. Actors across the whole system appear to be locked into a paradigm of 'health and health care' (Lee, 2007) that extends so far as to have almost erased a whole discourse for communicating feelings of pleasure or joy associated with breastfeeding. Under such a paradigm, the case for funding for support must always be framed in relation to health gains and cost-savings – the impact is so strong that even third sector organisations that are based on philosophies of women-to-woman mutual

support find that they need to enter into a double-think in order to make the case for services to be funded. The insistence on underpinning the rationale for funding with health claims may actually be fuelling a negative feedback loop in terms of breastfeeding outcomes, because the discourse further entrenches a polarised debate that is wholly focused on supporting or refuting those claims. Feminist activists may need to consider how as a society we have got ourselves into a positon where women's experiences have so little currency. Over recent years we have seen a shift in the conversation in the UK (Unicef UK, 2016) away from a focus on individualised solutions and towards a focus on contextual influences. The research for this thesis re-enforces an argument I have made elsewhere (Trickey, 2016a), that we may now need to accommodate a further shift (or at least an expansion) of the conversation – so that we can begin to value of women's *experiences* can alongside health benefits.

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List of abbreviations in the text

ABM	Association of Breastfeeding Mothers
ALSPAC	Avon Longitudinal Study of Parents and Children
AOM	Acute otitis media
AWBF	All Wales Breastfeeding Forum
BFHI / BFI	Baby Friendly Hospital Initiative / Baby Friendly Initatitve
BfN	Breastfeeding Network
BMI	Body Mass Index
CAS	Complex Adaptive System
CI	Confidence interval
CMO	Context-Mechanism-Outcome configuration
DBS	Disclosure and barring service check
DECIPHer	DECIPHer is the Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement at Cardiff University.
DHSS	Department of Health and Social Services
IBFAN	International Baby Food Action Network
IFL/C	Infant Feeding Lead / Co-ordinator
IFS	Infant Feeding Survey
ILO	International Labour Organisation
IQ	Inteligence Quotient
LRTI	Infant lower respiratory tract infection
MRC	Medical Research Council
NCT	Formerly National Childbirth Trust now just NCT. The UK's largest charity for expectant and new parents.
NEC	Necrotising enterocolitis
NICE	National Institute of Clinical Excellence
OR	Odds Ratio
PHW	Public Health Wales
RCT	Randomised Controlled Trial
SACN	Scientific Advisory Committee on Nutrition
SIDS	Sudden Infant Death Syndrome
WBTi	World BreastfeedingTrends Initiative
WHA	World Health Assembly
WHO	World Health Organisation
WIC	Women, Infants and Children Nutrition Service (US Federal programme)
WIFIN	Welsh Infant Feeding Network

List of appendicies

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Appendix A: Short glossary of realist terms used in the thesis

Subjects: all those people who may be directly affected by an intervention and whose decision—making does or could affect outcomes. Social programmes or interventions work by changing the decision-making processes of subjects.

Intervention/ programme/ programme activities: these change the resources or opportunities available to subjects, and therefore change the context for those subjects. The new context then triggers mechanisms.

Hypothesis: A logical supposition, a reasonable guess, an educated conjecture, providing a tentative explanation for the phenomenon under investigation. Hypothesis can be about the programme theory, about mechanisms, or about the aspects of context that will influence whether and how programmes work.

Mechanism (M): Mechanisms are the causal force or power the underlying entities, processes or social structures which operate in a particular context to generate outcomes of interest. They change the decisions that subjects make, and thus they *cause things to happen.* Mechanisms are context-sensitive, a mechanism is not inherent to a programme, but a function of the subjects' reasoning and the context, the same intervention can trigger different mechanisms for different subjects even within one location. Programmes can work through multiple mechanisms, some may correspond to the programme designer's intentions, others not.

Context (C): '*Any condition that triggers or modifies the behaviour of the mechanism'*. The context is the surrounds to an intervention and the components of the intervention itself; these include social, economic and political structures, organizational context, intervention participants, intervention staffing, intervention funding, existing social networks, and the geographical and historical context. The context will itself be changed by the intervention.

Outcome (O): The intended and unintended consequences of an interaction between mechanism and context. Consideration of outcomes provides a way to test whether theories about the way that different configurations of context (C) and mechanism (M) work together.

C-M-O configurations: A statement or diagram that sets out the relationship between context, mechanism and outcomes. Some context (C) factors are believed to enable particular mechanisms (M) to be triggered or 'fired'. Other aspects of the context (C) may prevent particular mechanisms (M) from being triggered. The interaction between context and mechanism (C+M), is what creates the program's outcomes or impacts (O):

Context + Mechanism = Outcome.

Because programs work differently in different contexts and through different change mechanisms, programs cannot simply be replicated from one context to another and expect to

achieve the same outcomes. In order to make the programme **portable** there needs to be a good understanding about *'what works for whom, in what contexts, and how'*. The idea that CMO configurations might be portable from place to place is dependent on the concept of ***demi-regularities***, that is the idea that there is some patterning, that it is possible to discern broad lessons for whom, in what circumstances and in what respects an intervention might 'work'.

Mid-range theories: Theories are the basic unit of analysis for realist evaluation. A realist approach assumes that programs are 'theories incarnate'. Any intervention is testing a theory about what might bring about change; about how contexts and mechanisms might work together to produce outcomes. These theories exist in the minds of stakeholders to implementation even when they are not formal or explicit (for example when not formally articulated in intervention specification documents). A mid-range theory is one which is detailed enough to be close to the data from which it is extracted, and abstract enough to be applied to other situations as well.

(Descriptions of terms based on Pawson and Tilley, 1997; Wong et al, 2013)

DECIPHer
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08 April 2013

Dear Participant,

A study of infant feeding policy in Wales: information for participants

Background to the study

In 2001 the National Assembly for Wales introduced a policy to support mothers with feeding their babies. You may be aware that since then surveys have indicated that an increasing number of Welsh mothers are breastfeeding and breastfeeding for longer. There are also big social and geographical differences in feeding patterns. A 2011 strategic vision for maternity services in Wales states that *'further action needs to be taken to increase the number of women who breastfeed … to further increase breastfeeding initiation and continuation'.*

I would like to invite you to participate in a PhD research study which looks at infant feeding policy in Wales and examines current policy challenges. My main aim is to look at how policy has been taken forward, the progress that has been made, and the barriers to change have been identified, and to understand what the current challenges are and what might be achieved in the future.

I am very interested in **your** perspective as someone who has made a contribution to either shaping or delivering Welsh infant feeding policy.

This study has been approved by the **School of Social Sciences Research Ethics Committee** of Cardiff University.

What is involved in taking part?

I would like to interview you about your experience of shaping and/or delivering policy. Interviews will be conducted in private, in a location convenient to you. The interview will last between 60-90 minutes and will be audio-taped, so that I have a record of what has been said and am able to concentrate on our conversation whilst we are talking.

Anonymity and confidentiality

The audio-record of our discussion will be written up as a transcript. In the transcript and in any subsequent reporting your name will be changed and you will be identified only according to the sector in which you work, for example as 'Welsh Government', 'Local authority', 'NHS practitioner', 'voluntary sector', 'other'. The details of everyone you mention in the interview will changed in the same way.

Whilst all efforts will be made to ensure your confidentiality by removing identifying information, because the number of individuals engaged in developing or delivering infant feeding policy in Wales is fairly small you should be aware that there is a risk that other people may be able to identify you from what you say, so that full anonymity in all circumstances cannot be guaranteed. This is something to bear in mind when deciding what to share in the interview.

The focus is on your experience of policy and policy implementation. Please note that in the interview you will **not** be asked to discuss any individual patients with whom you have professional contact and who may be in your care. Any identifying information relating to individual patients that is revealed during the interview will be deleted from the transcripts.

In exceptional circumstances – for example if you are in a political role – it may be that you would prefer to be interviewed 'on the record', meaning that your identity may be disclosed. Even if you decide to be interviewed 'on the record' care will be taken to ensure that the identity of others you refer to in the interview is protected.

At the end of the interview you will be offered the chance to check and comment on the interview transcript, and if you wish any additional follow-up comments you would like to make can be included as part of the research.

How will the information be stored?

Transcribed data and audio files will be password protected and stored on the Cardiff University secure network, with access limited to myself and my PhD supervisors. Hard copies of transcripts will stored in locked cabinets at DECIPHer for five years following completion of the research. Any 'key' that links the anonymised transcripts with identifying information and written records of consent will be stored in separate locked cabinets.

How will the research be used?

The information you give me will contribute to my PhD thesis, and may also contribute to research reports and articles or to presentations given to people who are interested in the subject. You are welcome to request copies of my PhD thesis following publication.

Who am I – and who else is involved?

I am a PhD student based in the School of Social Sciences at Cardiff University. Prior to starting the PhD I worked for NCT (formerly National Childbirth Trust) where I did some research looking at services to support mothers with feeding their babies. I've also worked for NCT as a volunteer. I am a trained breastfeeding peer supporter. I have four children, whom I have fed in different ways.

My research is supervised by Professor Laurence Moore and Dr Julia Sanders of Cardiff University, who are part of the research team. My research is funded through a DECIPHer studentship and is sponsored by the Medical Research Council and by NCT.

Consent

Your decision to take part in the study is voluntary. You can change your mind about taking part up and at your request data from your interview can be deleted at any point before publication of the research. It doesn't matter if it's before or after the interview, there is no need to give a reason – all you have to do is let me know.

Please read the attached **consent form** carefully. This needs to be completed before the interview takes place. If you would like further information about the research before deciding whether or not to participate I am more than happy to provide this. Please do not hesitate to contact me by email at TrickeyHJ@Cardiff.ac.uk. I'll be in touch by email / phone in the next few weeks to follow up this invitation.

Yours sincerely

Heather Trickey

http://www.decipher.uk.net/

http://cardiff.ac.uk/socsi/contactsandpeople/postgraduateresearchers/heather-trickey-phd-student-overview.html

Stakeholder interview
Participant Consent Form: A study of infant feeding in Wales

Name of Researcher: Heather Trickey

	Please initial
1. I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information, to ask questions and have had these answered satisfactorily	
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason.	
3. I agree to take part in this study	

Please tick the box to confirm the statement below ONLY if you would prefer to give your interview 'on the record':

I have chosen to be interviewed 'on the record' for this research, and I understand that research outputs may identify me in relation to the data gathered during the interview with me.

_____   _____   _____

Name of participant   Date   Signature

_____   _____   _____

Person taking consent   Date   Signature

2 copies: 1 for participant and 1 for research file

TOPIC GUIDE: Professional Advocate interviews

Thank you …
Check: are you still happy to be involved with the research?

Just to check, I will be recording the interview, is this okay? (*Show participant audio-recorder*). It will help me to accurately remember what we talk about … and means I don't have to make loads of notes whilst we are talking. The tape won't be played back to anyone else, only I will hear the recording.

Consent

- Explain written agreement. Read through form with participant. Check she a) understands the statement, b) agrees with it and c) has had an opportunity to ask questions and that boxes are all checked.

- **TAPE ON….**

- Just to be clear, our conversation will remain confidential. You will not be named in anything I write about this research.

- Also please bear in mind that because relatively the number of people working in infant feeding in Wales is quite small, it is possible that even once I have anonymised the interview data someone might still be able to recognise something you have said. Please take this into account.

- If there is anything you don't want to talk about just say so. This interview is about me having the opportunity to understand what is happening in Wales from your won perspective. If however we start to discuss something you'd rather not than then please let me know and we can talk about something else.

- We're expecting this interview to last between an hour and an hour and a half, but we can stop whenever you like. If you'd like to take a break please just let me know.

- There is a participative exercise at the end that I want to make sure we have time for… so if you feel you are running short of time do let me know so that we can move onto that.

PART 1: Participant's role and personal perspective (approx 40 mins)
Unstructured, limited use of prompts… EXAMPLES only

As you're aware this research is about infant feeding policy in Wales. I'm interested in understanding how policy has been taken forward, current challenges and thinking about what might be achieved in the future. I'm very interested in your perspective **your**, as someone who has a professional interest in infant feeding policy.

Perhaps a good place to start would be if we could talk a little bit about how you came into your current role …

Could you describe how your work relates to the way that mothers feed their babies…?

What are the key challenges for your role at the moment?

Outside of your current role, are there other experiences that you feel have shaped the way that you understand infant feeding issues?

- previous roles
- voluntary positions
- own personal experience

Why do you think mothers decide to feed their babies the way that they do?

What are the main issues for families when deciding how to feed their babies do you think?

What do you understand current policy to be?

Are there aspects of working in this policy area that you find challenging?

Are there aspects of working in this policy area that you find rewarding?

What do you think about the importance of infant feeding policy …

      Do you find that others agree with you?

   Is it easy to persuade others of your view point?

PART 2: Welsh policy (approx. 20 mins)
Semi structured, ensure key points covered

Thinking about the policy development process…

- Are there any areas where you feel you were able to make an important contribution? Which, why, how?
- Are there any areas that you feel should have been included that got missed? Why?

Thinking about the way that policy has been rolled out…

- Which aspects of policy have been implemented? Why?
- Which have received less attention… why not?

Visual prompt A – Table of policy areas extending into different ecological domains

Focus on discussion on underpinning THEORY for main community-based interventions…

- breastfeeding peer support (BFPS)
- breastfeeding welcome scheme
- schools education programme

- Actions taken forward in this policy area…
- How actions taken forward intended to make a difference?
- Participant assessment of design and theory?
- Participant assessment of implementation?
- Participant assessment whether makes a difference in practice? Where? Why?

Thinking about areas where breastfeeding rates are low… why do you think that is?

Visual prompt B – Comparative graph of breastfeeding rates
Visual prompt C – Picture of valley town which is known to have static low breastfeeding rates

- Do you expect to see any change these areas in the future? Why/ why not?
- What do you think might make a difference? Why?
- Who can make a difference? How? What enables them? What stops them?
- What sort of influence do you think mothers might be having on other members of their community…?

PART 3: Interaction with ecological model (approx. 10 mins)
Strutcured, read instructions, ensure key points covered

Visual prompt 4: SHOW ECOLOGICAL-SYSTEMS DIAGRAM - provide marker pens

* Thinking about Welsh mothers' feeding journeys … could you start mark the areas where policy is having an strong impact at the moment [BLUE]

* Thinking about Welsh mothers' feeding journeys … can you mark the areas where you feel policy is having a limited impact at the moment [YELLOW]

* Thinking about policy to change infant feeding behaviours in areas with LOW BREASTFEEDING RATES… which areas do you think will be most important to tackle in the future [RED]

  o Why? How?

Use the interaction with the diagram primarily as a way of focusing the discussion rather than as a way of collecting data.

Closure (2 mins)

Thank participant.

Remind e.g. 'The purpose of the research is to understand more about infant feeding policy in Wales'.

I am going to go away and transcribe what I have recorded today. You can contact me at any time to discuss what we have shared or if you have any questions about the research. (Indicate contact details).

Appendix D: Phase 1 – Photograph prompts

Appendix E: Phase 2 – Example of completed data extraction case sheet – case study CMOs

Case 1	Extracted data
Index study: McInnes (2000) Setting: UK. Case Materials: Process evaluation (McInnes, 2001). Personal communication (telephone and follow-up email) with lead author.	<u>Goal:</u> To improve initiation rates and continuation rates to six weeks for women of all parity living in a geographically defined population. <u>Intervention context</u>: A low-dose (four contacts) antenatal-postnatal community-based BFPS intervention, delivered by local peers. <u>Wider context</u>: High levels of deprivation, very low breastfeeding rates (around 10% at six weeks), no history of voluntary support, health professionals were ambivalent about breastfeeding, community midwives unsure that breastfeeding a priority for this population, high rates of in-hospital supplementation. <u>Embeddedness:</u> Intervention developed alongside study design. Breastfeeding peer support was not already provided in the setting. Post-evaluation peers began working on the hospital wards. A version of the intervention was subsequently mainstreamed within the Health Board area. <u>Theory:</u> Health education and social support are implied. Homophily strongly intended, peers from the target community and intended as role models. Peers had a child aged under 5, suggesting learning from the immediate personal experience was intended. Peers gave themselves the title of 'helpers', suggesting support was intended to be minimally hierarchical. The training was to enable peers to 'promote breastfeeding and support breastfeeding mothers', and had a motivational interviewing element to it. Intervention was part of a community-wide promotion programme. Initial funding was for a piece of 'action-research', but the action-research bit only became evident in tailoring the programme – not in setting the goals. <u>CMO relationships</u> • Local feeding norms: Against a background of very low breastfeeding rates (C) an intervention focused on promoting and supporting breastfeeding (C) delivered to a whole population target group (C) was seen as irrelevant by many intended participants who had

already made a firm decision to formula feed (M) leading to a high drop-out rate after the initial antenatal contact (O). [Trial study, process evaluation, author communication]

- The health care pathway: Ambivalent attitudes to breastfeeding and to the intervention among health professionals including local GPs and Health Visitors (C) and the fact that the intervention did not address high rates of formula supplementation in the hospital setting (C) led to mixed messages being received by some mothers (M) and mothers who had intended to breastfeed leaving hospital formula feeding (O) so that peers became frustrated (O) [Process evaluation, author inference, author communication]

- Peer accessibility: The postnatal support did not include in-hospital support (C) in a context of low breastfeeding and high rates of discontinuation (C) many mothers were not contacted in the days after the birth (C), so that a countervailing social norm of discontinuation (M) and an assumption by health care staff that women would formula-feed (M) led to mothers switching to formula feeding before contacting the peer supporter (0). [Trial study, process evaluation, author & reviewer inference, author communication]

- Inside the peer-mother relationship: An antenatal visit to promote breastfeeding (C) encouraged some mothers who were undecided to consider breastfeeding (M) and/or may led mothers to report intention to breastfeed as a socially acceptable response (M) leading more mothers 'intending' to breastfeed (O) [Trial study, process evaluation, author & reviewer inference, author communication]

- Inside the peer-mother relationship: Breastfeeding mothers (C) frequently felt that their decisions were affirmed and valued by the peers (M), leading to improved self-esteem (O) [Process evaluation, reviewer inference].

- Within intervention feedback: Many participants decided to formula feed (C) leading to peers feel despondent and de-motivated by their failure to persuade (M) meanwhile peers felt valued by the breastfeeding mothers they supported (M) leading peers to direct time above and beyond the intervention protocol towards motivated mothers who were struggling (M) this experience of dissonance (M) led peers to collectively decide to adapt the intervention goals and refocus support towards meeting the needs of mothers who wanted to breastfeed, especially those who were not already determined to do so (O) [Process evaluation, author communication]

- Legacy feedback: The peer-empowerment and group-based community awareness raising aspects of the intervention (C) led peers to feel bonded to one another (M) re-enforcing commitment to a community activism role (M) leading to an increased community-level breastfeeding support presence (O). [Process evaluation, reviewer inference, author communication].

- Legacy feedback: In a context of high levels of deprivation and limited educational attainment (C) the experience of training, purposive activity with affirmative feedback from supervisors and colleagues (C) led peers to gain skills and confidence and a sense of being valued (O), potentially improving community capacity for formal and informal support in the longer term [Process evaluation, reviewer inference, author communication].

	• Legacy feedback: Against a background of low rates (C) the intervention challenged assumptions that women would choose to formula feed (M) leading some health professionals to consider suggesting breastfeeding to more mothers (O) [Process evaluation, author communication} Outcomes: There was no change in breastfeeding rates. It is not clear whether changes in context were sustained. [Trial study, qualitative study] Implementation failure: Yes – there was an informal change in intervention goals, with reduced focus on 'promoting' breastfeeding to individual mothers antenatally. Review team reflection: The goals of the intervention were poorly aligned with the needs of the target population. The intervention might have done better to focus on improving attitudes and experiences and meeting mothers own feeding goals. A community participation approach from the start might have avoided poor goal alignment. For future evaluation, in such a context a community level theory of change, is needed to explore any links between intermediate goals (changes in attitudes and beliefs) and changes to the context and to take account of the impact of the need to address countervailing forces from within the existing health care system. Such an approach may need to be evaluated according to a methodology that anticipates a community-level effect.

In <u>just a very few words</u>, what difference do breastfeeding peer supporters make?

I am *(please tick <u>all</u> that apply):*

peer supporter (or training as a peer supporter) ☐
breastfeeding counsellor ☐
health visitor ☐
midwife ☐
infant feeding lead/ co-ordinator ☐
IBLC qualified lactation consultant ☐
policy professional ☐
local government employee ☐
Flying Start employee ☐
paid voluntary sector employee ☐
academic researcher ☐
a parent ☐
a grandparent ☐

other (please say) [   ]

Appendix G: Phase 3 – Information and consent

About the discussion group

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Hi,

My name is Heather.   I'm a student at Cardiff University.

I'm inviting you a research discussion about peer support.

The discussion will last about an hour. I'll record the discussion so that I can listen to what you have to say and so I don't forget it.

I may use the recording to write research reports and papers.

I won't use your real name or any details that might identify you. The recording will be stored safely.

It's up to you whether you take part or not. You can change our mind up to 28 days after the discussion. If you are happy to take part you will need to sign the consent form.

You can ask me more about what I am doing if you want to. I can give you more detailed written information.   If you think of something you'd like to know after I've left you can email me at TrickeyHJ@Cardiff.ac.uk

Heather Trickey
DECIPHer, School of Social Sciences
Cardiff University
1-3 Museum Place
Cardiff CF10 3BD
Wales, UK

Consent for recorded discussion group

Name of Researcher: Heather Trickey

	Please initial
I have read the information sheet. I have had a chance to think about it and to ask questions. My questions have been answered.	
I know it's up to me whether I take part or not. I know I can change my mind up to 28 days after the interview.	
I agree to take part in this study	

_____   _____

Name of participant   Date   Signature

_____   _____

Person taking consent   Date   Signature

2 copies: 1 for each participant (yellow) and 1 for research file (white)

Topic Guide: Peer Support discussion group
(45 mins discussion & 10 mins exercise)

Complete consent and ice breaker cards (5 mins)

You will have two sets of consent forms (one for the participant one for you), and you will have had a chance to pre-sign both before the sessions starts. There will be a pen for each participant.

Thank you for joining the discussion
This research is about peer support for breastfeeding.
It forms part of Heather Trickey's PhD research
it feeds into thinking about how to take forward infant feeding policy in Wales.
We're interested in your perspective.

Read through consent form with participants, check they; a) understand the statement, b) they agree with it, and, c) they have had opportunity to ask questions

Check: Are you happy to be involved with the research?
Check: I will be recording the interview, is this okay?

(Show participants audio-recorder).

It will help me to accurately remember what we talk about …
Means I don't have to make notes whilst we are talking.
All the data will be anonymised in any publications (no names or identifying information).
The recording will be securely stored.
The recording will not be played to anyone who is not a member of the research team.

Ask the participants to sign two consent forms (one for them to keep).
Whilst signing ask participants to complete the ice-breaker card.   Read out:

The card asks 'Briefly, what difference do breastfeeding peer supporters make?'

Tape on…

➢ Just to be clear, the conversation will remain confidential.
   You will not be named in anything Heather writes about this research.

➢ If there is anything you don't want to talk about just say so.
   If we start to discuss something you'd rather not, let me know and we can move on.

➢ We're expecting this discussion to last about an hour

➢ There is a group exercise (or game) at the end that I want to make sure we have time for.
   I will move onto that about 15 minutes before the end.

NB: Times herein are for guidance only, follow the discussion.
But leave 10 mins to do the 'game' at the end.

Icebreaker and defining peer support (15 mins)

1. Introduce self, then …

2/4

Can we just go around for the purposes of the tape and say who we are, and what we have written on the card: 'Briefly, what difference do breastfeeding peer supporters make'

Thank you… thank you … etc.

2. Thank you, I wonder if we could start by just thinking about what a peer supporter is?   Who is a breastfeeding peer supporter?

[Clarify, make sure everyone who wants to speak speaks, summarise, draw out key points, ask for clarification of key points … etc].

Possible prompts (but only if needed – don't spend too long on this bit)

> Experience? Training?
> Location? Background?
> Are family and friends peer supporters?
> What are the qualities that make a really go peer supporter?
> What motivates peer supporters?

3. And now I'd like to talk a little more about what peer supporters do?

Possible prompts (but only if needed)
> Different from health professionals?
> Problem solving?
> Social support?
> Changing communities? Activists?

Barriers (15 mins)

4. What stops peer support from working well? What sometimes goes wrong?

Do prompt
> In a community group setting

> In hospital ward setting

Impact (10 mins)

5. How will we know if breastfeeding peer support is making a difference?

Possible prompts (but only if needed)

> ➢ Rates go up (at what point measure? when?)
> ➢ Women's experiences?
> ➢ Impact on wider community? (What sort of impact?)

Influences 'game' (10 mins)

6. Place A2 laminated posters of influences in the middle of the group.
    Briefly describe the diagram to the groups

E.g. "So this is the 'influences game'. This (Brown Line) is the woman's journey, starting with her own family background, childhood, before she was pregnant what happened at the birth, what happened in the hours, days, weeks and months afterwards. You can see that her experiences feedback to influence what people in her social network believe, say and do. And then there are other influences, including the facilities and amenities are available in the local community, by what happens in schools, what local health care is like, and more generally what local living conditions are like, the wider economic context, cultural influences, the local environment, and the influence of policy and politics."

> ➢ **You have 2 minutes! … What are the most important influences to tackle next to make a difference to mothers' experiences of feeding their babies**
>   (**EVERYONE PLACE 5 RED DOTS - at least two on the time line**)
> ➢ **You have 2 minutes! … Where can peer support make the greatest difference to mothers' experiences of feeding their babies**
>   (**EVERYONE PLACE 5 GREEN DOTS - at least two on the time line**)
>
> ➢ **Hold up the flip chart, ask about and discuss the clusters of dots.**

Closing (5 mins) – If time!

7. Thank you. Is there anything you feel you want to add in that hasn't been said already. [Round group if time, if not just ask quieter people]

    Thank you very much everybody.

Remember to collect in signed consent forms! - And to direct participants towards lunch.

I'd be very grateful if you could take 5 to write down anything that particularly struck you about the discussion (space for this overleaf).

Check: You should have: audio recording, your brief notes, consent forms, icebreaker cards, 1 A4 laminate with multiple dots on. Please place all in the box provided and leave in the workshop space for Heather to collect.

THIS PAGE IS FOR FACILITATOR'S REFLECTIONS ON THE WORKSHOP GROUP
(to jot down key points, or anything that particularly struck you about the discussion)

Appendix I: Example of completed data extraction case sheet with CMOs

Case 1	Extracted data
Index study: McInnes (2000) Setting: UK. Case Materials: Process evaluation (McInnes, 2001). Personal communication (telephone and follow-up email) with lead author.	<u>Goal:</u> To improve initiation rates and continuation rates to six weeks for women of all parity living in a geographically defined population. <u>Intervention context</u>: A low-dose (four contacts) antenatal-postnatal community-based BFPS intervention, delivered by local peers. <u>Wider context</u>: High levels of deprivation, very low breastfeeding rates (around 10% at six weeks), no history of voluntary support, health professionals were ambivalent about breastfeeding, community midwives unsure that breastfeeding a priority for this population, high rates of in-hospital supplementation. <u>Embeddedness:</u> Intervention developed alongside study design. Breastfeeding peer support was not already provided in the setting. Post-evaluation peers began working on the hospital wards. A version of the intervention was subsequently mainstreamed within the Health Board area. <u>Theory:</u> Health education and social support are implied. Homophily strongly intended, peers from the target community and intended as role models. Peers had a child aged under 5, suggesting learning from the immediate personal experience was intended. Peers gave themselves the title of 'helpers', suggesting support was intended to be minimally hierarchical. The training was to enable peers to 'promote breastfeeding and support breastfeeding mothers', and had a motivational interviewing element to it. Intervention was part of a community-wide promotion programme. Initial funding was for a piece of 'action-research', but the action-research bit only became evident in tailoring the programme – not in setting the goals. <u>CMO relationships</u> • Local feeding norms: Against a background of very low breastfeeding rates (C) an intervention focused on promoting and supporting breastfeeding (C) delivered to a whole population target group (C) was seen as irrelevant by many intended participants who had

already made a firm decision to formula feed (M) leading to a high drop-out rate after the initial antenatal contact (O). [Trial study, process evaluation, author communication]
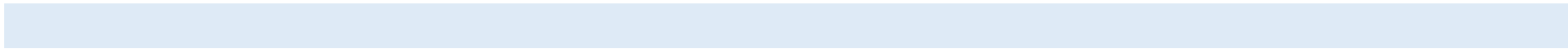
- The health care pathway: Ambivalent attitudes to breastfeeding and to the intervention among health professionals including local GPs and Health Visitors (C) and the fact that the intervention did not address high rates of formula supplementation in the hospital setting (C) led to mixed messages being received by some mothers (M) and mothers who had intended to breastfeed leaving hospital formula feeding (O) so that peers became frustrated (O) [Process evaluation, author inference, author communication]

- Peer accessibility: The postnatal support did not include in-hospital support (C) in a context of low breastfeeding and high rates of discontinuation (C) many mothers were not contacted in the days after the birth (C), so that a countervailing social norm of discontinuation (M) and an assumption by health care staff that women would formula-feed (M) led to mothers switching to formula feeding before contacting the peer supporter (0). [Trial study, process evaluation, author & reviewer inference, author communication]

- Inside the peer-mother relationship: An antenatal visit to promote breastfeeding (C) encouraged some mothers who were undecided to consider breastfeeding (M) and/or may led mothers to report intention to breastfeed as a socially acceptable response (M) leading more mothers 'intending' to breastfeed (O) [Trial study, process evaluation, author & reviewer inference, author communication]

- Inside the peer-mother relationship: Breastfeeding mothers (C) frequently felt that their decisions were affirmed and valued by the peers (M), leading to improved self-esteem (O) [Process evaluation, reviewer inference].

- Within intervention feedback: Many participants decided to formula feed (C) leading to peers feel despondent and de-motivated by their failure to persuade (M) meanwhile peers felt valued by the breastfeeding mothers they supported (M) leading peers to direct time above and beyond the intervention protocol towards motivated mothers who were struggling (M) this experience of dissonance (M) led peers to collectively decide to adapt the intervention goals and refocus support towards meeting the needs of mothers who wanted to breastfeed, especially those who were not already determined to do so (O) [Process evaluation, author communication]

- Legacy feedback: The peer-empowerment and group-based community awareness raising aspects of the intervention (C) led peers to feel bonded to one another (M) re-enforcing commitment to a community activism role (M) leading to an increased community-level breastfeeding support presence (O). [Process evaluation, reviewer inference, author communication].

- Legacy feedback: In a context of high levels of deprivation and limited educational attainment (C) the experience of training, purposive activity with affirmative feedback from supervisors and colleagues (C) led peers to gain skills and confidence and a sense of being valued (O), potentially improving community capacity for formal and informal support in the longer term [Process evaluation, reviewer inference, author communication].

	• Legacy feedback: Against a background of low rates (C) the intervention challenged assumptions that women would choose to formula feed (M) leading some health professionals to consider suggesting breastfeeding to more mothers (O) [Process evaluation, author communication} Outcomes: There was no change in breastfeeding rates. It is not clear whether changes in context were sustained. [Trial study, qualitative study] Implementation failure: Yes – there was an informal change in intervention goals, with reduced focus on 'promoting' breastfeeding to individual mothers antenatally. Review team reflection: The goals of the intervention were poorly aligned with the needs of the target population. The intervention might have done better to focus on improving attitudes and experiences and meeting mothers own feeding goals. A community participation approach from the start might have avoided poor goal alignment. For future evaluation, in such a context a community level theory of change, is needed to explore any links between intermediate goals (changes in attitudes and beliefs) and changes to the context and to take account of the impact of the need to address countervailing forces from within the existing health care system. Such an approach may need to be evaluated according to a methodology that anticipates a community-level effect.

Appendix I: Example - Context-Mechanism-Outcome configurations extracted from focus group

From Phase 3 group of peer supporters. Extracted using method developed by Jackson and Kolla, 2012)

Extracted CMO code	Thematic category	Thematically coded data from focus group transcript expressed as CMO CM MO CO strings	Perceived as pro-goal or anti-goal
Group A Peer Supporters attending Health Challenge Wales Stakeholder Engagement Event.			
A1	Local knowledge attitudes and beliefs	If a mother moans to her partner about the trouble she is having with breastfeeding (C) (he) may want to 'fix' it by buying something (M)	ANTI
A2	Local knowledge attitudes and beliefs	If a mother expresses negative feelings about feeding (C) her mother / mother-in-law may recommend introducing formula milk or sleep training or solid food (M)	ANTI
A3	Local knowledge attitudes and beliefs AND Normalising and valuing/ subculture AND Ripple effects / stories	When family members are advising you to give the baby a bottle (C) mothers within the peer support group provide an alternative voice (M)	PRO
A4	Normalising and valuing/ subculture AND Accessibility/ emotional AND Peer qualities/ homophily	If the demographic of a new mother doesn't fit the demographic of the peer support group (C) the mother may feel uncomfortable (M) and she will stop attending (O)	ANTI
A5	Normalising and valuing/ subculture / vicarious	Peer support group (C) see a lot of mothers breastfeeding (M) mother sees 'it's normal' (O)	PRO
A6	Normalising and valuing/ buffer effect	Breastfeeding groups in community settings (C) are a sign to mothers that help will be there when then need it (M) making them more confident in their decision to breastfeed (O)	PRO
A7	Normalising and valuing/ older babies	When groups have been running for a long time (C) and the same women keep coming (C) the practice of feeding older babies becomes normalised in the group (M)	PRO
A8	Usual care integration / policy and practice	In hospital (C) custom of closing curtains (M) can make breastfeeding mothers feel that they are doing something 'different' (O)	ANTI
A9	Usual care integration / Health professional status	Health professionals are sometimes perceived as being responsible checking up on mothers (C) which makes it risky for mothers to complain about and express less than 'healthy' feelings (M)	ANTI
A10	Usual care integration / Lack of knowledge, confidence and skills	When mothers experience a feeding problem (C) and health professionals are not themselves confident about breastfeeding (C) those health professionals will often present formula milk as a 'cure all' (M) and in the absence of an alternative perspective (M) the mother will switch to formula feeding (O)	ANTI
A11	Integration with health care / referral HP-peer	If health professionals know the peer supporter and have a good relationship with her (O) they will refer new mothers to the peer (M)	PRO
A12	Integration with health care / referral HP-peer	When infant feeding co-ordinators promote the groups to mothers (M) parents will seek help (O)	PRO

Extracted CMO code	Thematic category	Thematically coded data from focus group transcript expressed as CMO CM MO CO strings	Perceived as pro-goal or anti-goal
A13	Integration with health care / referral HP-peer	If women are referred to a peer support group antenatally (C) or if peers attend parent craft groups (C) this will help to make the decision to breastfeed seem normal (M) leading to improved breastfeeding rates	PRO
A14	Integration with health care / referral HP-peer	If health professionals and hospitals are not aware of the peer support group (M) the group will struggle to keep up an adequate through-flow of mothers (O)	ANTI
A15	Integration with health care / referral HP-peer	If health professionals are not 'on board' with the peer support group (M) there will be a low through-put of mothers (O) and groups can grind to a halt (O)	ANTI
A16	Integration with health care / referral HP-peer	Because health professionals are very busy (C) they sometimes fail to live up to promises to support the group by dropping in (M)	ANTI
A17	Integration with health care / referral HP-peer	When professionals are over-stretched or under-skilled (C) they sometimes refer mothers with problems beyond the remit of the peer supporter (M)	ANTI
A18	Integration with health care / extending the pathway	Support from midwives only extends to six weeks (C) the peer support groups offer support beyond this point (M) making a difference to breastfeeding rates at around six months (O)	PRO
A19	Integration with health care / referral HP-peer AND Intra/ negotiating the care pathway	If the peer supporter has a good relationship with local health professionals (C) she will recognise when it is appropriate to refer the mother who experiencing difficulties (M)	PRO
A20	Accessibility / practical	When peer support is provided in a group setting (C) and the location is not in walking distance (C) the group will not be well attended	ANTI
A21	Accessibility / practical	When support is provided in peer support groups that only run once a week (C) the help will not be available at the time when the mother most needs it (M) and she will not make use of the help (O)	ANTI
A22	Accessibility / practical	If local provision of peer support services are patchy (C) then mothers will not reach the support at the time when they need it (O) and will feel reassured (O)	ANTI
A23	Accessibility / emotional	If a friend suggests that she accompanies a mother to a peer support group (C) she will feel more confident about entering a group space (M) and will be more likely to attend (O)	PRO
A24	Accessibility/ emotional	If the peer support group is called a 'mum-to-mum' group (C) local mothers will be more likely to think that the group is relevant to them (M) and will be more likely to attend (O)	PRO
A25	Accessibility / Emotional	If the group is called a 'support group' (C) mothers may not necessarily understand themselves to need 'support' (M) and won't feel that the help is relevant to them	ANTI
A26	Accessibility / Emotional	When fathers are invited to the group (C) this can be a bit uncomfortable for peer supporters / the other mothers (M)	ANTI
A27	Accessibility/ emotional	If the breastfeeding support is embedded within something else (like baby massage) (C) mothers will come without necessarily thinking they are coming to talk about breastfeeding (M) leading to improved reach (O)	PRO
A28	Peer qualities/ homophily AND Inter/ emotional	Mothers who have had difficult feeding experiences themselves (C) will feel compassionate towards other mothers who are having difficult experiences (M) and this compassion improves the quality of the support they give one another (O).	PRO
A29	Peer qualities/ homophily AND Peer qualities / non-prof	A need for women who come together to return to work at around the same time (M) means that there can be periods with poor attendance rates (O)	ANTI
A30	Peer qualities / mother-centred	Health professionals are not primarily focused on empathy (C) peer supporters fill this gap to	PRO

Extracted CMO code	Thematic category	Thematically coded data from focus group transcript expressed as CMO CM MO CO strings	Perceived as pro-goal or anti-goal
		provide emotional support (M)	
A31	Peer qualities / mother-centred	While health professionals give 'advice' (C) per supporters empower mothers to consider options and choose what suits (M)	PRO
A32	Peer qualities / mother-centred	Peer supporters are about working with the mothers' goals (C)	PRO
A33	Peer qualities / non-prof	Peer support is viewed as a 'friend' (C) so that the mother can speak freely, disclosing in ways that she would not be able to do with a health professional (M) so feels that her circumstances as they 'really' are, with imperfections, are acceptable (O)	PRO
A34	Peer qualities / non-prof	If a peer supporter talks about her own problems and does not focus on the mother (M) she will not be perceived as helpful (O)	ANTI
A35	Peer qualities / non-prof AND Inter / realities of breastfeeding	Because peers are mothers (C) they can talk credibly about the realities of life with a new baby (M) and	PRO
A36	Peer qualities / non-prof AND Inter/ emotional	With a group of peers (C) women fee able to talk negatively about their partner, immediate family or relationship with the baby without fear of consequences (M) bringing relief from the stresses of early parenting (O)	PRO
A37	Inter / emotional / failure	If you feel like you can't breastfeed and are failing as a mum (C) empowering help from a peer support group (M) may make the difference between stopping breastfeeding and carrying on (O).	PRO
A38	Inter / emotional AND Inter / realities of breastfeeding	In a context where 'solutions' from family and friends are centred on introducing formula milk, or sleep training, or introducing food (C) a mother can freely complain of a feeding problem she's experiencing to a peer support group (M) so that she can 'vent' her feelings without receiving unwelcome solutions as a response(O)	PRO
A39	Inter / problem-solving/ instrumental	A peer supporter who is adequately trained (C) can help to solve physical breastfeeding problems (M)	PRO
A40	Inter/ problem-solving/ information	If the mother has feeding problems (C) the peer supporter can provide them with information (M) in a non-judgemental manner (M) to enable informed choice (O)	PRO
A41	Inter / problem-solving/ AND Ripple/ mother-to-mother	If the peer support group is understood as space for problem-solving (C) mothers whose problems have been resolved may feel that they shouldn't be there (M) so other mothers do not benefit from their experience (O)	ANTI
A42	Inter/ reality of breastfeeding	If a woman comes to a group feeling as though she's '[cracking up]' (C) other people in the room saying that they are having the same experience (M) makes her feel that her experience is common and manageable (O)	PRO
A43	Inter/ role model	When a new mother comes to a group (C) and she is matched up by a peer supporter with another mother whose baby is at a similar stage (M) they can 'start a journey together'	PRO
A44	Inter/ role model	New mothers who come to the group (C) meet mother who are several weeks ahead in their breastfeeding journeys (M) and friendships develop (M) and the new mother learns coping strategies that she otherwise would not have learned (O)	PRO
A45	Inter/ role-model/ vicarious	If the peer supporter takes her own baby to an antenatal group (C) and feeds her baby at the group (M) people will see how discrete it can be (O) and change their opinions about the kind of people who breastfeed	PRO
A46	Inter/ role model AND Inter/ wider parenting	Young mothers often lack confidence about their parenting decisions and feel judged (C) the group setting allows younger mothers to draw on the experience of older mothers and to challenge external judgements about what is normal or acceptable in terms of parenting (M) and this helps them to feel more confident about her own decisions (O)	PRO

Extracted CMO code	Thematic category	Thematically coded data from focus group transcript expressed as CMO CM MO CO strings	Perceived as pro-goal or anti-goal
A47	Inter/ negotiating the care pathway	When health care professionals advise formula feeding as the solution to a breastfeeding problem (C) the breastfeeding group an alternative source of information and support from (M) enabling the mother to come up with solutions through whereby she can continue breastfeeding (O)	PRO
A48	Inter/ negotiating the care pathway	When the peer supporter has been operating in the area for a while (C) she learns which individual midwives, health visitors and GPs are supportive of breastfeeding (M) and can help mothers to discern whether to accept or challenge health professional advice (O).	PRO
A49	Inter/ engaging significant others	When grandparents are welcomed at the group (C) they can talk about things that happened in the past and learn how advice has changed (M)	PRO
A50	Inter/ engaging significant others	When fathers are welcomed to the group (C) they learn ways to be supportive of breastfeeding, including care for the mother and taking more responsibility for other aspects of running the home (M) so the mother is more likely to continue (O)	PRO
A51	Inter/ wider parenting	Mothers who attend a group (C) make friends with other mothers (M) and together they solve a whole host of problems, for example relating to sleeping and teething (O)	PRO
A52	Inter/ wider parenting	Mothers come to the group presenting a breastfeeding issue (C) the discussion they with other mothers reveals a more pressing broader parenting issue, such as sleep (M) and they gain reassurance from the group about that issue (O)	PRO
A53	Inter/ wider parenting AND Intra/ changing attitudes	When the group is run by those who associate breastfeeding with a particular parenting style (C) mothers who come to the group will talk to one another about parenting issues (M) and this will tend to reinforce a responsive parenting style compatible with responsive feeding (O) few will go down a structured, scheduled parenting-style route (O)	PRO
A54	Intra/ changing attitudes	When there are parents in the group feeding older babies (C) a new mother may see this for the first time (M) leading to her changing her own views about normal age of weaning (M) and perhaps breastfeeding for longer than she would otherwise have done (O)	PRO
A55	Intra/ changing attitudes	When a mother comes to a group with very set ideas (C) she is 'drip-fed' alternatives over time (M) which may cause to make small changes (O) she otherwise would not have made	PRO
A56	Ripple/ stories	Women who have been supported to breastfeed themselves (C) chat to other mothers at the bus stop, school gate (M)	PRO
A57	Ripple/ stories	If mothers come to a peer support group (C) they will feel more comfortable and confident in their feeding (M) and will be more likely to chat to their friends about it.	PRO
A58	Ripple/ stories	If a woman trains as a peer supporter (M) her learning and enthusiasm will support and encourage other people in her existing social network (M) so that they are more likely to breastfeed (O)	PRO
A59	Ripple / mother-to-mother	If a mother has received help from a peer supporter that she feels meant that she could continue breastfeeding (C) she will be strongly motivated to pass on a message of hope to other mothers (M) so that those mothers get encouragement to continue when they are struggling (O).	PRO
A60	Ripple/ training activism	If a mother trains as a peer supporter (C) and there is no service available in her community (C) she may feel the injustice of that (M) and feel compelled to do something to solve the situation (M) and take steps to set up a local group (O)	PRO
A61	Ripple/ training activism	In the context of an opportunity to train as a peer supporter (C) passion aroused by positive and negative feeding experiences of mothers (C) are harnessed and honed by the training programme (M) and used to facilitate supported experiences for future mothers (O)	PRO

Extracted CMO code	Thematic category	Thematically coded data from focus group transcript expressed as CMO CM MO CO strings	Perceived as pro-goal or anti-goal
A62	Ripple/ training activism	Mothers who attend groups together (C) develop friendships alongside an interest in breastfeeding (M) and if the opportunity to train is available (M) they may train as peer supporters together (O)	PRO
A63	Ripple / mother-to-mother AND Peer qualities/ non-prof	If a mother has 'been through the fire' with breastfeeding herself (C) she will be motivated to support other women	PRO
A64	Ripple/ mother-to-mother	If the group is for problem-solving (C) and the mother feels 'dismissed' from the group at the point where her problem is solved (M) then she will not be positioned to help other mothers who have a similar problem in future (O) and she won't train to be a peer supporter (O)	ANTI
A65	Ripple/ training activism	If a mother has a tricky breastfeeding experience as a result of poor care (C) she may feel she want to give something back towards solving an injustice (M)	PRO
A66	Ripple/ training activism	Participating in peer supporter training (C) opens the individual's eyes to injustices in the social context for breastfeeding (M) causing her to take action to bring about change	PRO
A67	Ripple/ vicarious learning	When a mother feeds her baby out and about (C) other local mothers see her breastfeeding (M) and causes people to change their attitudes (M) so that breastfeeding is normalised (O)	PRO
A68	Ripple/ vicarious learning / older baby	Mothers who continue to attend a peer support group as their babies get older (C) feel more comfortable feeding an older baby out and about (M) so that they pass on the message to new mothers in their community that feeding an older baby is normal (O)	PRO
A69	Ripple/ future generations	If a mother becomes an activist for breastfeeding support (C) she will pass that enthusiasm on to her own children (M) so that they develop pro-breastfeeding attitudes and beliefs (O)	PRO
A70	Misc. anticipated outcomes	Peer support (C) may lead to more confident mothers (O) changes in approach to feeding (O) development of friendships (O) improved mental health (O)	PRO