

USING CO-PRODUCTION IN INTERVENTIONS TO REDUCE HEALTH
INEQUALITIES: A *QUALITATIVE STUDY OF PROCESS AND IMPACT*.

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Abstract

This thesis explores the use and impact of co-production in the development and implementation of interventions to reduce health inequalities. My empirical research focuses on the use of co-production in an intervention designed to reduce inequality in access to antenatal care (the Community REACH intervention).

Despite improvements in health, health inequalities remain prevalent worldwide. Co-production has been widely advocated in public health discourse because of its potential to address health inequalities. Co-production involves active participation of individuals and communities in designing, developing, and implementing interventions, services, or initiatives through equal and reciprocal relationships. Despite the promise of co-production, there is a lack of empirical evidence concerning process and impact, specifically in translating theory into practice and identifying factors that influence implementation.

This thesis used qualitative research and combined observations and interviews to identify factors that supported or hindered the use of co-production in the Community REACH intervention. The study developed fidelity indicators to assess adherence to co-production principles and practices.

Reciprocity, a foundational principle of co-production, was found to be key for successful implementation and facilitated other co-production elements. Collaborative practices were characterised by power imbalances connected to differences in disciplinary practices and insufficient attention dedicated to relationship-building. This points to the need for a deliberate focus on relational practices to develop reciprocal relations and inclusive environments. Without these it was difficult for the various actors involved to establish shared understanding, negotiate roles, encourage social interactions among participants, and ensure a consistent high-fidelity co-production approach. The study also found that participating in a co-production process created a valuable community resource of volunteers who had strengthened their social networks and developed their capabilities and confidence to access new opportunities.

The study also found that those who participated in the co-production process strengthened their social networks, developed their capabilities and their

confidence to access new opportunities, and together became a valuable community resource of volunteers

Fidelity indicators developed in this study identify critical factors in the co-production process and potential solutions to avoid or address them, offering a systematic framework that leaves room for creativity in co-production. Future research should develop this set of fidelity indicators further.

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CHAPTER 1:

INTRODUCTION

1.1. Overview of Chapter

In this chapter I set out the aim and rationale for my research and the research questions that I answer in this thesis. I explain the basis of this research investigation and my focus of enquiry in relation to the potential role of co-production in reducing health inequalities through the equal and active involvement of individuals and communities in designing, developing and implementing health interventions, services, or initiatives. I then move on to defining co-production and outlining its theoretical foundations and evolution and set out the key principles of co-production relevant to this thesis: reciprocity, collaborative partnership, social capital, releasing capacity and developing capabilities of people and communities and added value. This chapter ends with a description of the context of my research and an overview of the content of this thesis.

1.2. Aims, rationale and research questions

This thesis aims to: 1). explore the use and impact of co-production as an approach for developing and implementing community-centred interventions to reduce health inequalities within the Community REACH intervention designed to reduce inequality in access to antenatal care; and 2) develop a systematic framework to assess adherence to co-production principles and practices.

My empirical research focuses on the co-production process in the development and implementation of an intervention designed to reduce inequality in access to antenatal care.

Health inequalities remain a long-standing and persistent problem worldwide, including in the field of maternal and child health, which has been identified as a key focus for intervention. Co-production has more recently emerged as a very promising approach that could be used to increase effectiveness of interventions to reduce health inequalities. However, there is a dearth of evidence in the

literature on both the use and effectiveness of co-production in interventions to reduce health inequalities and on interventions to reduce inequalities in access to antenatal care. These problems underpin the rationale for my research and are described in more detail in section 1.3. This study aims to address these gaps in the evidence base by exploring the use of co-production as an approach for developing and implementing a community-centred intervention designed to improve health outcomes and reduce inequality in access to antenatal care.

The focus of my empirical work is on identifying factors that supported or hindered the use of co-production in a community intervention (known as 'Community REACH') to increase early uptake of antenatal care amongst women living in socially disadvantaged and ethnically diverse communities. This research was embedded within the wider 'Community REACH' trial; a pragmatic cluster randomised controlled trial (RCT) conducted within 20 intervention and control sites across inner city and suburban areas within and around London in the UK. The intention of the research was to observe and explore how applied insights from the field can inform and strengthen current theories and evidence base for the potential and practice of co-production.

The following research questions were addressed:

1. What factors affect the co-production process in the development of community-centred interventions to reduce health inequalities?
2. What factors affect the co-production process in the implementation of a community-centred interventions to reduce health inequalities?
3. How do participants experience participating in the co-production process to develop and implement community-centred interventions to reduce health inequalities and what is the perceived impact on them?
4. What are the key components to consider in order to assess adherence to co-production principles in the development of community-centred interventions to reduce health inequalities?

1.3. The global problem of health inequalities

Despite improvements in health, particularly in developed countries, health inequalities remain prevalent worldwide. Health inequalities can be defined as differences in the status or distribution of health or health determinants between different population groups (WHO, glossary; PHE, 2017). Some disparities in health are considered as unavoidable and can be attributed to biological variations, whilst some are connected to inequities in social, economic and environmental variables, such as, access to quality health care, disease prevention and health promotion services, living and working conditions, occupation, income and education (European Commission, 2009). Health inequities are specific health inequalities which are judged to be unfair and unjust (Whitehead, 2007) and could be preventable by reasonable means (Marmot et al., 2012). Addressing health inequalities requires the actions of governments, stakeholders, and communities to influence public policy.

Currently at least half the world's population lacks access to essential health services (World Bank, 2017). Recent monitoring data tracking progress of universal health coverage indicators revealed only 17% of mothers and children in the poorest fifth of households in low and lower-middle income countries received at least six of seven basic maternal and child health interventions, compared to 74% for the wealthiest fifth of households, and more than 200 million women have inadequate coverage for family planning (World Bank, 2017).

Health inequalities are interconnected with social inequalities, on a social gradient; a *'linear decrease in health that comes with decreasing social position'* (Marmot, 2004). This means that differences in health exist at all levels, not just between the highest and the lowest socio-economic groups.

The concept of universal health coverage (UHC), is the culmination of a series of global initiatives, that build on the principle of the right to health as a fundamental human right (WHO, 1948; 1978; 1981; 2008; 2011). UHC means ensuring that people have access to the health care they need without suffering financial hardship. It focusses on monitoring health inequalities and developing tangible actions to reduce them (WHO, 2015). Despite these commitments, there is little indication that health inequalities are declining, particularly among disadvantaged groups; they may even be widening (WHO et al., 2008).

In its joint report, the World Bank Group and the World Health Organisation stated that:

‘unless health interventions are designed to promote equity, efforts to attain universal health coverage may have the unintended consequence of bringing early and accelerated gains for the most-advantaged section of society, and at the same time leaving the most disadvantaged behind’ (World Bank, 2017).

Globally, the persistence of health inequalities incurs sizeable economic costs. A European study estimated losses to labour productivity to be €980 billion per year or 9.4% of GDP in the European Union as a result of health inequalities (Mackenbach et al., 2011). The study’s authors suggested that investing in programmes to reduce health inequalities, particularly among lower socio-economic groups, could help to support economic growth and development (Mackenbach et al., 2011).

Addressing health inequities and facilitating access to health services presents policy makers and health practitioners across the world with a universal challenge (WHO, 2010). The diverse, complex and evolving nature of health inequalities requires strategic action at all levels - global, national and local - and health policies built on the principles of equity and quality (WHO, 2010).

Since the Alma-Ata Declaration (WHO, 1978) and the Ottawa Charter for Health Promotion (WHO, 1986; McQueen and De Salazar, 2011), civil participation has been a key dimension in multiple strategies to health inequality and its determinants. These global initiatives linked the participation of civil society and the empowerment of affected communities to become active protagonists in shaping their own health, to the promotion of health equity (WHO, 2010). Thus, strategies and interventions that promote civil participation in decision-making processes in developing policies to improve health inequalities is *‘justified on ethical and human rights grounds, but also pragmatically’* (WHO, 2010).

It is becoming widely recognised that conventional health promotion approaches based on a deficit model that focus on identifying the problems and needs of populations rather than their assets, are not effective in tackling health inequalities on their own (Morgan and Ziglio, 2007). Concepts such as community ‘empowerment’ and ‘engagement’ have increasingly become the focus of

policymakers' efforts to tackle inequalities and for example in the UK, move decision making away from centralised control and to increase localised participation in decision-making (Commission on Social Determinants of Health (CSDH), 2008; Department of Health (DH), 1999; Popay, 2010). Community engagement involving collaborative approaches has increasingly become accepted as one way to help address health inequalities and has been found to be effective in improving health behaviours, health consequences, participant self-efficacy and perceived social support for disadvantaged groups (National Institute for Health and Care Excellence, 2008; O'Mara-Eves et al., 2013). Community engagement is defined by the National Institute for Health and Care Excellence (NICE) as '*a range of approaches to maximise the involvement of local communities in local initiatives to improve their health and wellbeing and reduce health inequalities; including: needs assessment, community development, planning, design, development, delivery and evaluation.*' (NICE, 2016). Co-production is part of this range of community engagement approaches (South, 2015).

1.4. The potential of co-production for reducing health inequalities

The concept of co-production has become of increasing interest to academics, practitioners and policy-makers searching for innovative ways to address growing burdens on the welfare state, of providing public services that meet the needs of different citizens, and addressing democratic deficits and inequalities (Department of Health, 2010, National Health Service England, 2015, European Commission, 2018, Boyle and Harris, 2009; Boyle et al. 2010; New Economics Foundation, 2008; Needham and Carr, 2009; Social Care Institute for Excellence, 2013). Co-production has developed as a concept in different academic fields of research: public administration (Ostrom and Ostrom, 1977a; Parks et al., 1981), science and technology studies (Latour, 1990; Jasanoff, 1996), and sustainability science (Kates et al., 2000; Kofinas, 2002; Cash et al., 2003). Within these fields, multiple communities of research and practice now use the language of co-production, each with varying definitions and ideas about what the concept is and what it aims to achieve (Parks et al, 1981; Brudney and England, 1983; Ramirez, 1999; Brandsen and Pestoff, 2006; Bovaird, 2007; Alford, 2009).

Co-production in both science and technology studies and sustainability science is concerned with knowledge production. The perspective of co-production in science and technology studies relates to how society and knowledge are intertwined and co-produced. Science is recognised as a social institution influenced by public debate (Latour and Weibel, 2005; Jasanoff, 2004) and co-production is used as a framework to explain interactions between science and policy (Jasanoff, 2004). For example, knowledge on addressing public health issues such as obesity is co-produced by scientists, clinicians, and practitioners, politicians, and through wider public debate (media, general public, interest groups), generating normative understandings of obesity, as well as policies and governance (Jasanoff, 2004; Winter, 2016).

In sustainability science, co-production has been conceptualised as a mechanism to increase the usability of information or knowledge to support decision-making (Lepenies et al., 2018). Here the focus of co-production emphasises the role of 'knowledge users' in the production of knowledge in global environmental research programmes (Miller and Wyborn, 2018). In 2014, Future Earth, an international body established to coordinate global sustainability research, defined knowledge co-production as a core design principle for its work (Future Earth, 2013, 2014).

In the field of healthcare, conceptualisations of co-production are predominantly drawn from the public administration and management literature and are most typically associated with the seminal work of Ostrom (1978) who referred to the role of citizens and communities in the production of public services. Subsequently, co-production has been aligned closely to citizen participation (e.g. Brudney, 1987; Ostrom, 1999; Pestoff, 2006; Bovaird, 2007, 2009), the achievement of broad public policy objectives and efforts to improve democracy (Ostrom, 2000; Alford, 2002; Bovaird, 2007).

Thus, co-production refers to the process of citizens and professionals working together in an equal and reciprocal relationship to achieve common goals. Co-production/The process enhances the skills and knowledge of both parties, adding value through the generation of long-term assets (individual, organisational and community), new insights, and social relations. *This definition has been developed specifically for this thesis and will be explained in more detail in section 1.6.*

In health and social care, proponents of co-production have heralded it as a radically different policy direction and, arguably, co-production does represent a fundamentally new way of working within the community and healthcare setting. The principles of co-production lie in developing relationships between professionals and communities based on reciprocity and equity. It encourages participation and seeks to transform the traditional relationships of power, control and expertise, viewing citizens as active partners and equal contributors as opposed to passive recipients of care and services – moving away from professional-led to community-led practices (Boyle and Harris 2010).

Recently, co-production has been recognised as an important approach in improving maternal health and access to health - a key global priority under the framework of the Sustainable Development Goals (SDGs) (UN 2015, WHO 2015; Marston et al., 2016). Participation is considered as central in actions to transform women's, children's and adolescents' health. The Global Strategy for Women's, Children's and Adolescents' Health (2016-2030) calls for participative and professional action towards three objectives for health, with participation central to success. The objectives are survive (end preventable deaths), thrive (ensure health and well-being) and transform (expand enabling environments) (United Nations, 2010). Expanding enabling environments is considered as key to achieving the first two objectives and is a question of enabling women, children and adolescents to realise their rights to health and well-being. Participation, communities working together with health services, and co-production are seen as essential aspects of this in order to reach health goals and in transforming societies (Marston et al., 2016). Community participation that is inclusive of underserved groups and is tailored to context is a fundamental principle of equitable primary health care as well as a way of optimising interventions to improve health (Marston et al., 2016).

In the UK, improving access to antenatal care for women, particularly those from disadvantaged and vulnerable groups is a UK Government priority for reducing national inequalities in health outcomes throughout pregnancy, birth and the subsequent life course of the mother and infant (Marmot, 2010). Antenatal care (ANC) is considered a key component of a healthy pregnancy, offering an opportunity to improve health outcomes for mothers and their babies by identifying and treating complications and promoting healthy behaviours and

practices (NICE, 2008). Strategies using community engagement approaches are recommended for promoting maternal health (NICE, 2016). Research suggests that interventions using peer delivery or collaborative delivery models are more effective among disadvantaged pregnant women and new mothers (Brunton et al., 2014; 2015). In addition, understanding women's perspectives of involvement in identifying their health needs, appropriate intervention design and most effective ways of collaborating with their communities could help develop community engagement in maternity and early years care (Brunton et al., 2014; 2015).

However, there remains a lack of high-quality research to inform policy on effective interventions to improve the uptake of antenatal services, particularly among disadvantaged and vulnerable groups of women (Oakley, 2010). Similarly, there remains very little assessment of the effectiveness of co-production as an approach and the mechanisms through which it operates in different contexts (Voorberg et al. 2015; Fox, et al., 2012; Verschuere et al., 2012). Existing evidence is limited, and few studies utilise theory-based approaches to clarify what it is that co-production is supposed to offer and how it should be defined (Fox, et al., 2012; Voorberg et al. 2015). Recommendations for strengthening the evidence base include:

- Application of theoretical frameworks e.g. Theory of Change/logic models
 - to identify how the intervention is expected to work and against which assessment of findings can be compared.
- Greater use of experiential evidence e.g. information about people's experience of the service or intervention and the interaction between them (Glasby, 2011, 92–3; Fox, et al., 2012; Voorberg et al. 2015).
- Greater emphasis on capturing the relational dimensions of co-production and how they contribute outcomes and impact of co-productive ways of working (Durose et al, 2015); and
- Further research examining the type of organisation that is most effective in achieving co-production (Verschuere, Brandsen, and Pestoff, 2012).

This study aims to address these gaps in the evidence base by exploring the use of co-production as an approach for developing and implementing a community-centred health intervention designed to improve health outcomes and reduce inequality in access to antenatal care.

1.5. Evolution of co-production

Co-production is a multi-faceted concept which has evolved within and across diverse academic fields (Ostrom and Ostrom, 1977a; Parks et al., 1981; Latour, 1990; Jasanoff, 1996; Kates et al., 2000; Kofinas, 2002; Cash et al., 2003). Consequently, multiple communities of research and practice now use the language of co-production with varying definitions and ideas about how it can improve normative practice and outcomes. This has made it difficult to clarify precisely what co-production means and how to apply it (van der Hel, 2016; van Kerkhoff and Lebel, 2015; Turney, 2014).

In relation to this thesis, it is the co-production of public services literature which pertains to the majority of research regarding the development and implementation of public health interventions. Co-production in public services originates in the seminal work of Elinor Ostrom and her colleagues (Parks et al., 1981; Ostrom 1996). Drawing on the existing ideas of citizen participation, such as those proposed by Sherry Arnstein (Arnstein, 1969), Ostrom sought to describe the potential relationships that could exist between the 'regular' producer (street-level police officers, school teachers, or health workers) and 'clients' who want to be transformed into safer, better educated, or healthier persons' (Ostrom 1996, p. 1079). Thus, the model of co-production was seen as offering the potential to deliver effective public services by responding to the experiences of citizens and generating cooperative linkages between citizens and public service officials (Sharp, 1980, p. 115; Whitaker, 1980 p. 241). The core contribution of the 'model of co-production' was the recognition of the active role of citizens in the implementation of public services.

The ideas and language of co-production spread quickly within public sector administration (Brudney and England, 1983; Parks et al., 1981, Sharp, 1980; Whitaker, 1980 Alford, 2009), as well as business research (Ramirez, 1999) and marketing services research (Gummesson, 1987) and was seen as a way to tackle fiscal challenges facing local authorities (Brudney and England, 1983, p. 59).

During the 1980s, Professor Edgar Cahn, a civil rights lawyer in Washington D.C., extended the concept of co-production to explain his ideas of the 'core economy' and the core principles underlying 'time-banking' – an approach to social justice

that uses time credits as a medium of exchange rather than money (Cahn, 2010). Cahn viewed time-banking as a tool that would help facilitate stronger intra-community connections.

Cahn's conceptualisation of co-production introduces and emphasises many of the concepts now considered to be key principles of co-production. In the core economy, change occurs through the reciprocity in relationships and in the resources and support systems embedded within communities and neighbourhoods such as families, time, knowledge, skills, experiences (Cahn, 2004; Stephens et al. 2008). Cahn's approach encompasses ideas of social justice by investing in users, spending time building up the confidence and capabilities of these individuals (and communities) (Cahn 2004). The intention is to build on the work and skills individuals have to give them a sense of worth and purpose and bring them into the process of tackling social problems (Cahn, 2004). Some suggest that Cahn's notion of a separate 'core economy' situates his version of co-production 'outside of the standard economic framework' (Boyle, 2003). Cahn's conceptualisation of co-production also differs from that of Ostrom in that it focuses on relational dimensions - the creation of social networks and reciprocity. Ostrom discusses the contribution of individual 'actors' contributing to services, with no emphasis on collaboration (Gregory, 2012a).

In the 1990s interest in co-production declined as policy agendas followed a more market-led managerial approach to delivering services (Alford 2009; Pestoff 2006; Bovaird 2007). New Public Management (NPM) represented a paradigm shift where market rationales and business logics were applied by many governments around the world in efforts to improve the efficiency of public service management (Hood, 1991, 1995; Dunleavy and Hood, 1994).

Critics of NPM argued the emphasis on a market for public services and the role of service user as simply a customer was restrictive and undermined the importance of public services to address equalities issues (Bovaird, 2006; Denhardt and Denhardt, 2002; Osborne, 2010; Ackerman, 2012).

In addition, the reliance on choice and exit as recourse for service users has been criticised for the fact that it assumes that citizens have equal access to high quality public services and the ability to exit the market if they are unhappy (Simmons et al., 2011).

Osborne introduced a new model of public governance (NPG) that moved the focus from state institutions and the market towards the citizen as driver of decision-making and change. It is based on institutional and network theory, emphasising partnerships and networks between the service users, the third sector and private and public organisations (Osborne, 2010; Pestoff, 2012; Verschuere et al., 2012). Hartley posits a similar model of 'networked governance' (Hartley, 2005), with co-production providing the direct connection between producers and consumers of public services through which innovation is brought about in both processes and services (Hartley, 2005; Hartley and Benington, 2011).

This evolution in public governance forms the backdrop of much of the current work and literature on co-production (Pestoff et al., 2012). These models of governance and service delivery emphasise the important role of networks, partnerships and coalitions between the state and third sector organisations (Pestoff, 2012b). However, one of the legacies of NPM that continues to persist is that government contracts for public services are often performance related and designed in ways that conflict with organisations' community ethos. Despite this, Smith (2010) argues that performance management and citizen engagement can be reconciled through innovative approaches like co-production through its broader approach to involvement which focuses on equal and reciprocal relationships.

The current direction of co-production appears to be drawing on the wider co-production literature to position co-production as an exploratory process generating innovation, new communities, interactions, practices, and different modes of knowledge and value production (Filipe et al., 2017). Other authors are revisiting and enhancing understanding of the core principles associated with co-production, such as reciprocity (Burgess and Durrant, 2019) and relational dimensions (Clarke et al., 2018).

1.6. Defining co-production

The conceptual origins of co-production can be traced to the 1970s when US political economist Elinor Ostrom, and her colleagues at Indiana University, used the term to recognise the contribution local communities made to the successful

delivery of services – in this case policing (Parks et al., 1981; Ostrom 1996). Ostrom considered that public services were at their most efficient when ‘ordinary citizens’ were actively involved. Ostrom preferred the term ‘citizen’ rather than ‘client’ because the implication is of active involvement rather than passive user of services (Ostrom, 1996). Subsequent work has sought to fine tune the concept of co-production through a range of differing typologies and the establishment of an evidence base through empirical research. This has led to various authors providing a wide range of definitions, including a variety of different typologies to identify the actors involved (e.g. professionals, citizens, consumers, service users, community members, organisations). Some definitions specify what the process involves in relation to the activities, the type of contribution (resources, voluntary, paid, assets), relationship or relational requirements (active involvement, reciprocal, equal, power sharing) and intended output or area of output (production of public services, efficiency, value creation). The spread of definitions is captured in table 1 below with a sample of co-production definitions taken from the key theories of co-production over the last several decades. The table illustrates the multiples uses of co-production and the many applications to which it can apply. There is some debate about whether this broad base of definitions indicates the indiscriminate use of co-production to describe any form of citizen involvement; or as Nabatchi et al. argue, co-production is a ‘*provocative*’ concept that offers a high level of generalisability and proven usefulness to a broad range of scholars and situations (Nabatchi et al., 2017).

As described above in section 1.5, co-production sits at a crossroads between several academic disciplines, making it an increasingly well-studied phenomena across a range of differing discourses within the literature. This has led to a lack of conceptual clarity. As observed by Ewert and Evers, ‘*uncertainty and ambiguity is the normalcy rather than the exception when it comes to defining co-production*’ (Ewert and Evers 2012).

Table 1: A sample of co-production definitions taken from the key theories of co-production

Author	Definition
*Parks et al., (1981); Ostrom (1996)	<i>'the process through which inputs used to produce a good or service are contributed by individuals who are not 'in' the same organization'</i>
Whitaker (1980)	<i>'Three broad types of activities constitute co-production: (1) citizens requesting assistance from public agents; (2) citizens providing assistance to public agents; and (3) citizens and agents interacting to adjust each other's service expectations and actions.'</i>
Brudney and England (1983)	<i>'Coproduction consists of citizen involvement or participation (rather than bureaucratic responsiveness) in the delivery of urban services. ... Co-production stems from voluntary cooperation on the part of citizens (rather than compliance with laws or city ordinances) and involves active (rather than passive) behaviors.'</i>
Levine and Fisher (1984)	<i>'The joint provision of public services by public agencies and service consumers.'</i>
Alford (1998)	<i>'The involvement of citizens, clients, consumers, volunteers and/or community organisations in producing public services as well as consuming or otherwise benefiting from them.'</i>
Joshi and Moore (2006)	<i>'Institutionalised co-production is the provision of public services (broadly defined, to include regulation) through a regular long-term relationship between state agencies and organised groups of citizens, where both make substantial resource contributions.'</i>
Bovaird (2007)	<i>'The provision of services through regular, long-term relationships between professionalised service providers (in any sector) and service users or other members of the community, where all parties make substantial resource contributions.'</i>
Pestoff (2009)	<i>'Co-production provides a model for the mix of both public service agents and citizens who contribute to the provision of a public service.'</i>
Boyle and Harris (2009)	<i>'Co-production means delivering public services in an equal and reciprocal relationship between professionals, people using services, their families and their neighbours.'</i>
Alford (2009)	<i>'Co-production is any active behavior by anyone outside the government agency which: is conjoint with agency production or is independent of it but prompted by some action of the agency; is at least partly voluntary; and either intentionally creates private and/or public value, in the form of either outputs or outcomes.'</i>
Brandsen and Honingh	<i>'Co-production is a relationship between a paid employee of an organisation and (groups of) individual citizens that requires a direct and</i>

(2015)	<i>active contribution from these citizens to the work of the organisation.'</i>
Bovaird and Loeffler (2016)	<i>'Co-production is public services and citizens making better use of each other's assets and resources to achieve better outcomes or improved efficiency.'</i>
Surva, Tõnurist, and Lember (2016)	<i>'A way to involve citizens as co-designers and co-implementers of services that are usually delivered by public organizations.'</i>
*Co-production Network for Wales	<i>'In the context of public services and civic life: co-production is an asset-based approach that enables people providing and people receiving services to share power and responsibility, and to work together in equal, reciprocal and caring relationships.'</i>
*Think Local Act Personal, 2011	<i>'Co-production is not just a word, it's not just a concept, it is a meeting of minds coming together to find a shared solution. In practice, it involves people who use services being consulted, included and working together from the start to the end of any project that affects them.'</i>

Adapted from Nabatchi, Sancino, and Sicilia, (2017). * added as additions to original

The concept of co-production has been used to refer to a variety of relational interactions between individuals and organisations that may contain several dimensions (e.g., dialogue, practical matters, and cooperation), operating at different levels (micro, meso and macro) (Brandsen and Pestoff 2006; Verschuere et al. 2012). Boyle and Harris acknowledge that there is:

'no agreed definition... We are in the early stages of understanding how co-production can transform mainstream public services – and yet there is an understandable urgency amongst policymakers to find new approaches that work.' (Boyle and Harris, 2009).

In an attempt to remove some of the ambiguity around the term and increase precision in analysis, some authors have extended the concept of co-production to consider the whole process of users and their communities in service planning, design, commissioning, managing, delivering, monitoring and assessment activities (Bovaird 2007, Pestoff 2012a, Sicilia et al., 2016). This has allowed a range of professional–user relationships to be identified for each of these areas highlighting the different stages where both professionals and users have power within a collaborative partnership These professional-user relationships include:

- Co-commissioning - activities aimed at strategically identifying and prioritising users and needed public services and outcomes. In coproduction, the commissioning of services is done by state and lay actors working together (Nabatchi and Leighninger 2015).
- Co-design - is an innovation methodology that uses a collaborative design process to develop solutions that build on the expertise of end users, non-users and professionals (Bovaird and Loeffler, 2012).
- Co-delivery - joint activities between state and lay actors that are used to directly provide public services and/or to improve the provision of public services (Alford and O'Flynn 2012; Thomas 2013a, 2013b). The process relies on the use of peer support networks, development of supportive systems, communication loops at all levels and for all stakeholders and the maintenance of creative innovation and flexibility.
- Co-assessment - focuses on monitoring and evaluating public services and can also include assessment of progress towards personal outcomes, assessment of the quality of relationships, evidence of mutuality and reciprocity and a review of the learning. In co-production, state and lay actors work together to assess service quality, problems, and/or areas for improvement (Bovaird and Loeffler 2012).

These stages support the definition put forward by Governance International by implying that all relationships between citizens and professionals which make reciprocal use of each other's strengths can be categorised as co-production (Bovaird and Loeffler, 2010).

Another debate in the literature relates to different types of co-production with distinctions being made between collective and individualistic forms of co-production. Individual co-production or personal co-production concerns personalisation of services and individual budgets for adult social care which generate private value to the individual (Needham, 2011). Collective co-production is defined as the collaboration of numerous citizens with service professionals in order to increase the quantity or improve the quality of the services they use (Brudney and England, 1983).

Ostrom and her team's early definition fits a broad conceptualisation of co-production as being any activity or process which involves citizens and professionals working together to produce a public service (Boyle et al 2006;

Dunston et al 2009). Some authors are concerned that the broadness or 'excessive elasticity' of the concept is a limitation and could result in it becoming a 'catch-all term' (Barker et al, 2010; Needham and Carr, 2009). Other authors seek to make co-production more relevant, feeling that the original, broad definition of co-production is somewhat dated (Bovaird, 2007; Joshi and Moore 2004). They argue that partnership working is now normal practice in public services making the original definition defunct (Bovaird, 2007; Joshi and Moore 2004). Despite this assertion, partnership working is not always done well or may be tokenistic.

More recently, Filipe and colleagues have proposed that co-production can be understood as:

'exploratory social space that may challenge conventional framings of engagement, involvement, and voluntarism as well as commonly held notions of authority, capability, credibility, and productivity in contemporary health care and research...that leads to different, and sometimes unexpected, forms of knowledge, values, and social relations (Filipe et al., 2017).

The above summary has demonstrated that while definitions of co-production are abundant and seek to offer a degree of theoretical clarity, a greater level of ambiguity arises when seeking to use these definitions to demonstrate what is and is not co-production in practice. In the context of this thesis and drawing on the range of existing definitions, I have chosen to define co-production as:

citizens and professionals working together in an equal and reciprocal relationship to achieve common goals. Enhancing the skills and knowledge of both parties, adding value through the generation of long-term assets (individual, organisational and community), new insights, and social relations.

For the purposes of this thesis, I have drawn on the existing academic and practitioner definitions of co-production, to develop a workable definition that I consider encapsulates the theoretical conceptualisations and practices of co-production, to allow me to identify these in the fieldwork conducted within this study. In particular, I have drawn on the definitions put forward by Bovaird (2007) and Filipe et al., (2017) which bring focus to the issues of sustainability, by emphasising long-term relationships, and of innovation, by emphasising the exploratory nature of the interactions and processes.

The definition I have produced is inclusive and captures the importance of the relational work, sharing power and mutual benefit for all parties. I also want to recognise the value of building upon existing skills and knowledge, whilst highlighting the potential of co-production to generate more sustainable long-term assets such as new forms of knowledge, values, insights, and social relations.

1.7. Key principles of co-production underpinning this thesis

In the following section I outline the key principles of co-production that I have synthesised from the literature and consider of particular importance to the practices of co-production in relation to this thesis. My purpose is to provide the conceptual foundations to underpin the subsequent discussions and analysis in the following chapters of this thesis.

a. Reciprocity

Reciprocity refers to the mutual exchange of time, resources, skills or knowledge between individuals and/or groups and public service professionals (Boyle et al. 2010b). There is a normative view expressed in the literature that receiving and giving back in a mutual exchange is more powerful than simply giving as a one-way transaction (Cahn and Gray 2004). This is based on the belief that simply receiving help without giving anything back creates an unhealthy culture of dependency, which convinces patients or service users that they have nothing of value to offer, leading to feelings of incompetence and worthlessness (Dunston et al 2009; Breton 1999; Boyle et al 2006). The nature of help-giving can be problematic with costs on both sides. The help seeker can be placed in an inferior, dependent position undermining their self-esteem and personal capacity to take action. They may also feel a sense of obligation to the help giver. Conversely the help giver may feel embarrassed if they are not able to effectively solve the problem, and they may be seen as ungenerous if they decline requests or do not provide enough assistance to meet receivers' needs. In addition, the relationship may be made more asymmetrical because of the higher status of the professional help giver (Fisher et al., 2013). A one-way helping relationship can lead to people losing confidence in their ability to act, decide and provide solutions to their own

problems (Leadbetter and Cottam, 2009). Therefore, Leadbetter and Cottam associate an over-reliance on professional power with a diminishing sense of individual responsibility (Leadbetter and Cottam, 2009). The notion of reciprocity requires balancing mutual benefits which can be difficult - engagement activities are not strict economic transactions but likely to involve complex relationships, across a wide spectrum of players (Kanter, 1995). Therefore, commitment to reciprocity requires a clear statement of intent from each party, to clarify what each party requires, and what each party will deliver in exchange (Department of Sustainability and Environment, 2009). In addition, Ramaley suggests developing a shared agenda that focuses on reciprocity and creating mutual benefit. This helps to ensure the needs of the community are met and avoids imposing a world-view on groups *'that is only familiar and comfortable to some of the participants'* (Ramaley 2002, p9).

b. Collaboration and partnership

Another often cited principle used to describe co-production approaches is that of working 'with' people, rather than doing 'for' passive recipients (Dunston et al. 2009; Hashagen et al 2011; Stephens et al 2008; Slay and Robinson 2011). Working 'with' in the context of health and social care is about recognising that citizens can play an active role in creating and maintaining their own health and wellbeing. Some have argued that co-production is actually the natural state of affairs, and that over-professionalisation and a culture of dependency have undermined this (Boyle, 2006). The principle of working 'with' rather than doing 'for' therefore relates to a wider systemic and cultural change in the relationship between professionals and citizens, whereby professionals become catalysts, enablers and facilitators rather than simply service providers (Dunston et al. 2009; Stephens et al 2008). In the context of health and social care, this is linked to a shift away from paternalistic bio-medical models of care, which informed the professional-patient relationships in the early decades of the NHS in the UK. This model neglected the role of patients and service users in the provision of services, who were granted only a very passive role (Palumbo, 2016; Morris et al., 2006). Co-production is seen to counter this model by giving more power to users and their communities. However, some have argued that it is unfair that vulnerable and disadvantaged service users should have to put their resources into the co-

production effort, while others have argued that, in practice, it is unlikely that those stakeholders who currently possess power will allow it to be shared (Löffler, 2009). In the literature, partnerships are described as requiring active participation and extend far beyond network flows of information (Mackintosh 1992). In their review of the literature on how to create successful partnerships, Wildridge and colleagues highlight a number of key characteristics of effective partnerships – see Figure 1 below.

Figure 1. Key characteristics of effective partnerships

- a common vision is key;
- trust is very important – sharing knowledge engenders trust;
- ensuring that smaller partners are seen as bringing equal value through their local knowledge and local legitimacy;
- clear consistent communication and including the views of service users;
- good decision-making and ensuring accountability with joint ownership of decisions adds collective accountability;
- a focus on outcomes; and
- people in place who can manage change

Source: (Wildridge et al., 2004).

Members of partnerships bring their own values, beliefs and behaviours, which can have a bearing on partnerships and power relationships (Ranade and Hudson, 2003). Ranade and Hudson (2003) argue that cultural norms and behaviour can impact on partnerships in terms of importing hierarchies of power, resources, status and styles of leadership – these may be facilitative or ‘top-down’, depending on the organisation (Ranade and Hudson, 2003).

c. Social capital

Cahn and Gray (2004) list social capital amongst the key principles of co-production. Integral to their definition is the recognition of the importance of social networks which are based upon trust and civic engagement (Cahn and Gray, 2004). Many recent policy documents relating to co-production also emphasise

the importance of social capital to co-production approaches (Boyle et al., 2006; Boyle et al., 2010a; Stephens et al., 2008; Voorberg et al., 2013). According to these documents, co-production should both tap into existing social capital as well as seek to increase it. The concept of social capital has a vast body of literature in its own right. The ideas behind social capital are rooted in the work of Durkheim (Blaxter 2004). However, its acceptance as a concept which has the potential to further articulate the relationship between health and its broader determinants stems from the work of Pierre Bourdieu, James Coleman and Robert Putnam (Bourdieu, 1986; Coleman 1988; Putnam 1995). Bourdieu defined social capital as operating at the community level, in terms of the development of social networks and connections. Drawing from rational choice theory James Coleman (1994) argued that social capital involves an expectation of reciprocity within networks characterised by high degrees of trust and shared values, operating between individuals. Putnam defined social capital as a key characteristic of communities, viewing social capital as extending beyond being a resource to include people's sense of belonging to their community, community cohesion, reciprocity and trust, and positive attitudes to community institutions that include participation in community activities or civic engagement.

In relation to co-production, the deliberative and collaborative processes involved are considered to improve social capital and feelings of community belonging among participants (Evers, 2006).

Social capital is often viewed as both an individual and a collective feature within health research. At the individual level, involvement in social networks provides various forms of social support that may influence health by functioning as 'buffering factors' for stress (Wilkinson and Marmot, 2003). Social or peer influence is another pathway between social networks and health behaviours such as smoking and diet is clearly documented in health promotion (Berkman and Glass, 2000; Halpern, 2005). Social participation provides opportunities to learn new skills and confers a sense of belonging to one's community (Rocco and Suhrcke 2012). Thus, social participation can influence health directly by activating cognitive systems, and indirectly by giving a sense of coherence and meaningfulness. Finally, group membership can also provide access to material resources and services with a direct bearing on health, such as job opportunities and health service (Berkman and Glass, 2000; Halpern, 2005). At the community

level, the influence of social networks and norms could have a health effect in addition to the effects of individual social capital. Examples of mechanisms related to social capital that operate at the community level are the presence of health-related social norms, collective efficacy facilitating collective action, reciprocity and diffusion of health-related information (Uphoff et al., 2013; Lochner et al., 1999).

In the literature collective social capital has been shown as being positively associated with self-rated health for women but not for men. Women are reported to be more involved in strong face-to-face local networks, often with other women, while men were more involved in non-local networks (Campbell, 1999). Women are also generally acknowledged as those who 'create local community' with greater involvement in bridging social networks. This may be a result of gender expectations of women as primarily responsible for the home and living environment, for example, being more involved in children's activities. Mobilising collective social capital may therefore be more health-enhancing for women (Eriksson, 2011).

The social environment related to neighbourhoods is particularly important for women's health and has also been considered as a determinant of health during the gestational period (Kavanagh et al., 2006; Dibben et al., 2006). Social capital has also been found to be associated with health-related behaviours during pregnancy and the use of prenatal care (Vinikoor-Imler et al., 2012; Leal Mdo et al., 2011).

d. Releasing capacity and developing capabilities of people and communities

Hashagen and colleagues state that the whole co-production process can be described as asset-based in that it 'starts with and builds on the human assets of the community in question, rather than seeing issues as problems that can be addressed by different forms of service delivery or treatment' (Hashagen et al., 2011). Similarly, Foot and Hopkins claim that, co-production is '*both complementary to, and reliant on an assets approach*' (Foot and Hopkins, 2010). Asset-based approaches focus on people's existing capabilities, capacities, skills, experience, knowledge and connections rather than solely on their

problems, needs and deficits (Hopkins and Rippon 2015; Foot and Hopkins 2010; Glasgow Centre for Population Health, GCPH 2011). Asset-based approaches seek to identify protective factors that support health and wellbeing. These protective and health generating factors are then mobilised so that individuals and groups are empowered to create solutions to stimulate change (GCPH 2011). It is in this way that people are seen as co-producers of their own health, rather than simply consumers of health services. Assets approaches draw from the theory of salutogenesis, meaning the origins of health (Anthonovsky 1996). Salutogenesis focuses on the causes of health rather than causes of disease (Rotegrad et al 2010; Witing 2012). One of the underlying premises of salutogenesis is that the more people are able to understand their world and perceive it as both manageable and meaningful, the more they can draw from their own resources to maintain their health and wellbeing (Morgan et al 2010). Assets approaches can be contrasted with deficit approaches, which focus on avoiding disease and identifying problems, needs and deficiencies (Morgan and Brooks 2010; Foot and Hopkins 2010). The needs and problems identified in deficit-based approaches are often seen as requiring professional resources, support and expertise to intervene, fill the gaps or tackle the issues (Morris and O'Neill 2006). Boyle and Harris (2009) claim that an over-emphasis on deficit approaches is associated with the continued rise of social needs and a lack of genuine systemic change. Similarly, Powell and Dalton (2003) and Foot and Hopkins (2010) claim that deficit approaches create dependency on institutions and professionals and can lead to the disempowerment of individuals and communities. Morgan and Brooks (2010) and Boyle et al (2004) make the link between disempowerment and increased pressure on the NHS and the welfare state.

e. Added value

I have taken the construct of added value from the European perspective of co-production which is influenced by the concept of co-creation (Stott, 2018). Co-creation originates from the private sector marketing literature and its focus is on value creation - how consumers increasingly play an active role in creating and competing for value. However, co-production and co-creation share some common elements, such as equal partnership, the value of involving diverse stakeholders from different backgrounds, and are therefore complementary

concepts (Voorberg et al., 2015). I have conceived the construct of added value as emphasising the potential of co-production to produce different forms of value other than economic value, such as the generation of new forms of knowledge, values, insights, and social relations. The potential of co-production to deliver different forms of value is created from the exploratory nature of the process in bringing together diverse stakeholders with diverse experiences, values and perspectives in collaboration as a group to find solutions and work towards achieving a common goal. This process generates new interactions which can lead to innovation and new forms of knowledge, which in turn can lead to more relevant, meaningful and effective ways of shaping and taking part in health care (Filipe et al., 2017).

1.8. Context of this thesis

My research is embedded within the Community REACH trial study ('Community REACH') which provided the study population for the research empirical enquiry into use of co-production. The Community REACH trial study is a pragmatic cluster randomised controlled trial ('RCT') of a community-centred intervention to increase early uptake of antenatal care across North and East London, and Essex. It is one component of a wider programme of research, the 'REACH' Pregnancy Programme. This is a five-year National Institute of Health Research ('NIHR') funded programme focused on improving access to, and experience of, antenatal care ('ANC') for pregnant women living in areas with high levels of poverty and high ethnic diversity. A summary of the Community REACH study is outlined below, with a fuller description provided in Appendix 1.

The intention of the Community REACH study is to assess the effectiveness of a community-centred intervention to increase early uptake of ANC and to support women to get the full benefits from ANC. The trial is being conducted across twenty electoral wards within North East London and parts of Essex. The intervention was delivered in ten wards ('intervention sites'), the remaining ten will serve as control wards ('control sites'). The primary outcome measures for the trial, measured in each area at ward level, will be the proportion of pregnant women who have attended their antenatal booking appointment by the end of the 12th completed week of pregnancy (the 'booking rate').

The Community REACH intervention used a co-production approach to create collaborative, reciprocal relationships with local communities, in order to facilitate access to women at greater risk of accessing care late and inconsistently (e.g. minority ethnic groups, younger women) and embed the intervention messages at all levels within the local community through their local connections, networks and languages. The approach focused on utilising local strengths, knowledge and resources of communities to co-produce and deliver interventions, enhancing local people's capabilities to provide advice and information in relation to health within their own communities. Through the co-production process the components of the intervention were tailored to the local community to address cultural beliefs and motivational barriers and strengthen the appropriateness of the intervention. The theoretical framework for the intervention was informed primarily by the concepts of community development and engagement and health literacy.

The development and implementation of the Community REACH study involved two main phases:

The first phase involved asset mapping, community engagement and co-design workshops in each of the ten intervention sites. The university team worked with a social design agency to engage with local communities about the intervention, gain local insights, establish support from local stakeholders and recruit local people to take part in subsequent co-design and intervention activities. After completing community engagement activities, a co-design workshop was held in each intervention site. Local community members participated in a series of creative activities, working together to generate ideas for key messages, materials and events to improve early uptake of antenatal care in their local area. Key themes emerging from the co-design workshops concerned communication – methods and channels. In response to workshop outputs a community-centred intervention was designed, which would be co-produced and draw on the concepts of community engagement and health literacy, involving the communication of information about ANC through local peer networks. During this phase I conducted observations of community engagement and co-design activities, together with qualitative interviews with participants of the co-design workshops to explore their experiences. The findings from my analysis of this data is presented in **Chapter Four**.

The second phase involved three months' local intervention set up and training in each intervention site. The university team worked with a local community organisation already established in each intervention site, to support and implement the intervention at the local level. Peer volunteers from the local target community were recruited and trained for the role of 'Community REACH volunteer' ('REACH volunteers') to deliver the intervention messages through engagement with women and wider family members, and local community groups and organisations (ranging from faith groups to pharmacies). In particular, the intervention focused on reaching women from the groups identified through previous epidemiological analysis to be most vulnerable to late initiation of antenatal care. Community organisations and REACH volunteers were encouraged to work collaboratively with the university team to build on the detailed profiles and mapping of community assets for each intervention site, and to further develop their local outreach plans for intervention implementation. Community organisations and REACH volunteers were enabled to be part of the decision-making about whether and how the intervention messages ought to be tailored for each site.

Once local set-up and training of volunteers had been completed, implementation of the intervention began in each site and covered a six-month period. Community REACH volunteers engaged with their local communities about antenatal care, through presenting and discussing information with groups (e.g. at community events, evening classes, faith groups); one-to-one sessions, where antenatal care champions engaged with local people directly and indirectly in places of high footfall (e.g. GP surgeries, pharmacies, shopping centres); informal, opportunistic outreach, building on existing networks and relationships within the community. During the intervention set-up and implementation phases, I conducted observations of volunteer training and outreach activities. In addition, I interviewed people who were involved in the implementation of the intervention to explore factors influencing implementation and to learn about their experiences of being involved. The findings from my analysis of data concerning factors influencing implementation is presented in **Chapter Five**.

My analysis of data from qualitative interviews in relation to the experiences of community members in developing and implementing the Community REACH

intervention, and the perceived impact participating had on them is presented in **Chapter Six**.

As well as their role in the wider research trial (within which my research is nested) the university team played different roles in the development and implementation phases of Community REACH, including: 'community engagement' (working alongside the design agency); and 'commissioning' of the local community organisations who delivered the intervention. These different roles are relevant in the interpretation and implications of my study findings and so the different roles of the University team are highlighted throughout this thesis.

1.9. Structure of this thesis

In this Chapter, I introduce the focus of my research, the key concepts and definitions related to the research and the aims and research questions.

Chapter Two sets out and discusses the current literature concerning the use of co-production as an approach for developing and delivering complex community-centred health interventions.

Chapter Three explains the research design and methodology employed for the study, which included development and use of fidelity indicators and assessment and an in-depth qualitative study using observations and semi-structured qualitative interviews as the principal data collection methods. Descriptions of intervention sites, community organisations and participants' characteristics are also described.

Chapter Four presents the findings from observations and in-depth interviews with participants involved in the development of the intervention across all ten intervention sites.

Chapter Five presents findings relating to the factors that influenced the implementation of the Community REACH intervention in three intervention sites. Findings draw on data gathered from observations and in-depth interviews with participants involved in the implementation of the intervention.

Chapter Six presents the findings relating to the experience of, and perceived impact on, members of the community actively involved in developing or

delivering the Community REACH intervention from observations and qualitative interviews.

Chapter Seven provides a discussion of the findings on the use of co-production from the three phases of the intervention, including the strengths and limitations, as well as outlining the original contribution of research findings to the research literature and the implications for policy and practice.

1.10. Chapter summary

In this chapter, I have outlined the focus of the thesis on the use of co-production in developing and implementing a community-centred health intervention designed to improve health outcomes and reduce inequality in access to antenatal care. I have set out the content and context of this thesis. I have defined the key concepts of this thesis: defining co-production and the key principles of co-production. I have also outlined the research aims and research questions of this thesis. In this chapter I have also highlighted the case for my research and how my thesis has the potential to contribute to strengthening the evidence base for co-production by identifying factors affecting the engagement, development, implementation, participant experience and impact of a co-produced community-centred intervention.

Chapter Two, which follows, discusses current literature concerning co-production research, with a focus on the application of co-production in public health interventions to reduce health inequalities. In addition, this chapter illustrates the current debates and limitations within the existing evidence base which this thesis seeks to address.

Chapter 2:

Literature Review – use of co-production in public health interventions

2.1. Overview of this chapter

In this chapter I explore the principles and practices of co-production in public health interventions. I describe the way in which co-production is conceptualised in the current research and draw out some of the key aspects of the concept. I also bring together evidence from the literature contributing to understanding of how co-production can be used in public health interventions and its potential for improving health outcomes and reducing health inequalities.

In this chapter I will discuss the following areas:

- Community engagement to reduce inequalities in health
- Co-production – a deeper community engagement approach
- Current practices of co-production in health interventions
- Examining co-production in health interventions
- Impact and outcomes of co-production in health interventions
- Strengths and limitations of co-production in health interventions
- Principles of co-production for this thesis

2.2. Community engagement to reduce inequalities in health

As outlined in chapter one, the notion of ‘engagement and empowerment’ is a core strategy of the World Health Organisation (WHO) to improve the quality of health services, access and equity, and achieve universal health coverage (UHC). The WHO have prioritised the integration of community engagement as a key action for creating resilient, people-centred health systems (WHO, 2016). Within this framework, there is a call to establish more sustainable approaches of engaging with citizens and local communities that enables ‘*significant and marginalised voices*’ to be heard and actioned throughout all stages of health service planning, design, implementation and assessment (WHO, 2016).

Social policies and legislation to establish and strengthen mechanisms for community participation in health have a long history (Murthy and Klugman,

2004). Civic based theories and ideas concerning equity and social justice have been influential in developing models of health promotion and practice. Since the concept of community participation was established as a mechanism for health promotion in the Declaration of Alma Ata (WHO, 1978), attention has been focused on developing new approaches where people have more control over the determinants of their health through active participation and cooperation (Kickbusch, 2003). Engaging communities in improving health and wellbeing was quickly adopted by many countries as a means to address health concerns and tackle health inequalities. The concepts of community participation and engagement became integrated across a range of disciplines, with multiple theories and methods developing, fundamentally increasing the complexity of this new approach (Patel et al., 2002).

The term 'engagement' has been widely adopted by the academic literature in studies that involve individual citizens, groups and communities participating in shaping how public health programmes and services are planned, developed and delivered (Coulter, 2011, Sorrentino et al., 2017; South, 2014). Community engagement approaches are used in a variety of ways to facilitate participation, ranging from the more utilitarian, involving lay delivery of established health programmes, to more empowerment-oriented approaches such as co-production practices. (Coulter, 2011, Sorrentino et al., 2017). More recently healthcare policy and health research agendas have shifted the focus from providing services that are responsive to users' needs to co-producing services with users (Filipe et al., 2017; INVOLVE, 2018).

Public health interventions designed to address health inequalities typically focus on 'strengthening communities' and 'building capacity' in order to support communities in identifying and addressing their own health and wellbeing needs through increased social cohesion and support (Campbell and Jovchelovitch 2000, Whitehead 2007). The concept and goal of 'empowerment' is seen as central to outcomes of community engagement and health improvement (Christens et al., 2011; Zimmerman and Rappaport 1988, Rappaport and Simkins 1991, Wallerstein 1993).

A wide variety of models and frameworks with overlapping concepts have been developed to guide the practice of community engagement and meet challenges of improving the effectiveness of public health interventions.

For nearly 50 years, Arnstein's (1969) ladder of citizen participation has been a benchmark for policy makers and practitioners advocating user involvement. Although the model is dated, it continues to feature in the academic literature as a tool to understand the mechanisms that drive individual and collective involvement in decision making processes (Arnstein, 1969). The ladder differentiates various types of participation according to their extent (Figure 2). For Arnstein (1969), the main arbiter of participation is the capacity for citizens to make decisions and determine outcomes (Wilcox 1994; New Economics Foundation 1998; Tunstall, 2001; McWilliams 2004; Muir 2004).

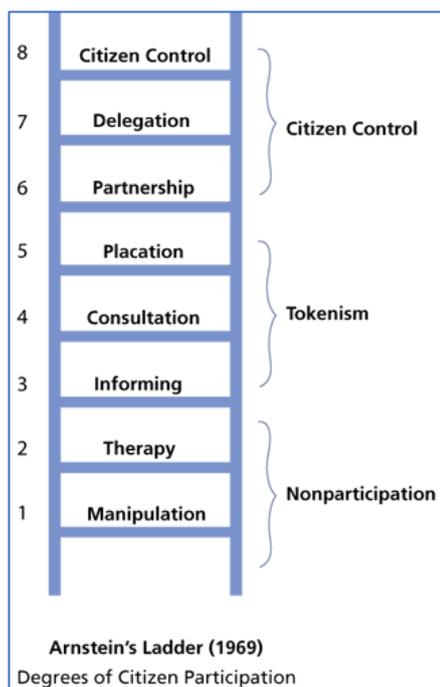
More recent appraisals of the model have been critical of its limitations, considering it to be too simplistic and hierarchical in its nature, and neglects the value of the participation process and partnership working (Martin 2003). Tritter and McCallum (2006) argue that for some participation may be an end in itself. They contend that user involvement is more dynamic and evolutionary. Users have the capacity to decide their level and method of involvement in relation to different issues and at different times. Neither of which is captured in the linear nature of Arnstein's ladder (Tritter and McCallum, 2006). Arnstein herself acknowledges that without citizens input being taken into account, consultation can mean that *'what citizens achieve in all this activity is that they have participated in participation'* (Arnstein, 1969, p. 216). Meaningful citizen participation relies on the methods of involvement and the way in which decisions are made, and may determine whether power is redistributed and/or improvements in public services are realised (Fung and Wright, 2003)

Engagement and empowerment are complex concepts and Tritter and McCallum (2006) contend that citizens may be motivated by other factors for participating in decision-making processes other than pursuing power and control. They suggest the value may lie in the process of participation itself, gaining social capital, knowledge or experience. They assert that citizen participation is more likely to fail when expectation and method are not balanced appropriately. User involvement requires models that incorporate dynamic structures and processes endorsed by both participants and non-participants (Tritter and McCallum, 2006). Furthermore, Tritter and McCallum (2006) state that different decisions or processes may necessitate different levels or types of involvement, for example when citizens are content be informed or consulted or delegate power to policy

makers and elected officials. There are some types of involvement, such as patient participation groups, that do not fit neatly into any of the various stages, where there may be instances of information, consultation and partnership at different moments (Tritter and McCallum, 2006).

Cornwall (2008) argues that Arnstein's typology falls short because full citizen power can be meaningless if it is full power over trivial decisions. In assessing the conditions of participation, much depends on the context and those involved. Cornwall (2008) concludes that different aims require different forms of engagement by different kinds of participants. However, notions of genuine delegated control should focus on enabling people to exercise a meaningful role in making the decisions that affect their lives

Figure 2. Ladder of Involvement (Arnstein 1969)

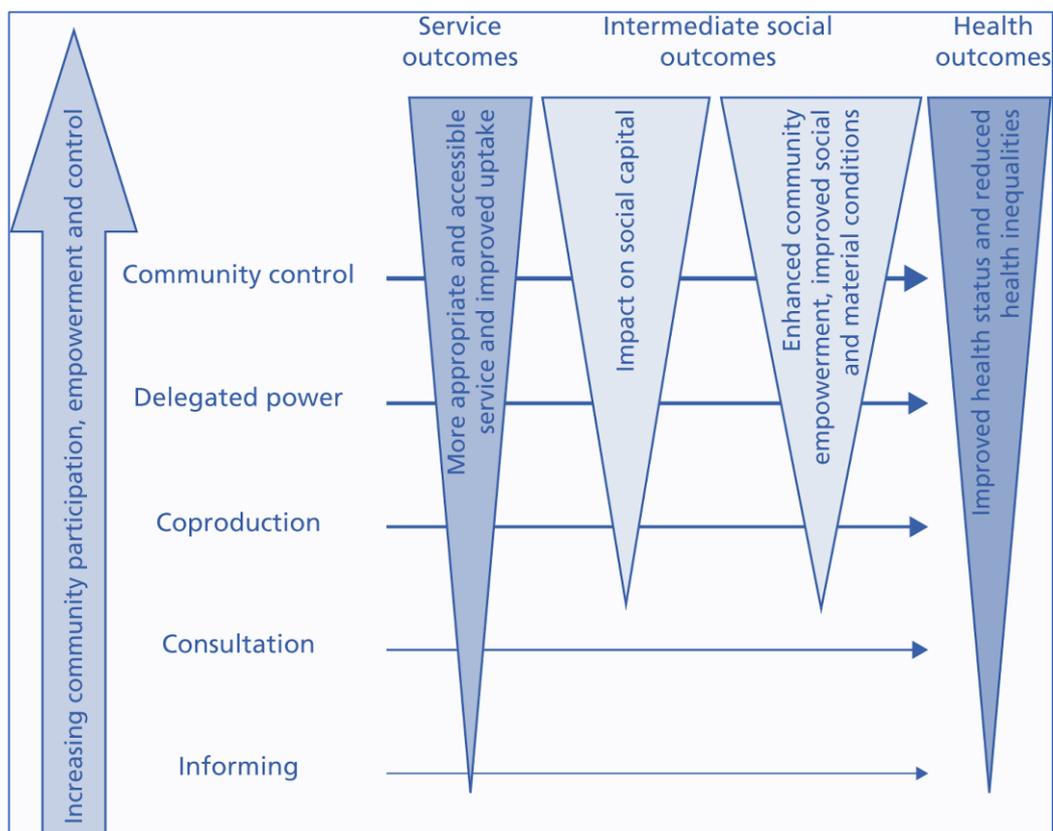


Source: Arnstein, Sherry R. (1969) 'A Ladder of Citizen Participation', *Journal of the American Planning Association*, 35: 4, 216 — 224

Other scholars have since expanded on Arnstein's model to develop frameworks that seek to aid the design of participation initiatives and to assess their effectiveness. One such framework is that developed by Popay and colleagues (2006) which sought to encompass the breadth of perspectives and approaches of previous models (Popay, 2006) (Figure 3). It describes the relationship

between levels of engagement and desired outcomes. In this model, the more power and control communities have over decisions that affect their lives (i.e. through co-production, delegated power or community control), the more likely there are to be positive impacts on service quality, social cohesion, socioeconomic circumstances, community empowerment and ultimately population health and health inequalities. Forms of engagement such as informing, and consultation may impact on the appropriateness, accessibility, uptake and effectiveness of services. They are considered less likely to impact intermediate social outcomes or lead to significant levels of empowerment or have little impact on health outcomes (Popay, 2006).

Figure 3. Pathways from community engagement to health improvement

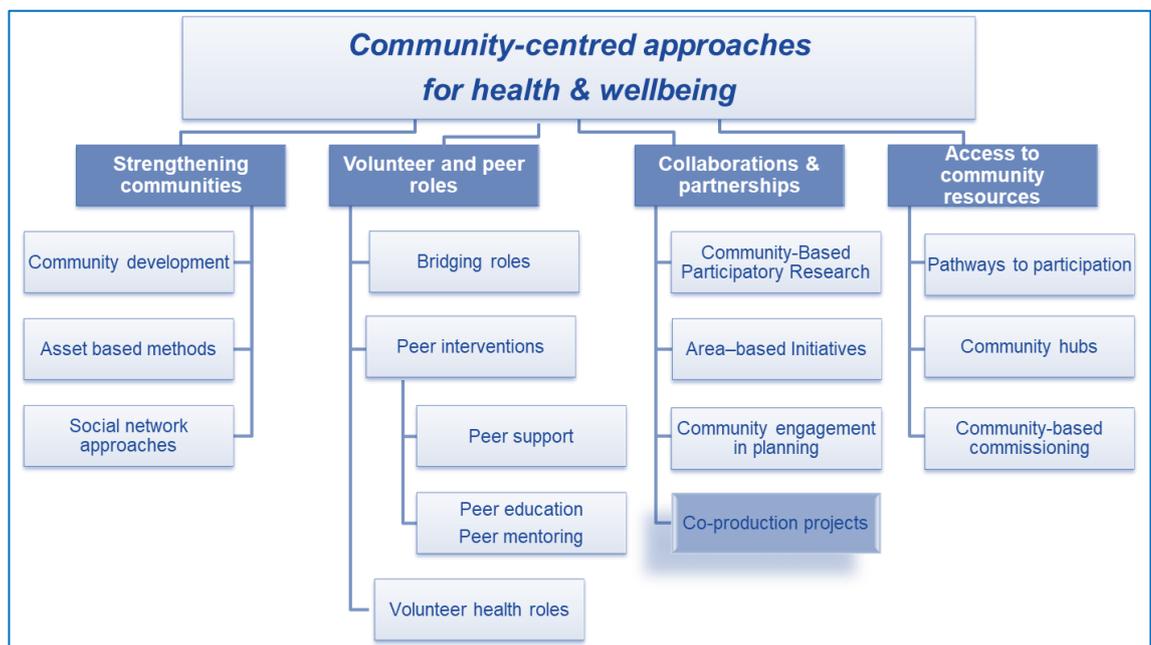


Source: J. Popay, 2006, *Community Engagement, community development and health improvement*.

Similarly, South (2015), incorporates co-production as a collaborative approach in her family of community centred approaches (Figure 4). The framework illustrates the diverse range of community interventions, models and methods that can be used to improve health and wellbeing or address the social determinants of health. The mechanisms of change identified are based on the

core concepts of equity, control and social connectedness. South explains that she used the term ‘family’ because of the many interconnections and relationships between these different approaches. The term ‘community-centred’ has been used rather than ‘community-based’ because these approaches draw on community assets, are non-clinical and go beyond using a community as a setting for health improvement.

Figure 4. The family of community-centred approaches for health and wellbeing (South, 2015)



Internationally, the World Health Organisation (WHO, 2015, 2016) promotes the development of health service models that are based on co-production. In the UK, the NHS Five Year Forward View (NHS England, 2014) advocates the importance of local co-production approaches in the implementation of new care models, working with local communities and leaders. The Care Act (2014) also highlights the importance of co-production within social care, defining it as when individuals or groups influence the support and services that they receive, or influence how services are designed, delivered or commissioned. The potential of co-production to provide new tools, methods and strategies to engage and empower individuals and communities to build long-term resilience, strengthen both health and community systems is a key focus of this thesis.

2.3. Co-production – a deeper community engagement approach

Co-production is considered to be a collaborative community engagement approach that involves citizens and professionals working together in equal and reciprocal partnerships. This can happen through one-to-one relationships where individuals actively participate in shaping and implementing their own support, or between communities or groups of people working with professionals in wider peer or community support. Co-production requires that everyone involved plays an active role by enabling their skills and personal resources to be used (Hashagen et al., 2011). The principles on which co-production is based mean it represents a fundamentally new way of working within the community and healthcare setting (Boyle and Harris 2010).

Much of the literature concerning the benefits co-production is purported to offer are rooted in two streams of research – citizen participation and public governance – which typically argue for the improvement of democracy and broader citizen engagement, and increases in efficiency and better services (Van Eijk and Steen, 2016; Bovaird and Loeffler, 2012; Verschuere et al., 2012).

As highlighted in chapter one, reciprocity is a key principle and features in many of the definitions and descriptions of co-production. Reciprocity is the notion of mutual exchange relationships. Reciprocal interactions between families, friends, neighbours and wider community members underpin and enhance the social support networks within communities (Cahn, 2004, p. 33; Cutrona et al., 2000). Thus, reciprocity is important for building community and collective social capital (Cahn, 2004, p. 33).

Another of the key co-production principles concerns the redistribution of power through a process of partnership between service users and professionals, transforming from an expert-led model where users are 'done to' to a model where users 'do with' professionals (Dunston et al., 2009). Needham (2008) suggests that redistribution of power also extends to the valuation of alternative types of knowledge. Co-production allows for a greater recognition of the expertise of frontline staff whilst also seeing service users as 'experts by experience' rather than simply recipients of services. Needham argues that service quality can improve through the process of building relationships and trust

between service providers and service users, leading to services that are more aligned to citizen preferences (Needham, 2008).

However, some question the extent to which power relations are altered and argue that further empirical studies are necessary to determine whether co-production leads to empowerment, or may further engrain inequalities (Farr, 2018; Donetto et al., 2015).

Another advantage of co-production lies in its potential to strengthen community and democracy by bringing together a wide range of stakeholders with differing agendas (Ottomann et al., 2011; Pestoff et al., 2006; Needham and Carr 2009). Co-production in the context of public services shows the way to a new kind of society where democracy is inseparable from the service provision structures and procedures (Rantamäki, 2017). Barker (2010) states that there are many possibilities for positive returns when citizens and service users co-produce with professional producers, as well as opportunities to strengthen social cohesion, support democratic processes and ensure environmental sustainability of all policies (Rantamäki, 2017). Involving people in meeting the needs of others as well as their own can elicit a strong sense of community and shared values and a commitment to shared goals (Barker et al 2010; Birchall and Simmons 2004). This behaviour can foster loyalty to a neighbourhood, group or community (Levine and Fisher, 1984) and raise awareness of the difficulties and limitations of local services (Needham 2008). Some authors have suggested that positive experiences in co-production may act as a catalyst for people to engage in other areas of democratic process or community focused activities or collaborations (Mitlin 2008; Dunston et al 2009; Needham 2008).

Boyle et al (2006) reported that the use of co-production in community projects helps improve social cohesion by fostering stronger links between community groups and professional agencies. They also found that participants felt they were better informed about their community and the opportunities available to them and were becoming active in multiple community groups (Boyle et al., 2006). It is also suggested that co-production can facilitate the development of social capital by participants and facilitates the bringing together of people from diverse backgrounds to work together for a common cause. (Slay and Robinson, 2011; Barker et al 2010; Boyle et al 2010a).

In the literature, it is widely reported that co-production can improve the effectiveness and quality of public services (Gannon and Lawson 2008; Barker et al 2010; Boyle et al 2010a; Ottmann et al 2011; Loeffler et al 2013; Needham 2008; Percy 1984; Palumbo 2016; Crawford et al. 2003; Marschall 2004; Vennik et al 2016). Needham (2008) suggests that co-production can serve as a diagnostic tool through the process of identifying citizens' needs and problems in existing delivery mechanisms and finding solutions to resolve them. It can also act as a therapeutic tool by building trust and communication through participation, allowing professionals and citizens to explain their perspective and understand the perspectives of others (Needham 2008). Co-production can also introduce innovation into public services to solve the problems affecting them by using the knowledge and insights of citizens, helping to develop services are responsive and sensitive to the needs of those that use them (Needham 2008; Pestoff et al 2006; Barker et al 2010; Percy 1984; Marschall 2004).

Deliberative and collaborative processes such as co-production are said to improve social capital and feelings of community belonging among participants (Evers, 2006). Eliminating the gap between the public sector and citizens is seen as increasing public accountability and giving citizens more direct influence over the services they use (Pestoff, 2008).

In co-production cases, the involvement of citizens is usually voluntary (Alford, 2009), therefore understanding the possible motivators to boost people's willingness to co-produce has been an important topic of study in co-production (Alford, 2009). Feelings of self-efficacy and other characteristics of citizens are reported in previous research on co-production as related to the willingness to co-produce (Parrado et al., 2013; Thomsen, 2015); that is, the extent to which citizens feel participation will effect change (Bandura, 1977).

Economic rewards may be less effective as incentives than attempting to draw upon these kinds of values (e.g. Alford, 2002). Some authors go further and suggest that extrinsic rewards might dilute the intrinsic motivation through a *crowding-out* effect (Frey and Jegen, 1999). Consequently, financial rewards may have a negative influence, if the individuals involved perceive the incentive to be controlling. This might be the case, for example when people who are paid to perform a task, which they did previously for its own sake, reduce their effort (Frey and Goette, 2001).

Loeffler and Bovaird (2016) categorise motivators into intrinsic and extrinsic. Intrinsic motivators relate to the desire to achieve one's ethical values (Alford, 2009) such as solidarity, or a feeling of civic duty (Wise et al., 2012). Alford and O'Flynn (2012) identify willingness and ability to contribute as factors behind citizen motivations for co-production. Within willingness they have three motivations: sanctions, material rewards, and nonmaterial rewards. Under ability, they relate the motivators to the capacities needed for the specific co-produced tasks. Alford and O'Flynn (2012) also note similar motives for public service professionals albeit with different mechanisms. In another study Van Eijk and Steen (2014) assert that ease, internal efficacy, and external efficacy are socio-psychological factors important for motivating and engaging citizens to co-produce public services. Ease is concerned with the workload they anticipate participation would require of them. Internal efficacy is whether or not they feel themselves to be competent to co-produce, while external efficacy refers to their beliefs about the responsiveness of public actors involved in the co-production and whether they can be relied upon. Pestoff (2012) notes that the salience of the subject of the co-production activities is important; people are mostly likely to participate in co-producing those services that are most important to self or family members.

Some authors have argued that extrinsic motivators may be effective motivators for citizen participation in co-production processes, specifically referring to either lowering the costs of participation (Weinberger and Jutting, 2001), or increasing the financial benefits for participants (Pestoff, Osborne, and Brandsen, 2006). However, a recent study by Voorberg (2018) found that offering *modest* or even *substantial* compensation had limited effect on people's willingness to co-produce public services. The authors advised that intrinsic motivations such as solidarity and charity, should be explored instead of promoting co-production by increasing financial incentives (Voorberg et al., 2018).

Co-production is a deeper approach to community engagement and represents a different way of working. Its potential lies in translating its core principles into practice.

This thesis draws on this literature in developing fidelity indicators for use of co-production (chapter three) and interpreting the findings on factors affecting the

use of co-production, and its impact in the development and implementation of the Community REACH intervention (chapters four, five and six).

2.4. Current practices of co-production in health interventions

The practice of co-production is increasingly being promoted as a new way of working with the healthcare sector (Bovaird 2007). Its potential for developing new and far more sustainable forms of citizen and consumer participation is in accord with directions of public sector and health system reform (Bovaird 2007; Needham 2008; Parker and Parker 2007). Bovaird (2007) has suggested the potential of co-production is still greatly underestimated.

Dunston et al., (2008) asserts that well-developed forms of co-production extend health literacy and capabilities of citizens and create opportunities to develop more active forms of citizenship and deliberative democracy. Similarly, Cahn's model of co-production posited the generation of system change through redefining the product, process, producer and consumer of a service (Cahn and Gray 2004).

In establishing the role played by co-production in the provision of health services three broad types of co-production have been identified in the literature: individual, group and collective (Brudney and England, 1983). Individual co-production concerns individual (patient, citizen, client or service user) contributions and health and social care context is related to ideas about person-centredness, for example, expert patient programmes. In group co-production, the group of individuals improves the quality of the services provided to that group; and in collective co-production, the benefits are not restricted to a single group but enjoyed by neighbourhoods, communities and wider societal networks (Needham 2008). Collective co-production is said to foster more democratic relationships between groups of citizens who, in addition to their individual relationships with professionals, also help to shape and deliver public services (Barker et al., 2010).

In the context of health care services co-production is considered to primarily relate to the partnership between the service provider and the user leading to enhanced value creation (Osborne and Strokosch, 2013). This partnership occurs at the individual level and is defined as service co-production (Osborne

and Strokosch, 2013). Service co-production challenges the traditional biomedical model of health care delivery involving patients directly in shaping service quality (Farr et al; 2018). In a recent study, service co-production was used as an approach to understand how patients and staff interacted with a new e-consultation system (Farr et al., 2018). Patients were not involved in the design of the service but were actively engaged in its implementation. Service co-production was a process to gather in-depth insight into the operationalisation and acceptability of the new e-system by both patients and staff. Points of interaction ('touchpoints') were used to map the co-production processes by highlighting how patients and staff interacted throughout the e-consultation process (Farr et al., 2018). Service co-production is situated in the public service logic which draws from market rationales and business logics (Hood, 1991, 1995; Dunleavy and Hood, 1994). However, Palumbo (2016) argues that co-production is a deeper form of patient engagement and *'outplaces the ideas of professional dominance and paternalism, conceiving the patient as a co-creator of value rather than a consumer of health services'*. Dunston et al., (2008) suggest that service co-production is essential to sustain future health systems and the global challenge of maintaining and improving people's health and wellbeing. Dunston posits that the focus of service co-production is the *'capacity, capability and necessary contribution of consumers working with and alongside health professionals'* rather than democracy and citizenship (Dunston et al., 2008). In this sense, the process is concerned with 'value' creation and more related to the concept of co-creation (Lusch and Vargo, 2006).

The concept of co-production is wide-ranging in its potential to establish partnerships and build relationships among health professional, patients and citizens seeking to improve their health and wellbeing at many levels. For instance, in co-commissioning of services (co-planning of health and social policy, co-prioritisation of services and co-financing of services) co-designing services; co-delivery of services (co-managing and co-performing services); and co-assessment (co-monitoring and co-evaluation) of services (Loeffler et al., 2013).

As noted by Dunston et al., (2008) where co-production is characterised in terms of a collaborative partnership consumers become located *as 'insiders'*. In the literature, this form of co-production is differentiated from more traditional forms

of participation that refer to giving people a choice or a voice (Dunston et al, 2008). In these types of co-productive partnerships citizens are often involved in co-designing and/or co-implementing a new service model or initiative (Voorberg et al., 2015; Mills and Swarbrick, 2014).

A systematic review of co-creation and co-production found that in fifty percent of studies citizens were involved as co-implementers (Voorberg et al., 2015). Co-design, co-implementation, co-creation along with co-evaluation, co-monitoring are all commonly considered as sub-processes of co-production (OECD, 2011).

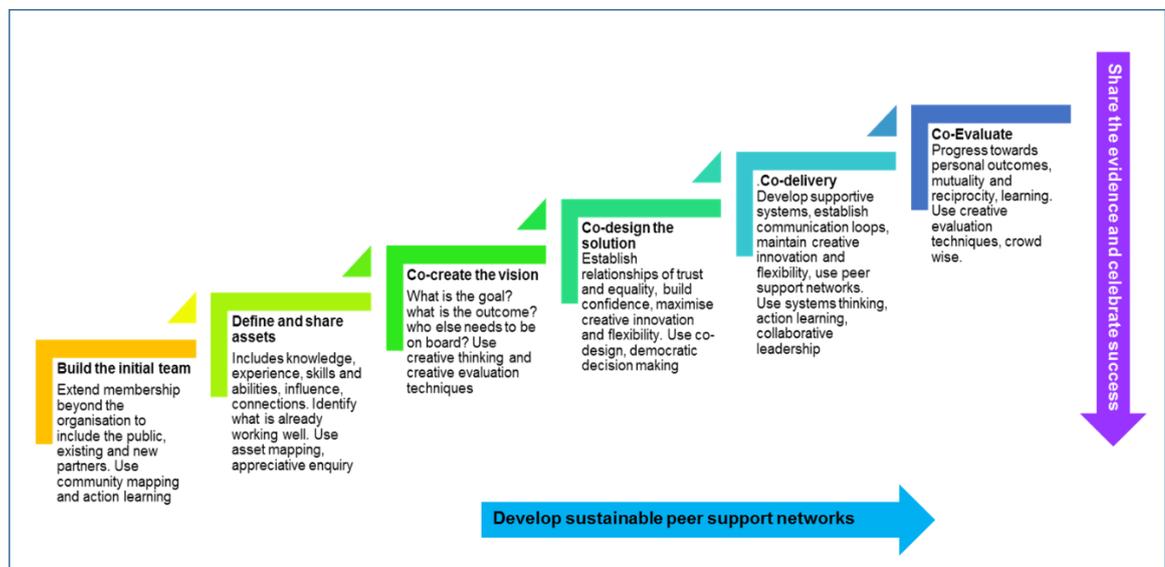
However, co-design's disciplinary origins lie in participatory design (Bate and Robert 2006) and can be seen as both a practice and a process (Langley et al, 2018). As a process, co-design methods are highly participatory and use a range of innovative techniques to increase engagement and empowerment to enhance levels of collaboration (Langley et al, 2018). Co-design is commonly used as part of the co-production process in defining a problem and developing a creative solution, co-production is perceived as the process for implementing the proposed solution (Langley et al, 2018; Lam et al., 2017). The focus of the co-design process is in recognising the value of the explicit and tacit knowledge that different stakeholders bring (Tsoukas and Vladimirous, 2001). Establishing a shared understanding is essential for building trust among diverse participants. Langley notes that design uses a pragmatic and abductive approach to create new knowledge that is visible to all participants (Langley et al, 2018). However, as noted by Bovaird and Loeffler (2008) there is limited evidence for the successful use of co-design and co-production in community developments, as the power often remains with the professionals as co-decision makers or co-developers (Walker, 2010).

Co-design is frequently used in community-centred projects to develop projects and initiatives that are tailored to the local community's needs. For example, Connecting Communities through Culture programme in Birmingham used co-design techniques over a two-year period to develop local initiatives to increase participation in arts and cultural activity within local communities. The programme reported that the cultural co-design process had changed community members' perceptions of themselves, what they could create and contribute, and what they could achieve by working together (Garry and Goodwin, 2016).

Experience-based co-design (EBCD) is a branch of co-design applied in health systems and service enhancement (Mulvale et al., 2016). Its use of a wide range of different methods such as storytelling, visual media, employing participants as researcher partners, offering counselling support, attending to issues of confidentiality and opportunities for informal interactions has been shown to be successful in addressing power imbalances among disadvantaged and vulnerable populations (Mulvale et al., 2016).

The 'production' side of co-production has been broadly interpreted and highlights the various forms of involvement throughout the co-production process (Bovaird, 2005; Bovaird and Loeffler, 2012; Pestoff, 2012a; Spencer et al, 2013). In the UK, Public Health Wales have developed a framework setting out key steps and some of the tools in the co-production process (Spencer et al., 2013). The authors emphasise that in each step the aim is participants maximising opportunities for contribution, creativity and shared learning see Figure 5 below.

Figure 5. Key components of co-production



Adapted from Spencer, M., Dineen, R., and Phillips. A., (2013) *Co-producing services – Co-creating health. 1000 Lives Improvement service*, Public Health Wales. Available from: www.1000livesi.wales.nhs.uk

This is one of a wide range of guidance frameworks of co-production available for policymakers, commissioners, researchers, and practitioners to draw on. In the UK co-production has become integrated into legislative framework through the Care Act 2014, and the European Social Fund (ESF) has recently developed

recommendations for the promotion and practice of co-production (Stott, 2018). Despite the advancement in guidelines, frameworks and recommendations, one challenge regularly cited in the literature concerns the systematic translation of co-production principles into practice (Durose et al., 2015; Batalden et al., 2016; Filipe et al., 2017; Fox et al., 2018). This is an ongoing challenge due in part to the varying conceptual definitions and ideas about how co-production can be operationalised to improve normative practice and outcomes.

More collective or community forms of co-production are considered to produce more significant wide-ranging benefits such as more cohesive communities and the creation of new social networks and increased levels of social capital (Griffiths and Foley, 2009: 5). In addition, it improves many intrinsic values, fosters the building of trust-based relationships, particularly among service users and service providers, leading to the provision of health services more in line with the health needs of the community (Griffiths and Foley, 2009: 5; Dunston et al., 2008). Bovaird et al., 2015; 2016) found when people had a strong sense that they could make a difference ('political self-efficacy') collective co-production was high. Self-efficacy has been identified as a key mechanism in co-production in relation to developing peer support networks (Staples et al., 1999; Weaver and McCulloch, 2012). Interestingly, socioeconomic variables of gender and ethnic background did not influence levels of co-production suggesting more potential for activating more collective co-production, but also the need to determine the motivations of the different groups of people who participate in co-production. Health professionals, local stakeholders, service users, volunteers and community groups, as co-producers, all have different interests in the co-production process (Bovaird, 2007).

More recently in the literature attention has turned to the relational dimensions of co-production, particularly to what is routinely termed the micro-level (Dunston et al., 2008; Clarke et al., 2018). Parker and Heapy (2006) have identified that experience and relationships are the recurring themes in co-production research. They contend that '*co-production needs to happen at the point of delivery and through conversation and dialogue rather than through choice alone...learning to understand and map how people experience the point of delivery, the interface between the service and their lives, is essential for creating the conditions for co-production*' (Parker and Heapy 2006:15). This echoed in a study by Clarke et al.,

(2018) who considered interactional ritual change theory to understand how individuals interact together and group inclusivity is generated amongst diverse members. The study identified two types of interlinked inclusivity: relational, individuals routinely engaging together; and emotional, the feeling of being included. The study pointed to micro-interactions between participants as building interpersonal momentum and a process of reflexivity as producing and maintaining both types of inclusivity. Although, the study concerned the co-production of health research among professionals, the findings have wider implications for the practice of co-production.

This section has outlined the use of co-production in the context of public health interventions. The literature points to a focus on understanding the relational dimensions of co-production as potential for developing more effective co-production practices. This thesis draws on this literature in interpreting the findings of the co-production process in the development and implementation of the Community REACH intervention presented in chapters four and five, and in the experiences of community members presented in chapter six.

2.5. Examining co-production in health interventions

A key debate concerning the use of co-production in health interventions concerns the robustness of methods to assess its effectiveness and impact and understand the processes which generate any improved outcomes (Batalden et al., 2015; Brix et al., 2017; Durose et al., 2017; Fox et al., 2018; Voorberg et al., 2015).

In the existing empirical literature on co-production interventions, the prevailing methods for data collection and analysis are qualitative (Durose et al., 2017; Fox et al., 2018; Voorberg et al., 2015). A systematic review by Voorberg et al (2015) noted a lack of quantitative studies prior to 2014, and subsequently a rapid review by Fox et al (2018) found only four studies employing purely quantitative measures. The remaining articles reviewed employed qualitative and mixed methods designs.

The authors of both systematic reviews (Fox et al., 2018; Voorberg et al., 2015), concluded that the use of randomised control trials and quantitative methods

would give greater confidence in the identification of influential factors and causal relationships.

These conclusions echo the shift in the political discourse which is focused towards evidence-based practice through the use of more rigorous *scientific* methods of assessment. Scepticism towards qualitative research has narrowed the assessment of co-production to case studies identifying 'what works' in order to demonstrate success (HM Government, 2013; Durose et al., 2017). The demand for more quantifiable evidence is reflected in the wider debates on evidencing co-production. The OECD (2011) have called for further research to better quantify the costs of co-production in relation to the anticipated benefits (OECD, 2011). Specifically, in relation to quantifying the potential savings and unintended consequences of the re-balancing of the relationship between government, individuals and communities (OECD, 2011).

In their paper discussing the evidence base for co-production, Durose and colleagues (2015), highlight the challenge for practitioners of evidencing co-production practices that meet commissioning demands. In two reviews of co-production practices undertaken by the authors, local practitioners reported co-production had led to the generation of local innovation by supporting the spread of ideas and creativity through local peer networks. This had led to the development of 'small-scale, informal activities' tailored to the local community preferences. However, in order to provide evidence of the benefits of co-production, practitioners felt under pressure from local and national commissioners' practitioners to use formal assessment methods that did not adequately capture the local context. The inherently experimental and relational dimensions of co-production pose a challenge for assessments using more formal techniques.

However, in their paper the authors outline a number of approaches which they suggest have potential for evidencing the contribution of co-production practices '*without embracing positivist empiricism*'. The authors recommend using theories of change approaches (Pawson and Tilley, 1997; Fulbright-Anderson et al, 1998) to facilitate the articulation of how and why an intervention is expected to work against which intervention findings can be compared. These theoretical accounts are not commonly found in the current evidence base (Fox et al., 2018; Voorberg et al., 2015; Durose et al., 2015). To support a stronger theoretical foundation

incorporating knowledge-based practice Glasby and Beresford (2006) help to bring clarity to the selection of methods considered as being most appropriate for answering the research question effectively (Glasby, 2011, 89). Knowledge-based practice values the use of experiential evidence as a valid way of understanding peoples' experiences which contributes to empirical outcomes (Glasby, 2011, 92–3). This approach enables the principles which underpin co-production to be more explicitly acknowledged and recognised, giving credibility to people working in more co-productive ways. In addition, the authors also suggest pragmatic and cost-effective methods for gathering evidence in order to strengthen the evidence base for coproduction. These methods include appreciative inquiry, peer-to-peer learning and data sharing:

- a) Appreciative inquiry draws on the '*heliotropic principle*', that people and organisations gravitate toward things that give them energy and life (Elliott, 1999). Appreciative inquiry takes an asset-based approach focusing on a shared commitment to identify the capacity and assets of communities rather than its needs, deficiencies, and problems (Kretzmann and McKnight, 1993). The process uses interviews and storytelling to enable communities to share positive experiences and generate ideas. Collective identification and critical analysis allow for the prioritisation of new possibilities and areas for taking action (Bushe, 2011). Sharing experiences through storytelling is significant in co-production because it facilitates the relational aspects of the process building a shared commitment and understanding and provides an accessible way to include different voices (Durose et al., 2016).
- b) Peer-to-peer learning involves people acquiring knowledge and skills by actively helping others (of equal status or matched companions) to learn whilst learning themselves by so doing. Peer-to-peer learning means people creating knowledge through experience. There is potential for peer-to-peer learning to provide a cost-effective learning strategy, by generating and spreading innovation and good practice through networks of peers (Brannan et al., 2008). Through peer-to-peer learning there is potential for developing communities of practice that provide spaces for people with common interests to engage in collective learning, deepening their knowledge and expertise through ongoing interactions using technological

tools and platforms (Wenger et al., 2002). A co-production community of practice could help facilitate the generation of evidence and scaling out of innovation and good practice.

- c) Data sharing offers the opportunity for the cost-effective sharing of assessment tools and methods between academia and practice. For example, third sector organisations undertaking co-produced initiatives could use open data to benchmark their own assessments. Despite the potential there are barriers to navigate such as confidentiality and data security, lack of awareness of existing resources, and appropriate data analysis skills to access and manipulate available resources. The Data Lab approach may help overcome these boundaries by linking data held by smaller organisations with relevant administrative data in a secure setting, enabling them to assess the effectiveness of their interventions. This data can then be used to provide relevant evidence in the commissioning process. Data-sharing is a more equitable and accessible approach to evidence gathering.

In line with the above ideas for more equitable methods of evaluating co-production interventions, Brix et al., (2017) propose adopting a collaborative evaluation process. They posit using a framework developed by Shulha et al., (2016) which provides a set of eight principles considered important for planning and conducting a collaborative evaluation approach. These principles include:

- Clarify motivation for collaboration
- Foster meaningful relationships
- Develop a shared understanding of the program
- Promote appropriate participatory processes
- Monitor and respond to resource availability
- Monitor evaluation progress and quality
- Promote evaluative thinking
- Follow through to realise use – which changes are important?

Brix and his colleagues also advise following a theory-based approach to evaluation, using the eight principles of collaborative evaluation to support the development of the change theory. They suggest this framework acts as a scaffold facilitating the collaborative process between all those participating in the

co-produced intervention in order to agree and validate the proposed theory of change and expected outcomes. Thus, bringing clarity and a shared understanding of the processes involved and intended outcomes. Like Durose, Brix et al. discuss the potential of co-produced assessments to contribute to the co-production principle of capacity building through the process of 'learning by doing' (Brix et al., 2017).

Authors of the earlier mentioned systematic reviews agree with the need for conceptual explicitness to effectively operationalise co-production. Both authors suggest drawing on methods from other disciplines.

Fox et al., (2018) suggests the need for a taxonomy to map potential objectives and outcomes of co-production against the different levels at which it occurs (individual, group/community, organisation). Such a taxonomy would allow participants engaged in a co-production intervention to establish a shared understanding of the objectives and expected outcomes of the co-production process. This would help facilitate a better understanding of 'what works, for whom and at what level' in co-production and improve implementation and assessment processes (classification, data collection and measurement) for co-production. A better understanding of the variables and generative mechanisms would enhance the use of both quantitative and qualitative methods and analysis of causal pathways.

In particular, Fox et al., (2018) recommends drawing on existing validated measurement scales to provide psychological assessments of the beneficial and detrimental effects of co-production. For instance, the World Bank (2004) has developed a measure of social capital. Application of such measurement scales would require careful consideration and clear reasoning to support their use. Identifying individual psychological outcomes in relation to cognition, affective and behavioural dimensions would support wider implementation and developing future co-produced interventions.

A recent study tested a number of adapted measures to assess social support as a mechanism to increase social capital, reduce stress and improve well-being in mothers who were pregnant and/or with infants aged 0–2 years. A community-organising methodology using principles of co-production and community leadership was used. The authors used existing tools to measure aspects of

social capital, including the Social Support Programme Acceptability Rating Scale, the General Health Questionnaire-12, the Warwick-Edinburgh Mental Well-being Scale and an adaptation of the World Bank's Social Capital Integrated Questionnaire. To measure the perceived extent and effectiveness of co-production and joint control the authors constructed a questionnaire based on NICE recommendations on community engagement (Bolton et al., 2016).

The authors found these measures were useful in elucidating some of the intended effects on some key outcomes such as increases in social capital and decreases in GHQ-12-assessed levels of maternal distress. However, the study did not delineate the definition or principles of co-production ascribed to the intervention making it difficult to disentangle the co-productive processes involved. As the authors report the measure of co-production was newly constructed and requires further validation but shows potential for wider application (Bolton et al., 2016) and an interesting development in the assessment of co-produced interventions.

Fidelity assessments have been recommended to strengthen process evaluations of co-produced interventions (Fox et al., 2018). Fidelity describes the extent to which the implementation of an intervention has adhered to the protocol or programme model originally developed (Mowbray et al., 2003). In implementation science fidelity assessments are a fundamental part of unpacking the 'black box' of intervention characteristics and mechanisms. Assessments of fidelity are achieved by operationalising the intervention theory and monitoring the consistency and congruence with which it is implemented (Mowbray et al., 2003; Blasé and Fixsen 2013; Haynes et al., 2018). Fidelity assessments allow for the measurement of both quantifiable dimensions relating to the processes of implementation such as numbers of participants recruited, as well as the theoretical dimensions relating to the intervention theory of change hypotheses underpinning the intervention design (Mowbray et al., 2003; Blasé and Fixsen 2013; Haynes et al., 2018). Fidelity assessments that link outcomes to programme theory supports the translation of theory into practice, adaptation into other contexts, monitoring and assessment processes and interpretation of intervention outcomes (Hasson 2010; Mowbray et al., 2003; Bellg et al., 2014; Michie et al., 2009). In addition, interventions which are delivered with high implementation and theoretical fidelity have been shown to elicit more positive

outcomes, in particular flexible interventions that are tailored to local cultural needs and are in line with the programme theory (Saunders et al., 2005; Carroll et al., 2007; Mowbray et al., 2003; O'Connor et al., 2007; Durlak and DuPre, 2008).

Another recent area of development in relation to the assessment of co-produced interventions is the application of normalisation process theory (NPT) (Murray et al., 2010). Normalisation process theory is a middle-range theory developed by May and Finch (2009) from programme of empirical studies. Middle-range theories seek to address specific phenomena, within limited boundaries and are intended to guide empirical inquiry as well as action or practice (Nilsen, 2015). NPT provides a framework for explaining the processes by which complex interventions become embedded into routine healthcare practice (May et al., 2011). The NPT framework is useful for process evaluations and comparative studies of complex interventions. It has also been found to facilitate the understanding of experiences of healthcare at the individual and organisational level (McEvoy et al., 2014). Although initially developed to better understand the implementation of e-health interventions (May et al., 2003), NPT has been increasingly applied to many different healthcare specialities and contexts, such as primary healthcare settings, acute healthcare, mental health, as well as an explanatory model to guide the development and implementation of complex interventions (Gillespie et al., 2018; McEvoy et al., 2014). More recently NPT has been applied as a framework to support the co-production of practice-based evidence (Reeve et al., 2016); and in combination with service co-production theory to gather an in-depth understanding of how patients and staff interact with a new e-consultation system (Farr et al., 2018). In both of these studies, the authors reported that NPT was complementary to co-production, enabling the identification and analysis of intervention processes and interactions between participants (Reeve et al., 2016; Farr et al., 2018). NPT has undergone several iterations with the latest being Extended Normalisation Process (ENPT) (May, 2013). This extended version seeks to explain the role played by intervention-context interactions and focuses on resources and the contributions of actors involved in the implementation processes (May, 2013).

In this section I have examined some of the requirements for and issues with assessing co-produced interventions. This thesis also develops fidelity indicators

as a method for assessing how co-production processes have been implemented. Development of fidelity indicators for this study are described in the next chapter. Assessments of fidelity indicators for developing the intervention are described in chapter four and chapter five describes fidelity assessment of implementation processes.

2.6. Impact and outcomes of co-production in health interventions

As Durose (2017) states in her paper looking at the evidence base assessing co-production, *'what is notable for debates on evidence-based policy making is that co-production has been granted an influential role in the future of public services and indeed public governance on the basis of little formal evidence. It is used to signify and denote both a range of policy objectives and the means of achieving them'*. (Durose et al., 2017). Durose posits that the gap in evidence is partly due to the breadth of the term, its lack of programmatic consistency and its focus on relational aspects of process when performance measures focus on outcomes and impact; and uncertainty about the quality of the evidence and what qualifies as such. A number of recent reviews (Durose et al, 2013; Needham and Carr, 2009, SCIE, 2013) highlight the limited evidence base, which primarily consists of single case studies demonstrating a lack of independent assessment and publicly accessible assessment methodologies. There are few published controlled studies or systematic reviews, longitudinal studies or comparative evidence is limited (either comparing across sites of co-production, types of services or outcomes or comparing co-production with more 'traditional' approaches to local public service provision) (Verschuere et al 2012; Durose et al, 2013).

A systematic review by Voorberg and colleagues (2015) which asked about the outcomes of co-production (and co-creation) found that in most cases outcomes of co-production processes were not specified or assessed. These are shown in Table 2. Most studies were dedicated to the identification of influential factors or finding a typology of public co-production, suggesting that most academics aimed their study at the co-creation and co-production processes rather than their outcomes (35%). Other authors aimed their studies at the identification or conceptualisation of different co-creation and co-production types, while not

discussing their outcomes (18%). Only a handful of authors did describe specific outcomes as a result of co-creation and co-production processes (20%). The table shows that if concrete outcomes are reported, they mostly refer to an increase (or decrease) in effectiveness.

Table 2: Outcomes of co-production processes - types of study (Voorberg et al., 2015)

Type of study results	N
Identification of influential factors	43 (35%)
Report on specific goals to be met	24 (20%)
Identification of different types of co-creation and co-production	22 (18%)
Other	33 (27%)
Total	122 (100%)

A host of positive subjective outcomes for individuals are described in the literature and include: improved mental health and wellbeing (Gannon and Lawson 2008; Boyle et al 2006; Boyle et al 2004; Boyle and Harris 2009; Bunt and Harris 2009; Barker et al 2010; McIntyre-Mills 2010; Osborne et al 2016; Morgan and Brooks 2010; Kendall 2003); increased confidence, self-esteem, self-worth and self-efficacy (Boyle et al 2006; Morris et al 2006; Bunt and Harris 2009; Fischer 2006; Alford 2002; Powell and Dalton 2003; Pestoff 2006; Riessman 1990; Morris and O'Neill 2006; Mitlin 2008; Doel et al. 2007; Crawford et al. 2003; Kendall 2003); increased self-determination, self-mastery and sense of fulfilment and satisfaction (Alford 2011; Riessman 1990; Rotegard et al 2010; Birchall and Simmons 2004; Rotegard et al 2010; Bunt and Harris 2009; Rotegard et al 2010; Alford 2002). These outcomes have been linked with the intrinsic motivation - a personal value derived from participating in a meaningful activity. This is associated with a principle of co-production - reciprocity. Co-production facilitates a change in individuals, increasing feelings of usefulness and capability as they become helpers as well as the helped (Riessman 1990). Gaining more

control over one's affairs is also associated with positive subjective outcomes (Barker et al 2010; Bovaird 2007; Parker and Parker 2006; Bunt and Harris 2009; Boyle et al 2010a; Crawford et al 2003).

Findings reported by Boyle and colleagues (2006) from a range of co-production projects (e.g. as peer advocates, volunteers, time bank members) across the UK reported participants citing multiple benefits of social interaction on their health and well-being. For some, just getting out and about during their participation may bring improvements in fitness and energy levels. In many cases, physical health had been positively affected by the activity (Boyle et al. 2006). Community members were able to extend their social networks and the range of opportunities open to them. Boyle suggested that the 'co-production networks' were helping to build capacity in communities in a more meaningful way by increasing awareness and understanding of community issues, bridging across social groups and encouraging communities to develop a sense of agency to take control of their own lives. Boyle et al (2010a) also point to evidence suggesting that having a sense of control over life can improve physical health. Boyle also noted the findings highlighted the range of personal assets among people outside paid work (Boyle, 2006). Boyle's findings point to the valuable resources often hidden within local communities. Engaging communities in co-production approaches has the potential to unearth hidden assets by building up people's skills, capacities and social networks and enabling people outside paid work to contribute to their communities (Lam et al., 2017).

Participating in co-production is also associated with a number of personal developmental outcomes, such as increasing knowledge, skills, awareness and understanding (Fischer 2006). Co-production provides an approach for youth development work that enables young people to develop protective life skills such as problem solving, self-control, anger management, conflict resolution, and advance their social, emotional and communication skills (Cahn and Gray, 2005). Boyle et al (2006) found that many participants in their case studies had been able to access free training courses in a range of areas, including computing, self-management and first aid. They also found that people had access to activities relating to personal growth and healing, such as alternative therapies and self-help. Boyle et al (2006) also found that participants often acquired an interest in personal development activities following increases in their confidence. This was

seen regardless of whether they had direct access to formal learning activities through their participation.

Collective co-production is said to pave the way toward improvement of community well-being. By generating greater clarity about problems and the resources available with which to address them, collective co-production can be particularly effective at fostering positive behavioural change (Bunt and Harris 2009). Kendall (2003) highlights the increasing evidence connecting social capital to positive improvements in health outcomes. The quality of relationships within social networks is considered to play a vital role in improving and maintaining better health (Kendall 2003). Collective co-production makes use of existing social capital to achieve valuable outcomes, as well as providing activities through which further social capital can be built (Bovaird et al., 2015).

However, as Durose alluded to measuring the impact of co-production approaches is not straightforward. Whilst it is possible to capture intermediate outcomes, direct correlations between health and wellbeing outcomes and co-production have not been proven. As stated earlier the unstructured nature of case studies and use of non-peer reviewed accounts cloud assessment further. Findings are not easy to generalise because of the context specific nature of the case studies (Durose, 2017).

Although evidence of the cost of co-production remains relatively scarce within the literature, several authors have posited that co-production may increase efficiency and thereby reduce cost (Alford and O'Flynn, 2012; Boyle and Harris, 2009). These authors attribute cost savings to greater coherence between the service offer and service user preferences, thereby reducing waste. However, there is also evidence to suggest that co-productive approaches, like other citizen participation activities, may require greater investment and resources from service providers, particularly in the initial stages (Irvin and Stansbury, 2004). This lack of evidence may prevent appropriate resources and training being made available to engage in co-production. Pestoff (2006) suggests, while co-produced services maybe cheaper, this is often as a result of shifting work that was previously performed by paid professionals to unpaid service users and volunteers.

2.7. Strengths and limitations of co-production in health interventions

Full implementation and scaling up of co-production is challenging and various barriers have been cited by authors within the evidence base. Voorberg and colleagues identified a lack of appropriate organisational structures and procedures to support co-production, as well as a lack of 'institutional space' to invite citizens as equals (Voorberg et al., 2015). Other authors have cited resource and time constraints, and a lack of professional skills, tools and methods for implementing co-production (Tuurnas 2015; Bovaird and Loeffler 2012; Palumbo 2016; Vennik et al 2016). Other barriers identified include the perception by politicians, managers and professionals that co-production is risky and unpredictable (Bovaird and Loeffler 2012; Voorberg et al., 2015); unequal relationships (Tuurnas 2015; Baker and Irving 2016; Palumbo 2016); the reluctance of professionals to give up power; (Voorberg et al., 2015; Tuurnas 2015; Bovaird and Loeffler 2012); and the motivation of citizens to participate in co-production (Palumbo 2016). Baker and Irving (2016) highlight the differing institutional cultures, values and practices that exist across networks and Owens and Cribb (2012) discuss the potential for differing perspectives of professionals and patients to lead to conflict.

Some authors argue that co-production can be exploitative, taking advantage of participants from disadvantaged or excluded communities. They suggest it may be unfair to expect individuals from these communities to commit their time and energy to co-production (Needham and Carr, 2009; Barker et al., 2010) Some studies have shown that citizens from disadvantaged communities receive considerable demands to participate in consultation initiatives set up by the various institutions of community governance, whilst also trying to navigate the complexities of public service delivery themselves (Needham and Carr, 2009). Research by Boyle et al (2006), suggests that some policy makers are concerned that targeting co-production initiatives at poorer communities and not more broadly, risks undermining the status of co-production practices by becoming '*a kind of ghetto for the socially excluded*' (Boyle et al., 2006 p.49). Some authors have questioned whether involving citizens in co-production is effective when citizens may not have the appropriate skills and experiences to deliver high quality services (Percy, 1984). Other authors have offered more broader criticisms that the use of co-production blurs the lines of responsibility, shifting

accountability for difficult decisions about public issues and service provision to citizens at the local level regardless of their social status (Percy 1984; Pestoff 2006). This transference of democratic responsibility and accountability raises concerns about the potential of co-production to dilute the voluntary sector's capacity to lobby for change particularly for smaller and medium-sized organisations, as well as risking 'burnout' of communities (Bovaird 2007).

There is also some scepticism that co-production has become a buzzword with its meaning and purpose at risk of becoming distorted. Stephens et al (2008) suggest that *'in the case of co-production, there is a danger that the radical critique of public services that it presents will be lost in the noise'* (Stephens et al., 2008). Other authors contend that there is a danger with co-production of masking the material inequalities that exist in society. By focusing on assets-based approaches that address the psycho-social aspects of wellbeing, the bigger questions concerning economic power and privilege and their relationship to the distribution of health avoid being challenged or addressed (Friedli, 2012).

A review by Voorberg et al (2015) identified the importance of having clear incentives for co-production, to facilitate understanding the extent public services can be improved by incorporating citizens. On the citizen side, this review highlighted that the characteristics of citizens play an important role in whether citizens are willing to participate. Intrinsic values, education levels and family composition were also shown to play a role. For example, it was reported that people with higher levels of education were more aware of community needs, were more able to articulate their own needs and possessed the administrative skills to participate. The review findings also pointed to the importance of a sense of ownership, the perceived ability of citizens to participate and social capital is needed to involve citizens in co-production. Social capital is considered an important ingredient to develop a robust commitment. Lastly, findings of the review suggested citizens also needed to have trust in the co-production initiative (Voorberg et al., 2015).

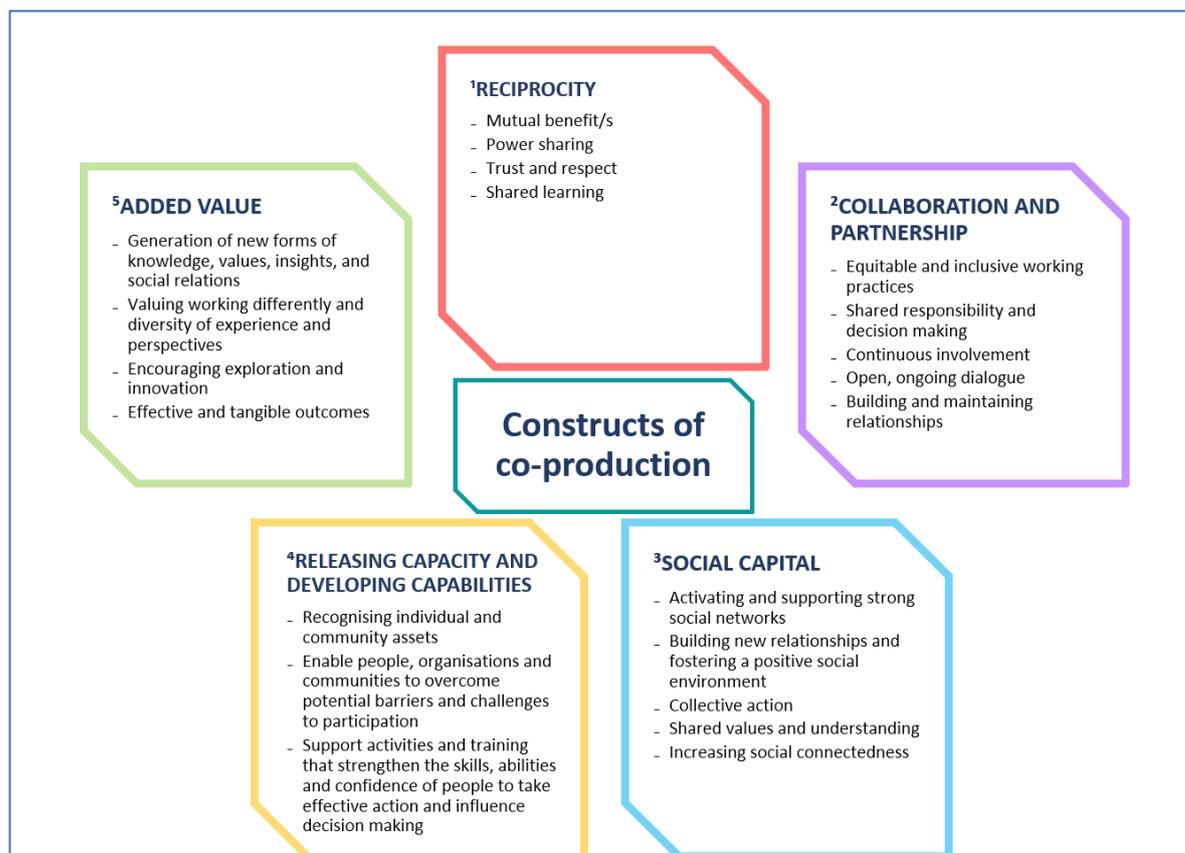
2.8. Co-production principles underpinning this thesis

In reviewing the principles of co-production presented in the literature from across the US, the UK and Europe, I have sought to synthesise and identify the core

principles that are of particular importance and relevance to my research in the context of the Community REACH intervention.

These are described in detail in section 1.7 of chapter one and are summarised here, in Figure 6, with references to the relevant sources from my literature review.

Figure 6. Principles of co-production



Sources:

¹; ²; ³; ⁴; ⁵ New Economics Foundation (2008), Co-production: A manifesto for growing the core economy, London: New Economics Foundation. (Available at: https://neweconomics.org/uploads/files/5abec531b2a775dc8d_qjm6bqzpt.pdf)

¹; ²; ³; ⁴; ⁵ Boyle and Harris (2009) The challenge of coproduction: how equal partnerships between professionals and the public are crucial to improving public services. London: NESTA; (Available at: <https://www.nesta.org.uk/report/the-challenge-of-co-production/>);

¹; ³; ⁵ Stott (2018) Enhancing the role of citizens in governance and service delivery. Co-production. Technical Dossier no. 4. May 2018. Social Europe. European Social Fund Transnational Platform; (Available at: <https://ec.europa.eu/esf/transnationality/content/co-production-dossier-explains-co-trends>);

²; ³; ⁴; Marston, C; Hinton, R; Kean, S; Baral, S; Ahuja, A; Costello, A; Portela, A; (2016) Community participation for transformative action on women's, children's and adolescents' health. Bulletin of the World Health Organization, 94 (5). pp. 376-82. (Available at: <http://www.who.int/bulletin/volumes/94/5/15-168492/en/>)

⁵ Filipe A, Renedo A, Marston C (2017) The co-production of what? Knowledge, values, and social relations in health care. PLoS Biology 15(5) (Available at: <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2001403>)

2.9. Chapter summary

In this chapter I have outlined the use and practice of co-production in public health interventions. I have described the various ways in which co-production is conceptualised and used from the current evidence base. It is clear from the literature that co-productive approaches have the potential for improving health outcomes and reducing health inequalities. However, the current literature suggests there is a need for more robust assessment of the effectiveness of co-production as an approach and the mechanisms through which it operates in different contexts.

The next chapter will describe the methods used in this thesis to explore the use of co-production in the development and implementation of public health interventions.

CHAPTER 3

Methods

3.1. Introduction

The aim of this chapter is to describe the design and methods used for the empirical work I carried out for my thesis and the rationale for their choice. The chapter also aims to describe the broader research programme in which my empirical research was embedded. As noted in chapter 1, I studied the use of co-production in a community-centred intervention (Community REACH) which aimed to reduce inequality in access to antenatal care and improve subsequent health outcomes for mothers and babies. This intervention was highly suitable for examining the role of co-production in interventions to reduce inequalities. A co-production process was used to develop and implement the intervention and the community sites involved were all selected on the basis of their high rates of late initiation into antenatal care which correlated with high levels of social disadvantage.

I used a mixed methods approach to study the process and impact of co-production in the Community REACH intervention. The research consisted of two broad stages: 1) establishing a broad understanding of the co-production process to develop the Community REACH intervention; and 2) in-depth study of three intervention sites to gain more comprehensive and nuanced insights of the co-production process in the implementation of the co-produced Community REACH intervention.

3.2. Research design

In order to develop a coherent research design, researchers are advised to consider the interconnections between practical (research purpose, aims and research questions) and philosophical elements (ontological and epistemological assumptions and theoretical perspective) together with the research design (Burns Cunningham, 2014). This helps promote a comprehensible and systematic research process and facilitates credible and purposeful meaningful conclusions (Burns Cunningham, 2014).

The exploratory nature of my research led me to start with the process of considering the practical elements of my empirical study. This involved an iterative process and resulted in the formation of the study aims: to explore the use of co-production as an approach for developing and implementing a community-centred intervention designed to improve health outcomes and reduce inequality in access to antenatal care. A further study aim was devised following further engagement with the literature: to provide a systematic framework for future research and assessment of co-produced interventions.

In this thesis I adopt a mixed methods approach which is in line with my practical purpose to explore factors affecting the co-production process in-depth via collection of rich contextual data through observations and interviews with those involved in developing and implementing the intervention. The findings of the qualitative phase, together with the initial conceptual work and the findings of the literature review were employed to develop fidelity indicators to assess adherence to co-production principles and practices. A mixed methods approach can be described as ‘the combination of elements of qualitative and quantitative research approaches (e. g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration’ (Johnson et al., 2007). In a mixed methods approach, integration of different data sources enables the researcher to gain more panoramic view of their research, and draw on the combined strengths of both sets of data to formulate their interpretations (Creswell, 2015a; Creswell and Plano Clark, 2011). Mixed methods research is ultimately about enhancing knowledge and validity (Schoonenboom and Johnson, 2017).

Mixing qualitative and quantitative methods has led to debate concerning the compatibility with traditional research paradigms and philosophical positions (Feilzer, 2010). Some authors who are more philosophically oriented adhere to the idea that paradigms or worldviews have rigid boundaries and cannot be mixed (O’Cathain et al., 2007). Despite these debates, mixed methods have become an increasingly popular approach in health and social sciences research as a way of facilitating a broader and deeper understanding of complex human phenomena (Doyle, 2016). A review of the use of mixed methods by O’Cathain and colleagues (2007) found that that researchers cited pragmatic rather than philosophical concerns as reasons for using mixed methods and the need to engage with

complex issues in the real world. Pragmatism is considered to be the 'philosophical partner' of a mixed methods approach because of its emphasis on research questions directing research methods, the value of experiences, practical application of knowledge, and understanding of real world phenomena (Johnson and Onwuegbuzie 2004).

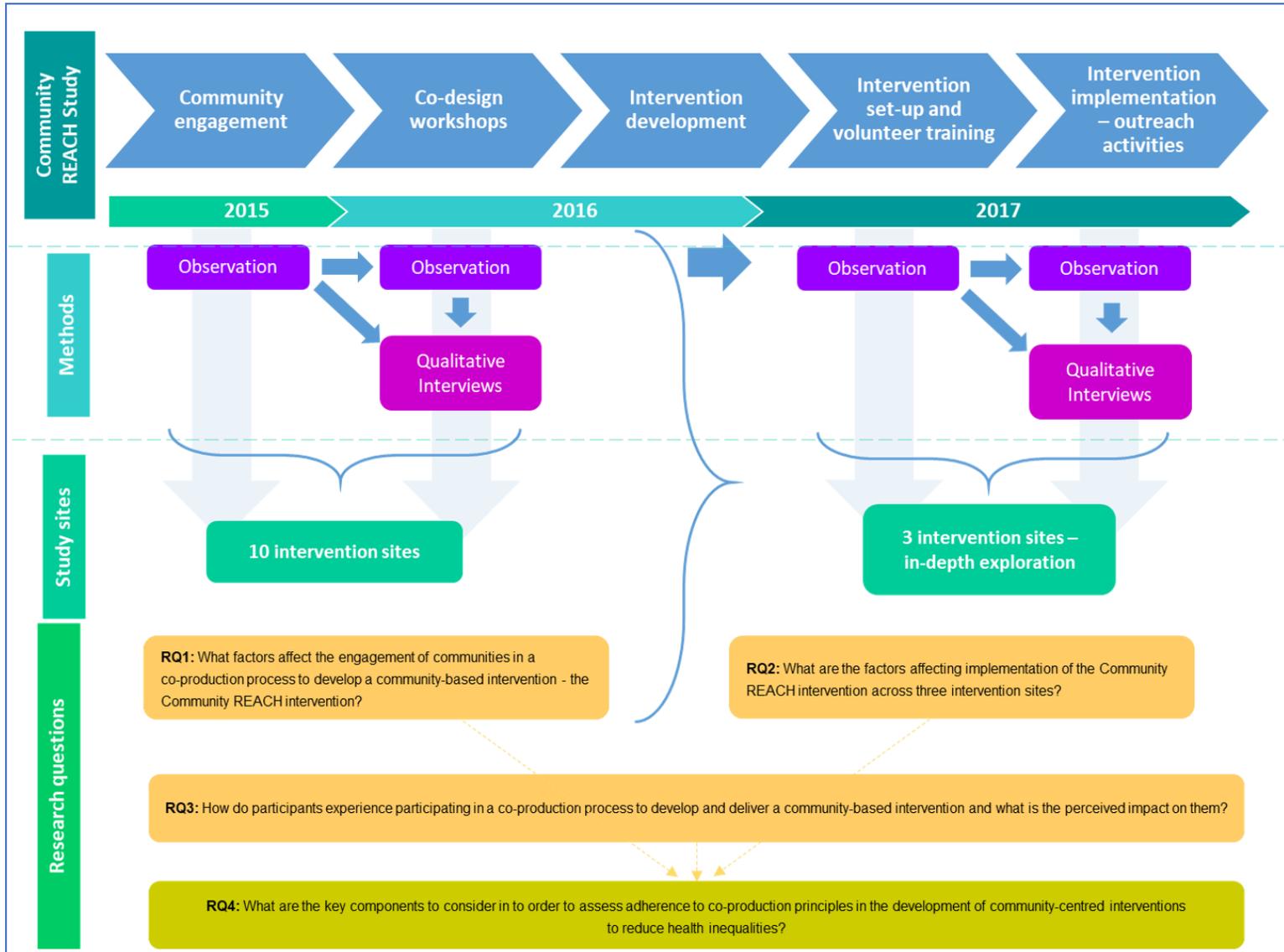
Accordingly, I took a pragmatic approach in selecting a methodology and methods I considered best suited to answer the research questions and fulfil the aims of the study (Johnson and Onwuegbuzie 2004, Cornish and Gillespie 2009). The research questions required the use of both qualitative methods (semi-structured interviews and thematic analysis) and quantitative methods (assessment of fidelity). The research design followed an exploratory sequential mixed methods approach, with greater emphasis placed on the qualitative than the quantitative phase (Creswell and Plano Clark 2007). A sequential mixed methods approach is an exploratory mechanism, where the use of one research method informs or directs the next phase of the research (Creswell & Plano Clark, 2018). I used qualitative research methods to inform the development of a framework to assess adherence to co-production principles and practices.

The community REACH trial in which my research was embedded provided the context, setting and sampling frame for my qualitative research. It is therefore embedded within a broader mixed methods study design. The broader trial is assessing the effectiveness and cost-effectiveness of the Community REACH in reducing the proportion of women accessing antenatal care after 12 completed weeks of pregnancy and improving outcomes such as pre-term birth and low birth weight. The trial also included a process evaluation. My research within the process evaluation focused specifically on the co-production process.

The study began using a mix of qualitative interviews and observation to address the research questions exploring the co-produced processes and activities involved in the development and implementation of Community REACH. Figure 7 summaries the data collection events and methods mapped across the intervention sites and against the timeline of the Community REACH trial. Initial investigations began across 10 intervention sites with the intention of gaining a broad understanding of the sociocultural contexts and processes across the various communities participating in the Community REACH Study. Subsequent to these initial investigations a case study approach was designed to facilitate

and capture a rich, detailed and in-depth description and analysis of the co-production processes, the experiences of those taking part, insights into the facilitating or inhibiting influences on the implementation of the intervention and the impacts of the intervention across three intervention sites.

Figure 7. Data collection events and methods mapped across the intervention sites and against timeline of the Community REACH Intervention



3.3. Epistemological and ontological underpinnings

It is important to recognise and acknowledge factors that influence decisions concerning the design and conduct of research enquiry. Current ontological and epistemological debates help researchers to make sense of their philosophical beliefs about the nature of reality and ways in which knowledge is produced (Henn, Weinstein and Foard, 2005). However, the connection between research strategy and epistemological and ontological commitments is not deterministic and methodological choices are often guided by more pragmatic considerations (Bryman, 2016).

Drawing on guidance from authors who assert that a researchers' implicit philosophical assumptions can be revealed through the selection of research questions and methods which are a reflection of their understanding of the world (Burns Cunningham, 2014; Feilzer 2010; Harrits 2011), I determined my philosophical position to be that of subtle realism (Hammersley, 1992). Adopting the position of subtle realism means that I considered that the phenomenon of co-production exists independently, but that knowledge of it must be gained through the perceptions and interpretations of individuals. Subtle realism lies midway between the two opposing ontological paradigms of realism and relativism (or idealism). Realism proposes that there is an independent external reality which can be accurately and objectively captured by the researcher. In contrast, relativism takes the perspective "reality is constructed subjectively in the mind of each person depending on context", meaning there are multiple realities leading to a diversity of interpretations (Willig, 2016). Researchers taking this view of the social world are concerned with understanding the way in which these constructions are produced and often use methods that allow analysis of discourse and conversation (Denzin & Lincoln, 2011).

Hammersley's approach of subtle realism attempts to bridge the gap between realism and relativism. Subtle realism assumes that a social world exists independently from individual subjective understanding but that it is only accessible through people's perceptions and interpretations of it (which are further interpreted by the researcher) (Hammersley, 1992; Hammersley and Atkinson, 1995; Hammersley & Campbell, 2012). As such the perceptions or interpretations are representations of the social world rather than reconstructions. This view of the nature of knowledge does not aim to study how people construct

their reality but aims to present the various representations of it. Therefore, the aim of the researcher is to capture and represent this reality as closely as possible (Murphy et al 1998). Hammersley identifies validity and relevance (i.e. whether research raises issues that matter to people) as being fundamental criteria (Hammersley, 1992, p. 73). In recognising these criteria, I acknowledge that in this thesis I can only be reasonably confident, rather than certain, about any claims I make; my intention is not to reproduce reality but to make a selective representation of it by presenting the features of co-production that I believe are relevant to myself and my study. I recognise that another researcher might present an equally valid and non-contradictory description and explanation of the same phenomenon (Hammersley 1992).

Thus, subtle realism allows for the accommodation of some elements of social constructivism, without abandoning a commitment to independent truth as a regulative ideal. As such, this subtle form of realism can be seen as equally appropriate for qualitative and quantitative social research (Hammersley, 1992d; Murphy et al., 1998). Hammersley's approach to knowledge which emphasises the importance of understanding people's perspectives in the context of the conditions and circumstances of their lives is considered by many authors as a valuable, realistic approach to address the complexity of health care research (Ritchie et al., 2013, O'Cathain et al., 2008, Murphy et al., 1998).

The recognition in subtle realism that we are interested in subjective understandings and meanings of those we study means there are epistemological affinities with interpretivist approaches. Thus, the epistemological perspective I have adopted for my study is interpretivism, i.e. views on the way in which we come to know and learn about the social world. The interpretivist perspective considers the multiple viewpoints of different individuals from different groups, the context of the phenomenon under investigation, the contextual understanding and interpretation of the collected data and the nature and depth of the researcher's involvement (Klein and Myers 1999). The task of the researcher is to understand the multiple social constructions of meaning and knowledge; participants are seen as helping to construct the 'reality' with the researcher. The philosophical position underpinning the study acknowledges that the researcher is part of the social world being studied and acknowledges the collaborative nature of the relationship between

the researcher and participants in co-constructing the research data (Guba and Lincoln, 1994; Bryman, 2016). In view of this, it is important that I acknowledge the influence of my interactions with participants involved in the current study and my interpretations of the participants' experiences (Snape and Spencer, 2006). Hence, the need for reflexivity is essential throughout the study to identify and consider the ways in which the researchers background and assumptions, and the research process may have shaped the study and its findings is important (Finlay 2002).

Pragmatism emphasises the interplay between knowledge and action. The pragmatist stance aims for constructive knowledge that is appreciated for being useful in action and change (Goldkuhl, 2012). This makes it appropriate as a basis for research approaches intervening into the world and not merely observing the world (Goldkuhl, 2012). In addition, pragmatism supports the selection of a methodology and methods considered to be most appropriate to answer the research questions and fulfil the aims of the study – be they qualitative, quantitative or a combination of both (Johnson and Onwuegbuzie 2004, Bryman 2006, Cornish and Gillespie 2009).

The blend of subtle realism, interpretivism and pragmatism is appropriate for this research study as it seeks to interpret and understand the critical factors that influence the effectiveness of a co-produced community-centred intervention, and understand meaningful experiences from the perspectives of research participants (Bryman, 2004). It draws on aspects of pragmatism as it seeks to develop knowledge that will contribute to the theory and practice of co-production in interventions to reduce health inequalities.

In reviewing the empirical work undertaken, the research aims and the literature review which identified a lack of assessment of co-produced interventions and methodological approaches which give insight into implementation fidelity, I considered the relevance of the study, particularly to the concerns of commissioners and practitioners. Robson (2004) proposes that following development of other elements of a study it may be necessary to review the purpose. Thus, to provide a basis for future assessment of co-produced interventions I applied the empirical findings to the development of a co-production fidelity assessment framework, described further in section 3.7. with

the aim of enhancing both the theoretical and practical relevance of my research findings.

3.4. Sampling and recruitment

The Community REACH trial provided the setting for my research. The sampling frame for my research consisted of intervention sites; activities associated with the development (community engagement and co-design workshops) and implementation of the intervention (set up activities, training sessions for volunteers and implementation activities); and the participants involved in intervention development and delivery (e.g. the university team, the design agency, community co-host organisations, residents and other community stakeholders) formed. As noted above there were 10 intervention sites involved across North and East London, and Essex. I describe the specific sampling and recruitment strategies in more detail below according to the two main stages of my research.

Sampling in qualitative research aims to identify key individuals, events or settings that are able to address the research questions under investigation and provide a rich source of data (Patton, 2002). For this study I used purposive sampling to pursue this aim. This sampling technique involves the researcher purposively selecting a sample of subjects or cases because they have 'particular features or characteristics enable detailed explorations and understanding' about the phenomena being studied (Ritchie, Lewis and Elam, 2003 pg. 78). Purposive sampling aims to select information-rich cases for in-depth study to examine meanings, interpretations, processes, and theory (Liamputtong and Ezzy, 2005). One strategy for purposive sampling is that of maximum variation sampling (Guba and Lincoln 1989; Norwood, 2002). I used this approach to select intervention sites, activities for observation and participants that would provide a wide range of variations. For intervention sites, this meant using information on socio-demographic characteristics, community assets and geographical features gathered for each intervention site ('ward profile'), as well as making pragmatic decisions in relation to meeting my study timeline. For observations of intervention development and implementation activities, I used information contained in the ward profiles, in conjunction with Spradley's (1980, p.78) grand tour observations, to develop a flexible topic guide in order to identify criteria to

prompt the observation of a broad range of interactions, processes, and events in each setting. For participant interviews, I needed to access a broad range of views and experiences, and to incorporate representation from participants involved in the development and implementation of the Community REACH intervention (Hammersley,1992).

I aimed to recruit between 10-15 participants from each phase of the Community REACH intervention. I planned to incorporate the views and experiences of those involved in the development and implementation of the intervention at the community level, including people who had different roles in the intervention, and who differed in relation to ethnicity, gender, age and educational attainment.

I also used elements of convenience sampling to take account of the unpredictable nature of the fieldwork. Convenience sampling is where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study (Bryman, 2016). Convenience sampling is an approach recommended for sampling hard to reach groups, to counter challenges such as gaining and maintaining access; for example in this study, with women who had limited availability due to childcare and family commitments, or limited access to normal communication channels e.g. mobile phone, email (Abrams, 2010). Convenience sampling has the potential to introduce biases through an over or under representation of different types of participants, meaning the sample could potentially be unrepresentative of the population being studied and, therefore, limit the transferability of the findings to other contexts or settings (Patton 2002, Creswell 2007). However, convenience sampling was used as a complementary approach to try to mitigate against potential bias and proved to be invaluable as utilising different methods enabled recruitment of a wide range of participants.

As noted in the previous section, there were ten intervention sites involved across North and East London, and Essex. I describe the specific sampling and recruitment strategies in more detail below according to the two main stages of my research. A full description of data collection processes is set out in section 3.5.

(i) *Intervention development - community engagement and co-design*

In the first stage of my research I examined the process of intervention development across all ten sites. Observations were carried out in all ten sites. To observe community engagement activities, I undertook eight observations in four different intervention sites Redwell, Woodstead East, MidCross, Northarms (2 days in each site). My decision for selecting these four sites was based on their potential to offer a broad range of variation in terms of their geographical spread, socio-demographic characteristics of residents (and therefore potentially different target groups for the intervention) and community assets. Pragmatic decisions concerning my study timeline and timely completion of data collection were also a consideration. Observations covered the activities of the engagement team as they spoke to local residents (on the street, at local community facilities, marketplaces, and other areas of local footfall) about the intervention and recruited participants for subsequent co-design workshops. In selecting what and who to observe during the community engagement activities I focused on interactions that would allow me to capture a broad range of information on engagement activities and perspectives of those community members engaged. I used my topic guide to prompt decisions on who to observe (e.g. based on ethnicity, gender, perspectives, experiences etc). I also sought to observe variations in the 'quality' of engagement. For example, instances where members of the engagement team were able to establish a rapport quickly with local residents, where there seemed to be a mutual exchange of information, or where the setting appeared to influence the level of engagement (e.g. engagement in a local library vs. on the street). I also captured interactions that appeared to be more challenging, for example where a team member was finding it more difficult to engage with local residents and had received several rejections.

I undertook observations of co-design workshops in the same four intervention sites (2 ½ hrs in each site), plus an additional intervention site - Moselle Park. The rationale for including an additional site was to enhance potential recruitment opportunities in response to lower than expected attendance at co-design workshops in Redwell, MidCross and Northarms, as described in section 4.2. Observations of co-design workshops focused on the interactions and creative

activities as members of staff from the Agency worked together with local residents and stakeholders to develop intervention ideas for key messages, materials and events to improve early uptake of antenatal care in their local area. Guided by a tailored topic guide, I observed interactions between local residents, stakeholders and facilitators, co-design activities, as well as physical things such as the layout of the room and materials provided. Co-design is a participatory design method, and I was interested in capturing aspects of inclusive participation, power dynamics and how the co-design process facilitated this (Sanders and Stappers, 2008). Particular acts, such as how community participants were welcomed, how the purpose of the workshop and Community REACH intervention was communicated to participants, how interactions and collaborative activities were facilitated, and the sequence of events that took place over time. I also noted participants behaviours and body language expressed over the course of the workshop.

As described above, a maximum variation approach was used to obtain a sample of participants for interview. I sought to select a sample that would allow me to explore a wide range of experiences and perspectives from each of the different groups involved: the university team, the design agency and community members and other stakeholders who participated in the co-design workshops. Where poor attendance at the co-design workshops affected the opportunity for maximum variation, I used convenience sampling to access those participants who attended and were willing to be interviewed. Participants of the co-design workshops were asked at the end of each one if they would like to participate in an interview to discuss their experiences of the workshop. Contact details were exchanged and all who expressed an interest were given a participant information sheet to take away.

All participants who had expressed interest in being interviewed were contacted by email to provide details about the rationale and content of the interviews and to confirm whether they were interested in taking part. A few participants had given their mobile telephone number as their method of contact, so follow-up was made by text or WhatsApp message. Information sheets and consent forms (Appendix 3 and 4) were included in the email, text, or WhatsApp message to allow participants to read through the information in their own time before providing consent to participate. An interpretive stance meant keeping in mind

my role as a researcher and influence on the collaborative relationship with participants and acknowledging concerns in relation to power imbalance. Thus, in these initial and subsequent interactions with participants I was keen to try to facilitate reciprocity and trust and reduce the power imbalance where I could. For example, in the follow-up messages to participants, I tried to provide an accessible explanation of the nature of the study, what they could expect during the interview process, the types of questions they would be asked and encouraged them to ask questions about the study. I also asked them to provide a convenient time and place for the interview to take place, to try to give them a sense of control over the process. Participants were also informed that the interview would last between one and one and a half hours and that they would receive a £10 shopping voucher to acknowledge giving their time and sharing their experiences with me.

Interviews were conducted with eight participants representing the following groups: the university team (n=1); the design agency (n=1); and community members who participated in the co-design workshops (n=6). Recruitment and sampling strategies were affected by the unpredictable nature of the trial. For example, I had anticipated including more community stakeholders, such as community midwives and other stakeholders in my sample. However, in their organisation of the co-design workshops, the Agency sought to focus on gathering the perspectives of local women rather than wider stakeholders. Descriptions of participants characteristics interviewed in this phase of the study can be found in Table 3.

Table 3: Characteristics of interview participants involved in development of Community REACH intervention

Participant name (pseudonyms have been)	Gender	Age	Ethnicity	Role
Gazala	Female	26-30	African	Community member
Basma	Female	26-30	Asian	Community member
Margaret	Female	26-30	African	Community member
Sarah	Female	26-30	African	Community member
Jade	Female	26-30	Mixed race	Community stakeholder
Ashley	Female	26-30	White British	Design Agency
Karima	Female	41-45	Asian	University engagement team

(ii) Intervention set up and implementation

In the second stage of my research I selected three out of the ten intervention sites for more in-depth study. My selection was informed by pragmatic as well as theoretical concerns. In selecting cases that offer the most potential for in-depth learning, Stake suggests the researcher display a curiosity for the uncommon and particular, over the ordinary as well as considering working with cases that grant the most access or with whom the researchers can spend the most time (Stake, 2005). This is similar to guidance on maximum variation purposive sampling (e.g. Patton, 2002). These considerations were relevant in the selection process of cases for the current study. Whilst I was required to make pragmatic decisions on the basis of feasibility in terms of access, completion of data collection and my own capacity as a researcher, I also chose cases (intervention sites and community organisation organisations) on the basis of their potential to offer different insights into their approach to implementing the Community REACH intervention. I identified cases that represented a variety of contexts across the ten Community REACH intervention sites. Out of seven potential intervention sites, Northarms, MidCross and Eastgate Park were chosen on the basis of – geographical spread, difference in socio-demographic characteristics

of residents (and therefore potentially different target groups for the intervention) and difference in organisation characteristics. Pragmatic considerations were that the intervention implementation had to finish by December 2017 to fit in with the timelines of my PhD. Access to each site was arranged with the project co-ordinator for each site. An email was sent in advance outlining the aims of the observation and arranging a convenient date. Description of each case study site can be found below.

a. Intervention site - Northarms – Community organisation - Discovery Wellbeing Trust

Northarms is a suburban mostly residential intervention site located to the north of London. It is within the 10% most deprived wards in England (IMD score, 2015). It has a main high street with local shops. It has no tube line but has a mainline railway station with services into London and good bus routes. Northarms has a number of community assets including a Children's Centre, three primary schools and one secondary school, two GP surgeries, two static libraries and a small number of locally based community organisations. The local area has undergone some regeneration over recent years including the development of a new combined library and health centre.

It is considered an economically deprived area estimated to be within the 20% most deprived intervention sites in London. The population of Northarms was estimated to be about 18,033, at mid-2015 and is largely White British with relatively large numbers in the Other Black African, Other Black, Turkish and Kurdish ethnic groups.

Discovery Wellbeing Trust ('Discovery') is a Community Interest Organisation established in 2000 to provide community-centred and rehabilitation support to local residents and their families. The organisation is run by a CEO and a mix of paid and voluntary staff. Through a strategic health and social care partnership with the Council and other local voluntary organisations, the organisation developed and operates volunteer well-being ambassadors and Community Health Champions projects across the borough.

b. Intervention site - MidCross – Community organisation - Voyager Community Network

MidCross is an inner London multicultural intervention site with mixed residential and non-residential neighbourhoods. It is within the 10% most deprived wards in England (IMD score, 2015). It has a number of local shops, cafes and restaurants and a small local market, as well as access to three major mainline rail stations, a number of tube lines and bus routes. The local area has undergone some regeneration over recent years including the development of a new library and community space. MidCross also has a number of other community assets and local amenities including a medical centre, a GP practice, three Children's Centres, four primary schools, two established Community Centres and a range of other local voluntary organisations.

In 2016 the population of MidCross was estimated to be just under 15,000. Historically, the population has been predominantly White British (44.5%), but the intervention site is now more ethnically diverse than three-quarters of neighbourhoods in London. It has a large population of people from Asian ethnic groups, particularly from Bangladesh. Other than English, Bengali is the second most common language spoken among local residents. In terms of social deprivation MidCross is in the most deprived 25% of neighbourhoods in London.

Voyager Community Network ('Voyager') is a charitable organisation operating in MidCross and across the local borough since 1989. In her interview, the manager, Nadine, explained that the organisation works to support and empower, individuals, groups and communities to become actively involved in civil society, particularly those that are socially excluded. It works with a local consortium, a facility that aims to specifically improve the health and wellbeing of residents in the MidCross intervention site. The organisation is extremely well networked, holding a database of over profile of the 3,000 plus voluntary and community organisations, ranging from larger service orientated organisations to small 'below the radar' community groups. The organisation is overseen by an executive committee of trustees, with day today running of the organisation undertaken by a mix of approximately 20 employees and a substantial number of volunteers.

c. Intervention site - Eastgate Park – Community organisation - Enterprise Health Foundation

Eastgate Park is an inner-city intervention site to the East of London and is considered to be one of the most deprived intervention sites in the local borough being in the most deprived 5% of wards in England (IMD score, 2015). In 2011 the population of Eastgate Park was estimated to be 16,532, with 65% of residents coming from ethnically diverse groups, mainly of Bangladeshi (42%) and African (10%) origin. White British residents made up 25% of residents. It is largely a residential area with some open spaces. Recently it has been undergoing a period of regeneration and re-development with a number of new residential blocks being built. The area has good transport links, including access to a nearby tube line, a mainline railway station with services into London and good bus route. It has a number of local shops, supermarkets and amenities. It has a medical centre, children's centre, a small library, five primary schools and three secondary schools and a number of small community organisations and spaces.

Enterprise Health Foundation ('Enterprise') is a community health charity set up in 1981 by a group of local health and community workers to support Bangladeshi and Somali communities in accessing maternity services and quality health care. Over time the scope of the charity has expanded to include broader health advocacy roles, health awareness-raising, and the provision of new services in response to community need. The organisation focuses on health education and empowering women to promote and improve their health and wellbeing, and that of their families. Its policy is to actively build local capacity through recruiting and training staff, volunteers and Trustees from the local communities. The organisation is governed by a Board of Trustees, with a small staff team working alongside volunteer staff.

Table 4: Demographic descriptions of selected intervention sites

Intervention site features	Northarms Discovery	MidCross Voyager	Eastgate Enterprise
Geography	Urban/suburban	Urban/inner-city	Urban/ inner-city
Population	18,033 (2015)	14,700 (2016)	16,532 (2011)
Ethnicity			
White British	33%	44.5%	25%
White other	30%	10.5%	10%
BAME	47%	45%	65%
Age profile % 16-64	63.8%	69.4%	69.3%
Main language	English	English	English
Households without English as a first language	14%	23%	10%
Deprivation score	most deprived 5% of wards in England (IMD score, 2015). (2015)	most deprived 5% of wards in England (IMD score, 2015).	most deprived 5% of wards in England (IMD score, 2015).
Gender split %			
Male	47.3% males	48% males	51 % male
Female	52.7% females	52% females	49 % female

Index of Multiple Deprivation (IMD)

NB: The name of each community organisations has been given a pseudonym

Observations in each of the three sites concerned the training of Community REACH volunteers and subsequent intervention outreach activities. Observations of training workshops focused on capturing insights into how the training was facilitated and delivered at each site, and how participants engaged with each other and the training process. Using a tailored topic guide, I also drew on my previous observation experiences and reflections from the initial community engagement to inform my selection of what and who to observe. Again, I was interested in capturing variations in interactions, level of engagement and understanding. For example, observing participants who appeared to have some difficulty engaging with aspects of the training due to their level of English literacy, the few male volunteers and their engagement with the topic, participation in role play activities, and engagement and support of project co-

ordinator. I observed two days of training (2 ½ hrs per session), in each of the three intervention sites I selected as my case studies.

Observations of the Community REACH intervention outreach activities at each site involved observing Community REACH volunteers and project co-ordinators speaking to local residents about the intervention in a variety of settings, including: on the street, at local community centres, libraries, health centres, community events, fayres, local markets. I took a similar approach to that taken during observations of the community engagement phase described above, focusing on capturing a variety of actions, interactions and activities. In particular, I was interested in observing variations in engagement approach, how Community REACH volunteers got people to stop and talk, their strategies for engaging with them about the intervention, the quality of engagement, how the intervention message was delivered and responded to by the community, which ethnic groups Community REACH volunteers engaged with, and which interactions seemed challenging. I observed two intervention outreach activities in each site, the duration of which varied from 1 hour to 4 hours.

During set-up and implementation of the intervention, I identified potential interview participants from each of the three sites, who would provide a broad range of perspectives through their various roles, involvement, and experiences in implementing the Community REACH intervention. I wanted to gain representation from project managers and co-ordinators from the community co-host organisations, Community REACH volunteers supporting implementing of the intervention, and other stakeholders who were involved in the implementation activities. To access the Community REACH volunteers, I often worked collaboratively with the project co-ordinator to approach potential research participants on my behalf to suggest an interview.

The same process for follow-up contact and recruitment of participants was used as in section (i). Informed consent was taken, participants were able to choose where the interview would be conducted, and they received a £10 shopping voucher as an incentive for taking part.

Overall, I interviewed 19 participants in this stage of the research. This included community organisation project managers (n=3), co-ordinators (n=4) and

Community REACH volunteers (n=12). Table 5 shows participants' self-reported characteristics.

Table 5: Characteristics of interview participants involved in implementation of Community REACH intervention

Participant	Role	Intervention site	Co-Host Organisation	Gender	Age	Country of Birth	Ethnicity	Languages Spoken	Level of Education	Number of Children	Length of time involved in community reach at time of interview (mths)
Michael	Volunteer	Northarms	Discovery Wellbeing Trust	Male	26-30	Nigeria	Black African	Igbo; English	A Levels	0	2
Olena	Volunteer	Northarms	Discovery Wellbeing Trust	Female	51-55	Ukraine	White British/Eastern European	Russian, Polish; English	Degree	1	2
Raveena	Volunteer	Northarms	Discovery Wellbeing Trust	Female	31-35	India	Indian	Hindi; Urdu; English	Master's Degree	2	3
Shazfa	Volunteer	Northarms	Discovery Wellbeing Trust	Female	26-30	Nigeria	Black African	Yoruba; English	Degree	1	3
Nasreen	Volunteer	Eastgate Park	Enterprise Health Foundation	Female	46-50	Bangladesh	Bangladeshi	Bengali; English	Secondary Education Outside UK	5	4
Sharmeen	Volunteer	Eastgate Park	Enterprise Health Foundation	Female	36-40	Bangladesh	Bangladeshi	Bengali; Hindi; English	Other - Adult Literacy Level 2	6	3
Talibah	Volunteer	Eastgate Park	Enterprise Health Foundation	Female	46-50	Bangladesh	Bangladeshi	Bengali; English	Other - Adult Literacy Level 2	1	4
Zania	Volunteer	Eastgate Park	Enterprise Health Foundation	Female	41-45	UK	Bangladeshi	Bengali; English	A Levels	3	5
Almaz	Volunteer	MidCross	Voyager Community Network	Female	36-40	Ethiopia	Ethiopian	Amharic; English	Degree	0	2
Joyce	Volunteer	MidCross	Voyager Community Network	Female	56-60	Sudan	Black African	Arabic; Swahili; Romanian; English	A Levels	7	5
Sameea	Volunteer	MidCross	Voyager Community Network	Female	46-50	Bangladesh	British Bangladeshi	Bengali; Hindu	Secondary Education Outside UK	4	4
Zaida	Volunteer	MidCross	Voyager Community Network	Female	60+	Yemen	Arab	Arabic; English	Secondary Education Outside UK	3	2

3.5. Data collection

(i) Observation

Observations were used to generate rich data around the socio-cultural contexts, interactions and processes involved in the development and implementation of a co-produced community intervention. Observation provided a 'way in' to explore the factors which may potentially affect engagement with the co-production process across the various communities. Furthermore, observations were used in conjunction with semi-structured interviews to improve interpretation, and to develop new lines of questioning in participant interviews (DeMunck and Sobo, 1998).

Observations were undertaken at a number of different settings. For each observation setting a template guide was developed (see Appendix 2) to help document the information considered to be pertinent to each setting:

a) *Community engagement activities:* I undertook observations of community engagement activities in four Community REACH intervention sites. Community engagement activities were undertaken by a design agency and members of the university community engagement team (including student volunteers). The intervention engagement team spent 2-3 days engaging with local people in each intervention site (through speaking to people at local community facilities, marketplaces, and other areas of local footfall). Local women and other community members were asked about experiences of ANC, perceived importance of antenatal care, and their thoughts and opinions on the local area. The purpose of my observations during these activities was to get a sense of context for each of the intervention sites and make detailed field notes of the local area, interactions between the engagement team and potential participants, as well as documenting the community response to the intervention. Engagement activities were dynamic and continually evolving. During observations, I positioned myself with members of the intervention engagement team but tried wherever possible to maintain an overt, non-participant role to enable me to record observations of activities, people, settings, and discussions and to reduce the risk of interfering with the recruitment process by potential participants being affected by my presence as a researcher (Hammersley and Atkinson, 2007; Kawulich, 2005). However, when necessary – usually through an intervention

engagement team member or local resident bringing me into the discussion - I participated in these conversations and explained my role as a researcher if asked or if I felt it was pertinent.

Field notes were written contemporaneously as the events, experiences and interactions occurred using a template to guide/prompt note taking. The mobile nature of the street engagement meant it was not possible to observe all interactions, and so my strategy was to alternate periods of observation between different members of the engagement team in order to get a broader sense of the interactions and engagement process. I also discussed issues with members of the intervention engagement team, such as particular events or participants or about the engagement process itself (DeWalt and DeWalt, 2002). I found this to be a useful technique in eliciting more candid accounts from members of the intervention engagement team. At the end of each observation, on my journey home, I added brief descriptive words or phrases in order to 'trip off' a more substantial recall of events when I came to type them up (Schatzman and Strauss, 1973). Subsequently, a more detailed account of each observation was written up using a structured template and including free form notes to capture the sequence of events throughout the observation period (Emerson et al., 2001, 2011). Informed by guidance on note taking from Spradley 1980 and Burgess 1991, these field notes were further enhanced by the inclusion of some reflexive notes taken from my reflexive journal which I used to record my ideas, thoughts and self-analysis, and some initial analysis. The aim of this process was to enhance subsequent observations and develop my awareness of my role as a researcher, as well as an understanding of the perspective of the engagement team and participants being engaged (Reeves et al., 2013; O'Reilly, 2012). I adopted this systematic approach in writing up all subsequent field notes.

b) Co-design workshops: Observations were undertaken at co-design workshops in five Community REACH intervention sites. At these workshops local women who had registered their interest in the project during the street engagement, outlined above, were invited to attend, along with representatives from local community organisations and midwives working locally. Members of staff from the Agency facilitated the participants to work together and engage in creative exercises to develop ideas for key messages, materials and events to

improve early uptake of antenatal care in the local area. The purpose of my observations at these workshops was to gather detailed information on the co-design processes, including the methods and skills used to facilitate the co-design activities, the level of collaboration and participation of all those involved, the relevance of the ideas generated for local interventions. At these workshops, observation was more overt and ethical considerations were followed. Participants were informed of my role as a researcher and that I would not be questioning or recording any personal or identifiable data concerning anyone in attendance at the start of each co-design workshop. However, during these workshops I tried to position myself out of visual sight of the participants to avoid being a distraction (Kawulich, 2005). The same process for making field notes was followed as described above in section (i), field notes were recorded as the events of the co-design workshop unfolded and expanded more fully immediately afterwards.

c) Community REACH volunteer training sessions: I observed the volunteer training session in each of the three intervention sites that had been selected as case study sites for more in-depth exploration of implementation activities. Training sessions took place in each intervention site over two days and involved training local women (and some men) recruited by the local community organisation to engage with other women and families from their community and raise awareness of the value and benefits of early antenatal care and how and when to access care. Training was delivered by a midwifery lecturer and supported by a member of the Community REACH Study research team. The purpose of observing the training was to record detailed information on how the training was facilitated and delivered at each site, and how participants engaged with each other and the training process. I was introduced to the volunteers at the start of each session and it was explained that I would be taking some notes on the training process, but that I would not be questioning or recording any personal or identifiable data concerning anyone in attendance. Again, I tried wherever possible to sit out of visual sight of the participants to reduce the risk of them being affected by my presence (Kawulich, 2005). However, when necessary I participated in conversations with the participants, for example during refreshment breaks or if asked a direct question. This process helped me to become familiar with participants and facilitated building rapport with participants

in subsequent interviews. Again, the process of recording and writing up observation field notes followed that described above in section (i).

d) Implementation outreach activities: The fourth phase of observation was conducted as Community REACH volunteers and co-ordinators from community organisations (the 'outreach team') implemented the intervention in their local community. This involved each outreach team engaging with their local communities about ANC, through presenting and discussing information with groups (e.g. at community events, evening classes, faith groups), through outreach team activities to engage with local people individually in places of high footfall (e.g. GP surgeries, healthcare clinics, pharmacies, local libraries, shopping centres, community centres), and through informal, opportunistic outreach, building on existing networks and relationships within the community. My approach here differed to those described above, I sought to gain access to the research setting by asking permission in advance from the community organisation co-ordinator and Community REACH volunteers to join them in one or more of their outreach activities. During these activities I adopted the role of observer as participant, involving myself more in group activities but not as a group member. I explained the purpose of the research in advance to group members to allow them to ask any questions and to limit the effects of my presence on their behaviour and delivery of the intervention. In addition, I decided not to take field notes during the period of outreach in order that I could fully observe the various interactions and get a better understanding of how the intervention was being delivered and the challenges involved. This approach to observing outreach activities provided a detailed and nuanced insight of the on the ground processes and experiences involved in implementing the intervention in a 'real world' context. In addition, enabled me to build a stronger rapport with participants and better understand the context of their experiences as a Community REACH volunteer. Field notes were written up immediately after each observation of outreach activities was completed – as described in section (i) beginning with noting brief descriptive words or phrases on my journey home in order to trigger recall for a fuller more detailed description of events later on (Schatzman and Strauss, 1973). Hammersley and Atkinson (2007, p. 147) argue that, "*field notes cannot possibly provide a comprehensive record of the research setting*". What the field notes from this study do provide, however, is an account

of contextual factors, events and activities and participants involved in implementing the intervention in three different intervention sites. As a result, the field notes informed the analytic themes developed from the other research methods and provided valuable context during analysis.

Observation data from all activities was recorded, stored and analysed in a non-identifiable form. In relation to the co-design workshops and training activities, workshop facilitators were asked to provide everyone present with a verbal outline of the purpose of the intervention and to explain that I would be taking some notes regarding how the intervention was being developed through the workshop process. I informed all those attending the workshops that I would not be questioning or recording any personal or identifiable data concerning anyone in attendance. People were then encouraged to ask any questions they had at this point. If present, bilingual facilitators were asked to explain this process to those who required language support. Following this explanation, if people remained in the workshop this was interpreted as their (implied) consent to my making non-identifiable notes of the workshop processes. *'Implied consent is the tacit indication that a person has knowingly agreed to participate in research by performing a research activity or task'*.

(ii) Qualitative semi-structured interviews

a) Rationale: The purpose of the qualitative interviews was to explore the personal experiences of people taking part along the different phases of the co-production process, the perceived acceptability and impact of the intervention, and the variation across the intervention sites and to identify the potential factors that might support or hinder the effectiveness of the intervention.

In the literature, qualitative research interviews are described as a way of attempting to understand the world from the participant's points of view, uncovering the meaning of their experiences, allowing the researchers to gain a richer more nuanced understanding in these areas, rather than a broad understanding of surface patterns (Brinkmann and Kvale 2015; Mason 2002).

Thus, the most appropriate method of data collection to achieve the objectives of this part of the study, was considered to be the semi-structured individual interview, as it would allow for detailed accounts of individuals participating in the co-production process to be generated. This method would also provide an

opportunity to explore in depth their personal perspectives and the personal contexts within which the experiences under study had occurred (Ritchie, 2006).

Qualitative interviewing is an interactive social process in which the researcher and participant produce knowledge together (Kvale and Brinkmann, 2015). The semi structured interview uses a flexible topic guide to provide a loose structure of open-ended questions which helps the researcher develop a rapport with the interviewee. It also means the researcher can explore and clarify issues and reflect on what the participant says and may also uncover new areas that the researcher may not have considered or anticipated (Robson 2002; Pope et al, 2002).

Interviewers engage in active, supportive listening that involves paraphrasing and probing to develop rapport and encourage in-depth discussion (Baxter and Babbie, 2003). There is some evidence that this type of interviewing may have some therapeutic value for participants in giving them opportunity to express their views, share information which may lead them to greater self-awareness, understanding of their situations, and a new outlook or perspectives (Rossetto, 2014; Birch and Miller, 2000).

Semi-structured individual interviews were considered to be the most appropriate method to allow for an in-depth focus on each participant, as well as providing a detailed exploration of their perspectives and experiences of participating in the Community REACH intervention (Ritchie, 2006).

b) Interview process and format: An interview schedule was used to provide an outline for the issues to be discussed, whilst allowing some freedom for participants to pursue themes of interest or importance to them (Willig, 2013). Thus, questions were open-ended and descriptive and were developed iteratively as questions were tested and refined throughout the interview process (Willig, 2013; Suter, 2012). The use of an interview schedule also allowed for a more systematic and uniform collection of data (Ritchie and Lewis 2003). Participants were asked to reflect on their experiences of being involved in the intervention (development or implementation), their reasons for becoming involved, their perceptions of the intervention, what they felt they had learned or gained from their experiences of participating and the impact of their involvement on their lives. During the interview process I only asked participants' questions

from the interview schedule if they had not already been answered at an earlier stage of the interview. The interview schedule differed in the number of questions depending on the role of the participants and stage of the intervention (e.g. community members involved in co-design workshops, community members involved as Community REACH volunteers to implement the intervention). Interview schedules can be found in Appendix 5. Interviews were relaxed and conversational, questions were open-ended to allow for discussion and descriptive responses from participants. The length of the interview varied among participants and was dependent on the time participants had available. At the end of every interview each participant was asked whether they had anything they wanted to mention that had not yet been discussed. In addition, they were invited to contact me if they had anything further to add or any subsequent questions. After each interview I sent each participant an email thanking them for their time along with a copy of their signed consent form. I also followed the same systematic approach as described when writing up my observation field notes, using my reflexive journal to make reflexive notes on the social aspects of the interview and practical issues to complement the subsequent transcription and analysis process later.

c) Interview location and timing: Interviews were arranged to take place at a time and location of the participants' choosing to ensure that they were as comfortable as possible within the interview setting and that the timing of the interview was convenient for them. Participants were offered the opportunity to be interviewed in their own home, place of work, local library, community centre or at the university. I had anticipated that the home environment would have been more comfortable, but participants mainly chose a public setting – local library, community building, coffee shop or place of work. I tried to make the experience as relaxed as possible, taking refreshments for example to help put participants at ease and encourage a more natural and open conversation. On one occasion, the participant brought her young baby, mother, and sister to the interview and so I chatted with them before and after the interview. On another occasion two of the participants, who were friends, and both had young children, wanted to be interviewed together. In taking a flexible approach to the interviews, I hoped participants would feel empowered to set the parameters of the environment for the interviews to take place.

Community members who participated in the co-design workshops were interviewed shortly after they had attended the workshop. Project staff from Community REACH co-host organisations were interviewed at the beginning and again towards the end of the 6-month implementation phase. In the first interview, interviewees were asked about their motivations for getting involved with the intervention, their expectations for how the intervention might be received within their local communities, their experiences and perspectives on the training process, and their early experiences with delivering the intervention messages around antenatal care. The second follow-up interview was conducted towards the end of the 6-month intervention period, to address further experiences with delivering the intervention and perceived intervention acceptability within the community.

Community REACH volunteers were interviewed approximately 2-3 months following intervention training. Participants were asked about their motivations for getting involved with the intervention, their expectations for how the intervention may be received within their local communities, their experiences and perspectives on the training process, and their experiences with delivering the intervention messages around antenatal care.

d) Interview transcription and data management: All interviews were conducted face to face, lasted between 45-60 minutes and were audio-recorded, with some written notes taken to complement the recording. All audio-recordings and transcripts of the interviews were kept in a secure place and were password protected to ensure confidentiality. I used an external transcriber to transcribe twelve interviews and I personally transcribed fifteen interview recordings. I reviewed and edited all of the interview transcripts. The process of transcription and reviewing interview transcripts assisted in reflecting on the interview process enabling me to make improvements to my interview technique for subsequent interviews. Following transcription of the interview data, recordings were deleted. Before reporting the findings from the interviews data was anonymised to protect the identity of participants.

3.6. Data Analysis

An exploratory sequential mixed methods approach to analysing the data was taken (Creswell & Plano Clark, 2018). This involved analysing the qualitative components separately and using the findings to inform the next stage - development of fidelity indicators to assess adherence to co-production principles and practices. I begin by describing the approach taken to qualitative data analysis, followed by the approach taken to assessment of intervention fidelity.

An 'inductive' thematic analysis (Braun and Clarke, 2006) was applied to all observation and interview data sets. Inductive thematic analysis is a data driven process. This means that themes identified are strongly connected to the data (Patton, 1990) rather than being pre-defined by an existing coding framework or the researcher's preconceptions (Braun and Clarke, 2006). In addition, the identification of themes focused at the latent or interpretative level (Boyatzis, 1998). This process involves interpretative work rather than focusing on explicit or surface meanings of the data. The researcher seeks to understand and identify underlying ideas and meaning in the data, producing an analysis that is not just description, but is already theorised (Braun and Clarke, 2006).

Thematic analysis provides a systematic approach for identifying, organising, and offering insight into patterns of meaning (themes) across a data set. Through focusing on meaning across a data set, thematic analysis allows the researcher to see and make sense of collective or shared meanings and experiences and differences (Braun and Clarke 2012). Through exploration of the relationship between themes in the dataset and how they interconnect a robust analysis will develop interpretations further to explain the phenomenon under study (Pope et al., 2006). Thematic analysis is particularly useful for highlighting similarities and differences across data sets, summarising key features of a large body of data, and/or offering a '*thick description*' of the data set and producing qualitative analyses suited to informing policy development (Braun and Clarke, 2006).

Analysis of the entire dataset (observations and interviews) followed the six stages of thematic analysis as outlined by Braun and Clarke (2006). This involved a recursive process, moving back and forth between the datasets to familiarise myself with the data, generate initial codes, identify and review themes, define and name themes and finally to write-up the analysis (Braun and Clarke, 2012).

(i) *Reading and re-reading the data*: The first phase involved reading and re-reading the data and noting down initial thoughts or impressions. To some extent, with observation data, the process of analysis had already begun through the construction of my field notes. As noted by DeWalt and DeWalt field notes form “both data and analysis” (DeWalt and DeWalt, 2002).

(ii) *Generating labels*: The second phase involved generating labels or initial codes from the data. I began by systematically identifying important features of the data that appeared most relevant to the research. Throughout this process I focused on coding extracts of data inclusively to keep potential patterns or themes connected to the surrounding context (Braun and Clarke, 2006). I worked through adding a label or code to give meaning to as many of these segments as possible and creating an initial list of codes for the data. I asked a member of my supervisory team, Dr Sweeney, to independently complete the coding process on the same three sets of field notes. We then met to compare and discuss our initial codes, why sections had been interpreted as meaningful and their relevance to the research questions before coming to agreement on a set of codes. This is a step that is recommended to qualitative researchers, as a way of ensuring rigour and quality (Gale et al. 2013). I then applied this initial list of codes to the remaining set of field notes, adding additional codes where appropriate. To allocate codes to the data set I used NVivo 10 software package. Using NVIVO at this stage helped to organise and refine the initial coding list and also gave the ability of retrieving and managing the content of the datasets more easily. At this point, I assigned a working definition for each code to sum up the essence of what was important about the code in relation to the research question. I was then able to group codes with similar related content into a number of main categories, with sub-categories identified where appropriate and, in this way, begin to bring the data together in a more meaningful way.

(iii) *Sorting*. The third phase involved a process of sorting different codes into potential themes – trying to identify the salient patterns and relationships between codes (Braun and Clarke, 2006). I began by looking for connections between codes and collapsing codes that seemed similar in meaning in order to create groups of codes with unifying features or meaning. Braun and Clarke suggest using visual representations such as tables, thematic maps, to help sort the different codes into themes (Braun and Clarke, 2006). I created charts using

Microsoft Excel to display the content of the entire dataset and look across the emerging themes to refine and review the codes to ensure they were an appropriate fit within each theme. This process allowed for comparison between codes and to visualise how they might be further merged into themes. It was also helpful in beginning to think about the relationship between candidate themes, and between main themes and sub-themes.

(iv) reviewing themes. The fourth phase of analysis involves reviewing candidate themes to check if they really are themes i.e. if there is enough data to support them or if they need to be broken down into separate themes or collapsed to form one theme (Braun and Clarke, 2006). I started this process by looking back over the content for each theme in NVivo to check whether the data formed a coherent pattern. I then checked back over the entire data set to see whether the candidate themes were distinctive and 'worked' in relation to the whole data set, and also if any additional data within themes that had been missed in earlier coding stages. From this I created thematic maps displaying candidate themes and sub themes. I then checked the entire data set to assess whether the thematic maps captured the most relevant aspects of the data in relation to my research questions (Braun and Wilkinson, 2003).

(v) Interpreting the data. Once I felt these thematic maps were satisfactory, I moved on to the fifth phase of analysis which involved interpreting the data, selecting relevant extracts that I felt captured the important features of the theme and how it was relevant to the overall study and producing a detailed write-up. I first started by producing a detailed descriptive account of all themes and then worked on refining these accounts, to develop a narrative which identified what was interesting about the theme and why, and how it was connected in relation to other themes, my broader research questions and relevant field of literature.

Data analysis of each case study site occurred in two stages: involving the independent, in-depth analysis of each case, followed by analysing across cases to identify areas of similarities and differences in contexts and processes that affected implementation. Key issues identified for each case were re-examined to distil common issues (Stake, 1995, 2000, 2006; Yin, 2006).

3.7. Assessment of intervention fidelity

The intention was to develop fidelity indicators that would enable assessment of the extent to which co-production principles and practices were adhered to in the development and implementation of the intervention. As identified in chapter 2, robust assessment of the processes of co-produced interventions are limited and methodological approaches which give insight into implementation fidelity are recommended (Fox et al., 2012). Although developed for the Community REACH intervention, the fidelity indicators draw on co-production theory and are intended to have utility for co-produced interventions in the wider public health field.

The purpose of fidelity assessment is to determine '*the degree to which an intervention or procedure is delivered as intended*' (Breitenstein et al., 2012). Fidelity is fundamental in translating research to practice. Two areas of fidelity exist that can be considered to assess the extent of '*delivery as intended*': theoretical fidelity and implementation fidelity (Haynes et al., 2016). Theoretical fidelity is the assessment of the intervention theory, determining the extent to which the intervention was delivered in agreement with the intervention design (i.e. logic model, theory of change) (Saunders et al., 2005; Mowbray et al., 2003). To operationalise the assessment of intervention theory for this research, I used the co-production principles identified from chapter 2 (Figure 6) together with key aspects from the Community REACH intervention theory of change model (Appendix 1) to develop fidelity indicators. This allowed for assessment of how and why the intervention worked (Saunders et al., 2005; Blasé et al., 2013; Weiss, 1997). Fidelity scores were determined by researcher assessment based on observations, field notes, participant interviews, feedback reports and other communications relating to the development and implementation of the intervention. In addition, other researchers involved in the Community REACH trial were asked to independently validate the scoring and concurred with scoring for the different sites. A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

Implementation fidelity ascertains the extent to which the intervention was implemented as planned. Assessment involves measurable or codifiable dimensions. In this study the commissioning deliverables were used to measure the consistency to which intervention elements and activities were delivered in each setting. This helped to identify variations between intervention sites for the duration of implementation. Assessment of implementation fidelity is important

for determining feasibility (Bellg et al., 2014; Carroll et al., 2007) and identifying implementation and design issues (Haynes et al., 2016; Mowbray et al., 2003; O'Connor et al. 2007).

Implementation fidelity is useful for initial assessments as the structural elements are more easily observed and measured and lead to more rapid replication. However, theoretical fidelity has greater potential to facilitate sustainability of interventions because critical elements are underpinned at a deeper level to programme theory (Mowbray et al., 2003).

In this research, I generated critical elements of the fidelity framework by identifying key intervention features and determining those that were measurable (e.g. number of participants attending co-design workshops) and those that were representative of the principles and practices of co-production (e.g. participants were enabled to use their assets and develop their capabilities) as set out in the theoretical and empirical literature (Bond et al., 2000b). Once I felt I had identified the critical elements of the fidelity framework I sought consensus on the content from my supervisory team (Bond et al., 2000b). This aided the refinement of the framework (Haynes et al., 2016).

To enable assessment fidelity, transparency and potential for replication I attempted to specify the elements of the fidelity framework with as much detail to describe clearly what the intervention entailed, whilst also reflecting the flexibility of the co-produced intervention (Haynes et al., 2016). It was necessary that the elements captured the attributes of co-production principles and practices, such as recognising assets, shared responsibility and decision-making and recognised the intention of the intervention to be tailored to the local context.

A response scale is required to score the actual practice of intervention development and implementation against the fidelity indicators. I used a three-point ordinal scale: high; medium and low fidelity to capture variation in development and delivery of the intervention across intervention sites (Nelson et al., 2012). Two additional indicators of no adherence and insufficient data to score were used to identify where no activity was carried out and where data was too limited to produce a comparative score, respectively. Ordinal scales enable the capture of relevant variability in intervention development and implementation

practices for each element in a way binary scales (e.g. implemented or not implemented) cannot (Nelson et al., 2012).

3.8. Ethical Considerations

Ethics approval for the research was included in the application for the wider 'Community REACH' study, in which I was named as a co-researcher. Ethical approval was sought from the National Research Ethics Service by the research team on 09/03/2015 submitted and approval received on 27/03/2015. Approval from UEL was received on 09/04/2015. Letters of ethical approval can be found in Appendix 6.

In addition, other ethical considerations included:

- I. Protecting the confidentiality of patient data by adhering to the Data Protection Act and Caldecott principles in dealing with the data.
- II. Ensuring participants understood before they consented to take part exactly why they had been approached, what was expected of them and what they could expect from their participation as set out in the participant information sheet and informed consent Appendices 3 and 4.

3.9. Public and Practitioner Involvement (PPI)

A key feature of the wider 'REACH' Pregnancy Programme was the high priority given to patient and public involvement (PPI). This included two local women as co-investigators on the programme who had personal experience of maternity services and an independent Programme Steering Committee (PSC), which included PPI representation (the PPI representative was a lay chair of a maternity voice partnership who also had previous experience of advisory roles) as well as academic experts and NHS staff, which met regularly throughout the programme. A Trial Steering Committee (TSC) was set up specifically for the Community REACH trial and like the PSC included a PPI representative. Throughout the period of my study I was able to present my research at both the PSC and the TSC. I presented and sought feedback on my research questions, research design, topic guides and preliminary research findings. In addition to this, during the development phase of the Community REACH intervention, one of the PPI

representatives attended planning meetings with the research team and design agency which gave me the opportunity to discuss and get feedback on my research design.

During the implementation phase of the Community REACH intervention three pan-REACH learning events were held. The pan-REACH events brought together members of the university team with project managers, co-ordinators and volunteers from across all ten intervention sites. A world café and appreciative inquiry approach was used to facilitate all those involved to share and discuss project developments. At these events I was able to discuss my research with project managers, co-ordinators and volunteers involved in implementing the Community REACH intervention and get valuable feedback and insight on planned fieldwork and initial themes emerging from the data. These events also helped with rapport building and engagement in my research. For example, I was aware that some of the Community REACH volunteers may not have felt confident enough to speak up and actively participate. I, therefore, sat with Community REACH volunteers to update them on my study and how their contributions fitted in to it and the wider trial, as well as more informal conversations about their latest news.

These different forums provided me with valuable opportunities to gain a sense check and ensure that my research was focussed on relevant issues.

3.10. Assessment of research quality

The ability to assess the quality of research is an important consideration for any research study if findings are to be utilised in practice. Qualitative research is often challenged on issues of methodological rigour and the criteria by which it should be assessed (Mason, 2002; Rolfe, 2006; Noble and Smith 2015). This is because the standards usually used for evaluating and assessing quality in research are taken from the positivist paradigm concerned with objective knowledge, deductive or theory testing approaches. In contrast, qualitative research theoretical underpinnings are derived from interpretivism and naturalistic approaches. There are a broad range of perspectives and much debate on the ability to apply an explicit set of quality criteria to the diversity of qualitative research methods (Yardley, 2000; Hammersley, 2007; Dixon-Woods

et al, 2004; Howe and Eisenhart, 1990). However, the need for clear and transparent approaches which demonstrate reliability and validity is widely agreed (Hammersley, 2007; Mason 2002; Yardley, 2000; Golafshani, 2003). Morse et al, argue that reliability and validity should be integral to the research process from the start, shaping study design, data collection, and analysis choices (Morse et al., 2002).

Despite the diversity in opinion, common criteria for assessing and enhancing the quality of qualitative research have been offered from a number of authors (Lincoln and Guba, 1985; Dixon-Woods, 2004; Miles and Huberman, 1994; Mays and Pope, 1995; Patton, 1990; Patton, 1999; Yardley, 2000; Hammersley, 1990; Creswell, 1998; Spencer et al, 2003).

In considering how best to ensure validity and reliability, and demonstrate quality in my own study and after consulting the literature, I drew on Yardley's framework which involves attention to four key dimensions: sensitivity to context; commitment and rigor; transparency and coherence; and impact and importance (Yardley, 2000, 2008).

a) Sensitivity

Sensitivity to context refers to the researcher's awareness of all facets of the context of their study – theoretical, sociocultural setting and relationships and ethical considerations. In this study, sensitivity to theoretical context was developed through extensive and systematic consultation with the literature and the related theories and phenomena under study. Awareness of previous research of similar topics areas and/or employing similar methods provided me with sensitivity toward the sociocultural context under study and as outlined in section 3.2, in considering how these may influence data collection, how participants may respond and this data is interpreted. In the following section (3.8), I have provided a reflective account of my role in shaping the research process and interpretation of data. I include a discussion of my relationship with participants during fieldwork, my influence on stages of research process, effects of the research on me as the researcher and how I addressed problems arising during the research process. Ethical considerations of the research have been described in 3.6 above.

b) Commitment and rigour

The second and third dimensions are concerned with commitment and rigour and transparency and coherence. In this study these have been demonstrated through the research strategy, thoroughness of data collection from a variety of sources using different methods until no new analytic categories emerged i.e. data saturation (Green and Thorogood, 2014); and comprehensive analysis of all data sets.

Within the rigour criteria, Yardley (2000) argues that it may be appropriate to employ triangulation of data collection or analysis in order to obtain a full understanding of the research topic. This method makes use of combinations of methods, investigators, perspectives etc., thus facilitating richer and more valid interpretations (Tindall, 1994, p146). However, Silverman suggests that it is a less than satisfactory approach as it raises complicated issues about how to 'map' one set of data upon another (2005). Thus, triangulation has not been employed within this study.

c) Transparency and coherence

Transparency and coherence refer to the presentation of the research study through clear and thorough documentation of the steps taken in conducting their research. Researchers are providing their audience with an 'audit trail' to allow them to make an assessment of the overall research design and implementation (Robson, 2011). The current chapter provides a careful description of the research process and through the application of thematic analysis enables readers to discern for themselves whether the interpretations arrived at by the researcher are supported by adequate data (Lewis and Ritchie 2003). Additionally, researcher reflexivity discussed below in section 3.10 demonstrates transparency by identifying the experiences and motivations which underlie the research.

d) Impact of the research

Finally, the impact of the research is a critical factor in determining its value, whether it tells the reader something interesting and useful both in relation to developing theoretical understanding and in its practical utility (Yardley et al. 2000). As stated in Chapter 1, I have aspired to make a meaningful contribution to knowledge through my examination of the concept of co-production and its use in the development and implementation of interventions to reduce health

inequalities. My empirical study has explored the experiences of those participating in developing and implementing a co-produced community-centred intervention designed to reduce inequality in access to antenatal care. The study has also identified critical factors in the co-production process that have influenced the implementation and effectiveness of the intervention. The contributions of my research are considered in more detail in the discussion section (Chapter 7).

3.11. My role as a researcher

The focus of this research is a culmination of my previous interest and experiences. Having always held an interest in health and finding out how things work and why, it was whilst studying for a BSc in Human Nutrition that my interests in maternal and child health were first sparked. In particular, the recommendations set-out in Marmot Review (Marmot et al., 2010), relating to '*Giving every child the best start in life*', and the '*window of opportunity*' theory and the opportunities during the key stages of pregnancy for influencing behaviour change and impacting on short- and long-term health and inequalities. Subsequently, when considering how global perspectives in maternal nutrition, such as the SUN initiative (2010) could be used to better inform the development of public health strategies for pregnancy in the UK, I became interested in public health interventions delivered at community level. I began to see these interventions being delivered in practice through my work on a Department of Health funded project, establishing a quality assurance framework in nutrition competence. I witnessed a number of initiatives that enabled community members to develop and deliver their own nutrition projects within their communities. It was inspiring to see how engaged and empowered the community members involved were and the potential wider community benefits of these initiatives. However, assessment of impact was poor, and I became interested in understanding more about how these types of initiatives worked, if they worked and how they could be assessed. This led me to a long search for an opportunity which would bring together my interests in maternal and child health and community-centred interventions designed to improve public health.

The current research has provided me with the opportunity to explore in depth some of the mechanisms involved in implementing innovative community engagement and co-production approaches in a public health intervention at the community level. Through this process and the development of this thesis, I feel I have gained some insight and understanding of what works to improve peoples' health and well-being.

Through my involvement in the Community REACH trial study and wider REACH Pregnancy Programme, I was able to gain a unique and comprehensive insight into all aspects of the development and implementation of the Community REACH intervention. This position also enabled me to observe the challenges of developing, co-ordinating and implementing a pragmatic randomised control trial involving multiple collaborators, community organisations, stakeholders and community members, across multiple intervention sites. In addition, I was involved in a systematic review which formed part of the REACH Pregnancy Programme. The review mapped and synthesised the existing literature on the nature and extent of service user involvement in the development of maternity services. Participating in these activities provided me with a broader perspective on the issues and debates in the wider literature in relation to public participation in healthcare and maternal and child health and valuable research experiences than I could have achieved through independent research alone.

However, I was aware that being embedded in the Community REACH trial study there was the potential for researcher bias in the development of this thesis. Throughout the research process I made every effort was made to reduce the potential for researcher bias, particularly during data analysis and interpretation. I considered my relationship dynamics with the intervention team and how this might affect my analytic focus. For example, at one point I considered whether my attention had become too focused on the aspects of implementation in relation to the wider trial rather than on the aspects of co-production within the intervention. Therefore, as my study progressed, I attended intervention team meetings as an observer rather than participating fully in them (Polit and Beck, 2014).

Extract from reflexive journal:

...finding it difficult at the moment, I enjoy being part of the research team and am learning a lot about implementing an RCT but feel it might be affecting how I think about my own research. Am I taking too active a role in the research team? I need to ensure my focus is on co-production/co-producing the intervention and not the trial itself. Think it would be good to reduce my level of participation in team meetings. Discuss with supervisory team - taking a more observational role.

Reflexivity is considered a key element in a qualitative study in striving for objectivity and neutrality (Ritchie and Lewis, 2006). Reflexivity is broadly defined as a process of self-examination, where the researcher recognises and reflects on their role and participation in social interactions when gathering data (O'Reilly, 2012). One of the ways of enabling reflexivity is in keeping a fieldwork journal.

With this in mind, I kept a reflexive journal throughout the research process, making regular entries on my methodological decisions and the reasons for them, the logistics of the carrying out the study, and reflections on my own thinking, values and interests. I found this an extremely useful process in helping to understand my own practice as a researcher – reflecting on how I engaged and communicated with participants and in identifying my own bias – how my own preconceptions, beliefs, values, assumptions and position may have come into play during the research process. For example, I used the journal to record my reflections on the interview experience, focusing on both the social aspects of the interview and practical issues. This typically included notes on how well I thought the interview had gone, my impressions of the person interviewed, the main themes, as well as thoughts on methodological and theoretical implications. The practical points helped me to consider methodological implications such as how well the interview topic guide was working, whilst the notes on the social elements of the interview helped me explore my own assumptions, values and beliefs and how these might impact my research. The following extract from my reflexive journal illustrates my initial reflections and assumptions following an early interview with a Community REACH volunteer.

Extract from reflexive journal

Great interview - such an interesting person, can't believe her self-determination despite some pretty serious health issues, lots of skills, great experience and really motivated to keep learning, be useful and make something of herself. So impressed. Come away wishing I could do something more to help. These interviews are really opening my eyes to the talent pool ('dormant') in these communities. I hadn't anticipated this - what does this say about my view (pre-conceptions) of participants and these communities - important I reflect on this!

Furthermore, discussing my research with my supervisory team, my PhD colleagues and people independent of my immediate team, facilitated my reflective process, helping me to gain new perspectives through questioning my assumptions and decisions. I found this to be a useful process in keeping focus on my research separate from the Community REACH trial, particularly during the data collection and analysis phases and in writing up my findings. The following extract from my reflexive journal describes how talking through ideas with a fellow colleague helped develop my thinking on how to frame and write up my findings.

Extract from reflexive journal

...talked through fidelity indicators for co-production with [PhD colleague], really good to get her input and feedback. [PhD colleague] asked some really questions about evidencing fidelity scoring - this has really helped me to think things through and think I can see how they can work now. This feels like a big step forward - taking focus back to co-production and away from trial implementation stuff...

Reflecting on my preconceptions of recorded activities, my role as a researcher and my role within the research team has, I hope, helped me achieve greater insight as well as challenging preconceptions and blind spots in my research.

3.12. Chapter summary

In this chapter I have outlined the mixed methods research design, methods and rationale used to explore the use of co-production as an approach for developing and implementing a community-centred health intervention designed to improve health outcomes and reduce inequality in access to antenatal care. I have described the two stages of the research including the sampling, data collection and analysis. I have also described the epistemological and ontological rationale underpinning this thesis, which informed my decision to adopt a qualitative research design. I have discussed my role as a researcher, ethical considerations, PPI involvement in the research, and the strategies used to ensure trustworthiness of the research data. The next chapter presents the findings from the first stage of the research, the factors affecting the co-production process in the development of the Community REACH intervention.

Chapter 4

Factors influencing the co-production process in the *development* of the Community REACH intervention.

4.1. Overview of chapter

This chapter describes the findings of the first phase of my empirical research which aimed to examine the co-production process used to *develop* the Community REACH intervention. I focus on the planning and community engagement, and co-design phases of intervention development.

Firstly, I present my findings from fidelity assessment of the extent to which the intervention was developed as planned and delivered the co-production elements.

Secondly, I present my findings from thematic analysis derived from: my analysis of field notes; observations of the community engagement activities and co-design workshops that took place in all ten intervention sites; and eight individual in-depth interviews with participants involved in the development of the intervention, including a member of the design agency team, a member of the university engagement team and six members of the public who participated in the co-design workshops held in three out of the ten intervention sites. Summary descriptions of the intervention sites and participants' characteristics have been outlined in chapter 3.

4.2. Fidelity to co-production elements in intervention development

As described in chapter 3, a set of fidelity indicators were developed and used to assess how closely intervention development adhered to the co-production elements of the Community REACH intervention protocol. The fidelity indicators for the development phase relate to i) the collaboration between the two partner organisations involved in co-ordinating and carrying out the intervention development across sites (the design agency team and the university team) (table 6) and (ii) intervention development activities within each site (tables 7 and 8).

- (i) Fidelity to co-production elements in collaboration between the two partner organisations

Low or medium fidelity was recorded in relation to the extent to which the work carried out jointly between the university team and the design agency reflected the co-production elements (table 9). During the planning and engagement phase of developing the intervention, there was low fidelity to the relational dimensions of the collaboration such as establishing an open and ongoing dialogue, sharing learning and a commitment to openness and relationship building. The low fidelity suggests that relationship building between the two teams had not fully developed and this limited the extent to which the activities of the co-design phase were able to be fully realised in line with the principles of co-production. This is explored in more detail in section 4.3 below.

Table 6: Fidelity assessment of co-production elements realised in the joint work of the university team and the design agency team

	Co-production principles	Intervention development co-production elements	Extent to which process/es reflected co-production elements as intended
5-month planning and engagement phase	<ul style="list-style-type: none"> - Reciprocity. - Collaboration and partnership. - Added value; 	The university team and agency work collaboratively in developing the intervention. Extent to which:	
		- the aims, objectives and methods for intervention development are clear and agreed;	■
		- the project plan is developed collaboratively;	■■
		- decisions about the development of the intervention are made jointly;	■■■
		- there is open and ongoing dialogue;	■
		- learning is shared among collaborators;	■
- there is a commitment to openness and relationship building;	■		
1-month co-design phase	<ul style="list-style-type: none"> - Reciprocity. - Collaboration and partnership. - Releasing capacity and developing capabilities of people and communities; 	Analysis of orientation insights - existing insight and engagement information developed into co-design tasks and activities to generate ideas for subsequent intervention. Extent to which:	
		<ul style="list-style-type: none"> - co-design tasks and activities reflect community insight and are developed collaboratively with all parties; - there is a commitment to develop co-design tasks and activities that are inclusive and mutually beneficial for participants 	■■ ■■
Fidelity score out of possible maximum of 24			12

Key: ■ Green square/s indicates extent to which process/es reflected co-production principles.
 ■■■ = High fidelity; ■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence; △ insufficient data to score

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

- (ii) Fidelity in co-production elements in intervention development within each site.

Overall, fidelity to co-production elements in both the planning and engagement phase and the co-design phase of intervention development was generally low to medium across sites (Tables 7 and 8). With the exception of Woodstead Park, a limited number of sites were assessed as demonstrating high fidelity on a limited number of indicators.

In terms of the planning and engagement phase, the Woodstead East site stood out compared to others as it was assessed consistently highly in terms of fidelity for most of the co-production elements of intervention development (Table 7). Unfortunately, there were insufficient data to fully assess fidelity in relation to the planning and engagement phase in Forest End, Moselle Park and Eastgate Park (Table 8). This was due to observations not being undertaken by the university research team for every site, activity reports and meeting notes not containing relevant information to support assessment. However, when there was data, these sites were generally assessed as demonstrating low fidelity.

Low fidelity was recorded across the majority of the sites with respect to the extent to which: relationships with community members and stakeholders were initiated; community assets were mobilised; the engagement team worked collaboratively to deliver engagement activities; activities built on existing knowledge about intervention sites (e.g. identifying community influencer and key stakeholders in support of intervention development). Sites which had medium or high fidelity in relation to these indicators were Derlestone, East Parkham, MidCross, Redwell and Woodstead East.

Low fidelity was recorded across all intervention sites for all but one indicator in relation to providing community members with clear and inclusive information about the intervention and how to participate. In particular, there was no adherence from any site in maintaining engagement with people expressing an interest in participating in co-design workshops.

Fidelity to co-production elements in the co-design phase of intervention development was variable across sites and across individual elements, with three intervention sites assessed as demonstrating low fidelity or no adherence on all elements (Northarms, Redwell and MidCross) (Table 7). In these three sites poor attendance affected the ability to deliver the co-design workshop as intended. Across all intervention sites adherence to the co-production elements reflecting opportunities for participants to

build new friendships and relationships and extend social networks and whether participants understood the purpose of the co-design workshop were poor.

Across the majority of sites there was low fidelity or no adherence to indicators for practical support and incentives except for Forest End and Eastgate Park. In these two sites fidelity was higher in relation to the practical support organised such as bilingual interpreters to enable participants with language barriers to participate. In addition, greater attention was given to the incentives for attending such as creating opportunities for social interactions between participants, quality of the lunch provided and payment of expenses.

Opportunities for participants to actively engage in the co-design workshops through sharing experiential and local knowledge had low fidelity or no adherence in the majority of sites. In two sites, Woodstead East and Eastgate Park, there were more opportunities for participants to share their experiential and local knowledge and to actively engage in the workshop.

As described above, attendance of community members and stakeholders showed great variation between sites. Co-design workshops in East Parkham, Woodstead East and Eastgate Park were all well attended by community stakeholders. However, attendance of community stakeholders across the remaining sites there was low. Similarly, attendance of community members was good in both East Parkham and Woodstead East, as well as in Forest End and Derlestone. The remaining six sites all struggled with attendance of community members.

Across all intervention sites there was medium to high fidelity for participants enjoyment and engagement in co-design activities.

In majority of sites there was medium or high fidelity (mostly medium) to: workshops well attended by target groups (those that were not – Northarms, Redwell, Moselle Park and MidCross); activities are inclusive and facilitate group interactions (those that were not – East Parkham, Northarms, Redwell, MidCross); participants responded positively to co-design activities and materials (those that did not Northarms, Redwell, MidCross); participants enjoyed their experiences of participating in co-design activities (those that did not Northarms, Redwell, MidCross); and outcomes and next steps were communicated to participants effectively (those that did not Northarms, Redwell, MidCross).

In the majority of sites there was medium or high fidelity (mostly medium) to workshops that were well attended by target groups. In four sites, Northarms, Redwell, Moselle Park and MidCross attendance of participants from target groups had low fidelity or no adherence, which may have been connected to the organisational and logistical issues highlighted in Table 6.

In the co-design workshops held in East Parkham, Northarms, Redwell, and MidCross, the co-design activities were not delivered and facilitated with the same level of inclusivity and interaction as in the other six sites. In addition, in Northarms, Redwell and MidCross information about the outcomes and next steps was not communicated to participants effectively.

Table 7: Fidelity assessment of co-production elements in intervention development (planning and engagement phase) across intervention sites

	Co-production principles	Co-production elements in intervention development	Extent to which process delivered co-production elements									
			Forest End	Old Church	Derlestone	East Parkham	Northarms	Woodstead East	Redwell	Eastgate Park	Moselle Park	MidCross
5-month planning and engagement phase	<ul style="list-style-type: none"> - Social capital. - Releasing capacity and developing capabilities of people and communities; 	Begin to identify and engage with a wide range of community members about the intervention. Extent to which: <ul style="list-style-type: none"> - links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities; - relevant community assets are identified and mobilised prior to engagement activities; 										
			□	□	■	■ ■	■	■ ■	■	■	■	■ ■
	<ul style="list-style-type: none"> - Collaboration and partnership. - Added value. 	Engagement team works collaboratively in delivering engagement activities. Extent to which: <ul style="list-style-type: none"> - engagement team understands the intervention, the purpose of engagement activities and their role; - the engagement team has the capacity, support and resources to deliver engagement activities effectively; - the engagement team are committed, actively participate and add value to the development of the intervention; 										
			■	■	■	■	■	■	■	□	■	■
<ul style="list-style-type: none"> - Reciprocity. - Social capital. - Added value; 	Engage with a wide range of community members about the intervention. Extent to which: <ul style="list-style-type: none"> - the engagement team was able to engage with a wide range of different groups within the intervention site; - engagement team was able to engage with specified target groups within the intervention site; - community members responded positively to information about the intervention and engagement team; - quality of engagement – embedding intervention message through reciprocal interactions; - response from community members add value to intervention/leads to innovation; 											
		■	■	■ ■	■ ■	■ ■	■ ■ ■	■ ■	△	△	■ ■	

Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended.
 ■ ■ ■ = High fidelity; ■ ■ = Medium fidelity; ■ = Low fidelity; □ = no adherence; △ insufficient data to assess fidelity

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

Table 7 (cont'd): Fidelity assessment of co-production elements in intervention development (planning and engagement phase) across intervention sites

	Co-production principles	Intervention development and co-production elements	Extent to which process delivered co-production elements										
			Forest End	Old Church	Derlestone	East Parkham	Northarms	Woodstead East	Redwell	Eastgate Park	Moselle Park	MidCross	
5-month planning and engagement phase	<ul style="list-style-type: none"> - Social capital. - Releasing capacity and developing capabilities of people and communities; 	Community engagement activities build on existing knowledge about intervention sites. Extent to which:											
		- Further insight was gathered on relevant community assets – formal/informal community organisations and networks;	□	■	■■	■	■	■■	■	■	△	■■	
		- potential community influencers, target groups and key stakeholders were identified and engaged to support intervention development;	□	■	■	■■	■	■■	■	■	△	■	
		- additional insight gathered on demographic characteristics, local languages, how to reach target groups, potential challenges/facilitators specific to intervention site	□	■■	■■	■■	■■	■■	■	△	■■		
	<ul style="list-style-type: none"> - Reciprocity. - Social capital. 	Information about the intervention and how to participate was communicated clearly and inclusively to community members. Extent to which:											
		- language was reported as a barrier to engagement <i>(High fidelity = language was reported; Low fidelity = language not reported)</i>	△	■	■	■■	■■	■■	■■	△	△	■	
		- the purpose of the intervention and how to participate was understood by community members;	△	■	□	■	□	□	□	△	△	■	
		- there was commitment to maintain dialogue and provide information to people who gave their contact details and expressed an interest in participating in co-design workshops;	■	■	■	■	■	■	■	■	■	■	
		- there was commitment to reciprocity and mutual benefits towards people expressing an interest in participating in co-design workshops;	□	□	□	□	□	□	□	□	□		
	Fidelity score for planning and engagement activities (out of 51)			△	20	25	22	23	36	21	△	△	24

Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended.
 ■■■ = High fidelity; ■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence; △ insufficient data to assess fidelity

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

Table 8: Fidelity assessment of co-production elements in intervention development (*co-design phase*) across intervention sites

	Co-production principles	Intervention development and co-production elements	Extent to which process delivered co-production elements									
			Forest End	Old Church	Derlestone	East Parkham	Northarms	Woodstead East	Redwell	Eastgate Park	Moselle Park	MidCross
1-month co-design phase	<ul style="list-style-type: none"> - Reciprocity. - Collaboration and partnership. - Social capital. - Releasing capacity and developing capabilities of people and communities. - Added value; 	Co-design workshops are delivered effectively across ten intervention sites. Extent to which:										
		- co-design workshops are well attended by community participants;	■ ■	□	■ ■	■ ■	□	■ ■	□	■	□	□
		- co-design workshops are well attended by community stakeholders;	■	■	■	■ ■	■	■ ■	■	■ ■	■	■
		- co-design workshops are well attended by specified target groups;	■ ■	■ ■	■ ■	■ ■	■	■ ■	□	■ ■	■	■
		- co-design activities are inclusive and facilitate group interactions;	■ ■	■ ■	■ ■	■	□	■ ■	□	■ ■	■ ■	□
		- participants made new friendships and relationships and built social networks;	□	□	■	□	□	■	□	■	□	□
		- participants understand purpose of co-design workshop;	■	■	■	■	■	■	■	■	■	□
		- participants are enabled to actively participate in co-design activities (opportunities to share experiences and local knowledge);	■	■	■	■	□	■ ■	□	■ ■	■	□
		- participants responded positively to co-design activities and materials;	■ ■	■ ■	■ ■	■ ■	■	■ ■	■	■ ■	■ ■	■
		- participants enjoyed their experiences of participating in the co-design workshop;	■ ■	■ ■	■ ■	■ ■	■	■ ■	■	■ ■	■ ■	■
		- practical support and incentives were delivered (location of venue, timing or workshop, refreshments, expenses; language support);	■ ■	■	■	■	□	■	□	■ ■	■	□
		- outcomes and next steps were communicated to participants effectively;	■ ■	■ ■	■ ■	■ ■	□	■	□	■ ■	■ ■	□
Fidelity score for co-design activities out of possible 33			17	14	18	17	5	20	4	20	13	4

Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended.
 ■ ■ ■ = High fidelity; ■ ■ = Medium fidelity; ■ = Low fidelity; □ = no adherence; △ insufficient data to assess fidelity

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

Table 9: Recruitment and attendance at co-design workshops

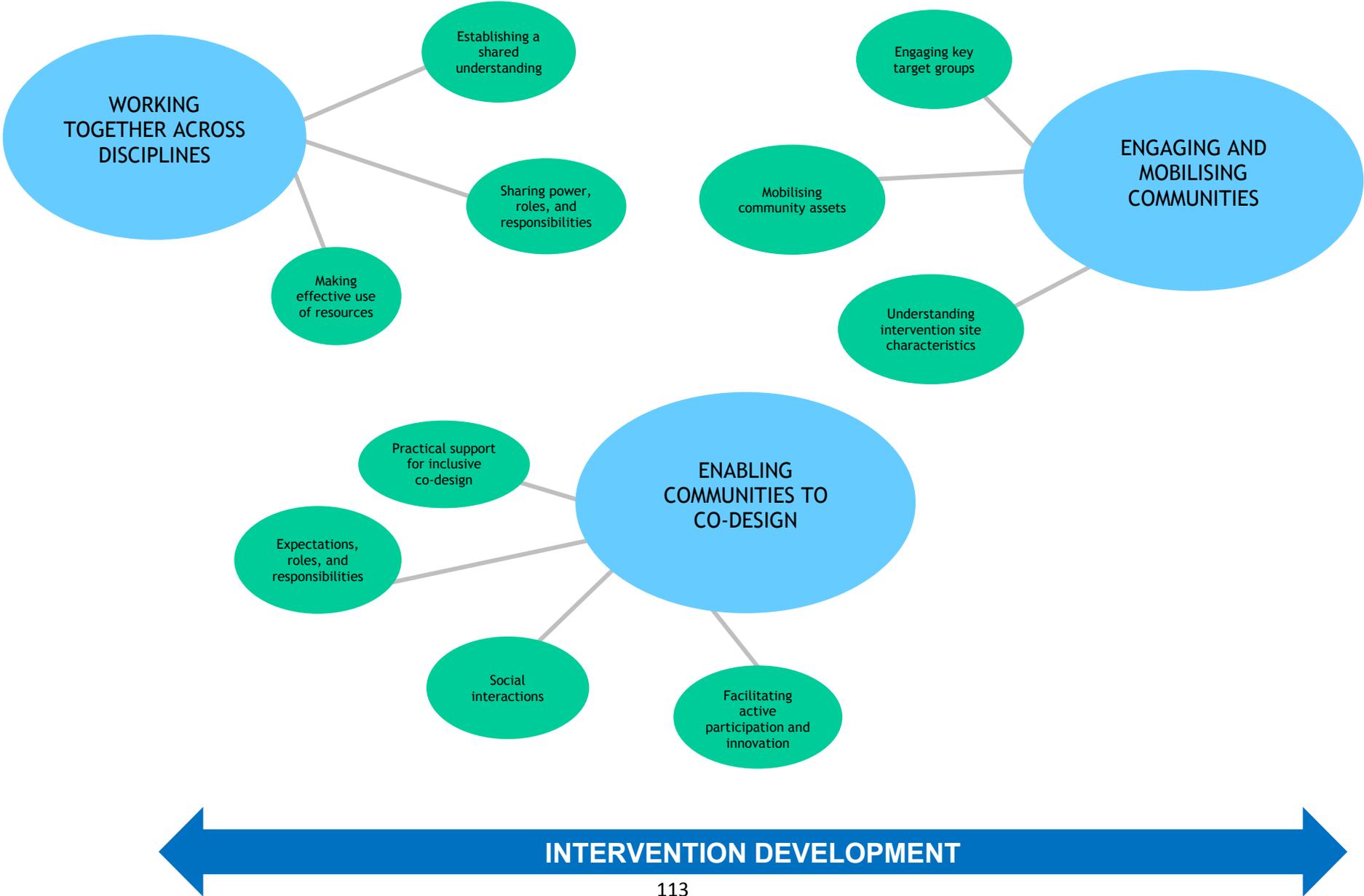
Recruitment and attendance	Forest End	Old Church	Derleston	East Parkham	Northarms	Woodstead East	Redwell	Eastgate Park	Moselle Park	MidCross
Numbers of community residents recruited per intervention site for co-design workshops	(32)	ND	(10+)	(51)	(31)	(41)	(28)	(26)	(18)	(18)
Attendance	(9)	(3)	(8)	(7)	(4)	(10)	(2)	(6)	(4)	(4)
Attendance *from additional last-minute recruitment of community members	(5)	(2)	(4)	(3)	(3)	(7)	(1)	(6)	(2)	(4)
Expected attendance (community members indicating attendance)	(11)	(6)	ND	ND	(9)	ND	(8)	ND	(13)	(9)
Attendance (local stakeholders, community midwives)	(1)	(1)	(1)	(2)	(1)	(6)	(1)	(5)	(1)	(1)
Total attendance (community members, local stakeholders, community midwives)	(10)	(4)	(9)	(9)	(5)	(16)	(3)	(11)	(5)	(5)

ND = no data available

4.3 Findings from the thematic analysis

The qualitative findings presented in this section capture and explain the variations in fidelity identified above across intervention sites. The themes identified were mapped into three domains (Figure 8): (i) Working together across disciplines (ii) Engaging and mobilising communities; and (iii) Enabling communities to co-design.

Figure 8. Map of themes identified from analysis of data on the co-production process in the development of the Community REACH intervention.



4.4 Working together across disciplines

'Working together across disciplines' relates to the cross-disciplinary collaboration between the university and the design agency in developing the Community REACH intervention. The three themes of 'establishing a shared understanding', 'sharing power, roles and responsibilities' and 'making effective use of resources' all shaped the extent to which the organisations were able to successfully collaborate in the development of the intervention, and in turn impacted on the extent to which communities were engaged and mobilised and enabled to participate in co-design.

(i) Establishing a shared understanding

Establishing a shared understanding of the task in hand (i.e. developing an intervention using a co-production approach) proved challenging for both partners. In line with co-production principles, the collaboration between the university team and the design agency was intended to bring creativity, design principles and different ways of thinking to the intervention. Both partners brought knowledge and values from different disciplinary and methodological backgrounds¹. The design agency's previous experience in applying their social design backgrounds and participatory approaches in the public health sector meant the partners had some shared language and terminology with the university team. However, this was not fully explored, and the collaboration began with the erroneous assumption that this common language and terminology had the same meaning.

Reflecting on the collaboration between partners, the design agency recognised this lack of a shared understanding with the realisation that their "exploratory

¹ The university team were based in an applied health research department with disciplinary backgrounds in social science and public health. This group had experience of developing, delivering and evaluating community development interventions to reduce health inequalities. They used participatory approaches in their research, community engagement and co-production for developing interventions and mixed methods study designs to evaluate complex interventions. The design agency team had backgrounds in the relatively new field of social design, which involves combining design techniques, data and technology to develop solutions to social problems. They were familiar with approaches such as participatory design, fieldwork (insight gathering) design-thinking (abductive reasoning, proto-typing) and co-design (small scale workshops).

design process” was at odds with the university team’s community engagement process:

“And actually, I think there was, maybe with REACH was a slight confusion I don’t know if it was just because we hadn’t really properly understood the nature of the community engagement intervention... that the team wanted to trial. And I think we were doing a [exploratory design] process and not a community engagement process...and at no point was there where everyone actually sat down and went what do we all think these words mean” [Ashley, Design agency consultant]

...the design agency consultant said ... the purpose of the events is ‘not about insight gathering and discussing opinions’, it’s a very much a design event [from observation field notes 13/11/2015]

Through my interviews with the design agency after the intervention development process was complete it became clear that the design agency felt that the university team did not understand the design approach to the engagement and co-design process being undertaken by the agency. Similarly, the design agency had not fully understood the co-production approach of the university team.

This difference in approach meant that the teams had a different underlying perspective on, what on the surface, appeared to be shared goals and methods to engage with communities and co-design the intervention. This is demonstrated in Table 7 above, which shows low fidelity towards clear and agreed aims, objectives and methods for intervention development. Recognising and then making the time to work through disciplinary differences early on in the process would have contributed to the development of shared understanding.

Misunderstanding over some of the more specific elements of the brief for intervention development was also in evidence. For example, given the diverse nature of the groups that were accessing antenatal care late, the university team had anticipated that the intervention design needed to reach a number of different target groups. This was a challenging task and the design agency advocated for a focus on one target group in each intervention area to provide an anchor for the engagement and co-design work:

...if we could have actually had the certainty about in this ward, we particularly want to focus on this community so let’s develop something, a community intervention that’s really tailored to that community...I don’t think we had a shared clear idea between us like what exactly we were all trying to do..... [Ashley, design agency consultant]

In line with their focus on multiple target groups the university team had provided information to the design team on the relevant target groups in each intervention site, but the design team wanted more detail in line with their preferred tactic to focus on more narrowly defined target groups. This was an instance where the two teams preferred different methods.

The lack of a shared understanding on the overall approach and specific elements inevitably led to tension between the partners. This was compounded by the fact that intervention development was part of a research programme adding further to the different underlying starting points of the two teams'. One aspect of this was that part of university teams' remit was to assess the process of intervention development. This meant that engagement and co-design activities were observed by myself and other members of the team. There was also an expectation from the university team that there would be an ongoing dialogue reporting and reflecting on progress. This was not normal practice for the agency consultants, who were not used to having to communicate about the progress of their work on such a regular basis. Robin, the consultant, was used to working in a more abductive way, with freedom to experiment as projects progressed. I noted several times during observations of the engagement activities that Robin appeared reluctant to explain his thought processes and approach, which meant it was difficult for the university team to monitor and be clear about the development process.

The design agency reported that they had not experienced working alongside another team and this had caused a little more work than usual in terms of keeping everyone updated and having to consider another party [from observation field notes 13/11/2015]

This is highlighted in Table 7 showing low fidelity in open and ongoing dialogue between partners.

In relation to the co-production principles of reciprocity, collaboration and partnership and added value showed low fidelity. By not dedicating time to agree working practices, common goals and shared theory of action for the engagement process, the reciprocal and trusting relationships necessary for co-producing the development of the intervention were not fully generated. Reciprocity is considered as the underlying principle of co-production (Ostrom 1990, 1998; Powell, 1990). However, the processes of reciprocity remain poorly defined in the

co-production literature. In the field of public governance reciprocity is characterised as requiring a recognition, respect, and valuing of the knowledge, perspective, and resources that each partner contributes to the collaboration (Janke and Clayton, 2011, p. 3). The findings presented above highlight working towards establishing a shared understanding would have helped mitigate some of the challenges of this cross-disciplinary collaboration and increased the potential for adding value through the reciprocal exchange of new knowledge and experiences.

(ii) Sharing power, roles and responsibilities

The ability of university and agency teams to work collaboratively was compromised by a lack of clear delineation of roles and responsibilities between the different team members underpinned by a complex set of power dynamics. The impact of these factors was seen in the co-ordination of activities, decision-making processes and accountability for some aspects of the intervention development.

The research programme in which Community REACH was embedded had a long and protracted 'gestation' period with two years between the submission of the grant proposal (October 2012) and the official start of the research programme (October 2014). The extended development period created an imbalance in ownership towards the university team who had invested heavily in bringing the grant to fruition. In this period also various changes to the programme were negotiated between the funder and university team² and these changes impacted on the roles and ultimately power balance between the university and agency teams. In particular, the role of the agency changed from having sole responsibility for the engagement and co-design phases of the intervention development to one of collaboration with the university team. The design agency was thus required to share power on tasks they had perceived themselves as being in control of. The university team as well as researching the process of intervention development were therefore also involved in the actual development

² A key change involved expanding the geographical area for intervention sites from three London boroughs to nine and, in order to increase capacity to cover this expanded area, it was decided that the university team would work in partnership with the design agency to deliver the engagement and co-design.

which meant that there were two levels to the collaborative work with the design agency.

...I suppose that is also the challenge...it's really difficult with that kind of research [randomised control trial] where you have to be very specific up front about what you're going to do. And then it kind of...limits in a certain way [Ashley, agency consultant]

The drawn-out set up period for the research meant that once ethical approvals had been obtained, the work of developing the intervention needed to take place fairly rapidly to align with the research timeframes and the competing commercial obligations of the agency. This placed the focus on the practicalities of the development work rather than on the re-orientation of the collaboration. A scheduled 'kick-off' meeting got absorbed into a planning meeting with community midwives from across the ten intervention sites. Therefore, the two teams did not have an opportunity to meet to openly discuss their expectations for the collaboration and the impact of greater involvement of the university team on the work of the agency. They began working on the intervention without developing a mutual understanding of each other's roles and professions, exploring how they could maximise the value of each partners contribution. This lack of attention to collaborative processes is reflected in the low fidelity scores shown in Table 7 above, towards a commitment to openness and relationship building.

Power shifted between members of the teams throughout the engagement and co-design process. For example, Karima, the university community engagement co-ordinator, who worked alongside the design agency consultants, felt unsure of her role, despite her vast experience of community engagement work, and a lack of power in the process:

...No so we were just going out to support [design agency] we understood that he knew everything so we had to just follow his instruction, we had no say (Karima, university community engagement co-ordinator)

Similarly, the design agency found it challenging to work with Karima who had a different approach and background. Having the opportunity to work out in advance how to combine their respective areas of expertise might have enabled Robin and Karima to work together more effectively and enhanced the community engagement and co-design process. The tensions and frustrations caused by the lack of clarity over roles inevitably led to a lack of communication and co-

ordination between the two teams which then impacted on the intervention development process in practical ways such as failing to get adequate capacity in place to cover community engagement sessions, recruitment and retention of community members, provision of language support and stakeholder involvement. As presented in Table 8, these components are all associated with low fidelity across the majority of intervention sites.

As highlighted above, the other aspect of the university and design agency partnership was the requirement from the university team to obtain regular feedback on the challenges and progress of the engagement and co-design process for their formative evaluation. However, the specific level of detail required had not been agreed upon in advance. On the design agency side, the consultants were used to working more freely and independently without close scrutiny. This resulted in the consultants often seeming evasive, with progress reports sent by e-mail with little detail. (And, as a consequence, as shown in Table 8 above, the ability to assess the extent to which the intervention was developed in line with the co-production constructs was restricted by a lack of feedback reports or feedback reports that contained limited information). The extra pressure to provide more detailed information and a lack of face to face communication added to the tensions and lack of trust between the university and agency teams.

As discussed in the literature, the potential of co-production lies in the equal integration of different perspectives and knowledge from diverse different stakeholders with diverse backgrounds to generate new insights and tangible change (Bovaird, 2007; Stott et al, 2018). The findings described above, highlight the tangible complexities of integrating professional stakeholders (commercial and academic) from different disciplinary backgrounds, under described in the current co-production literature. In the literature, co-production is often referred to as a process that blurs boundaries and balances power between the different parties involved (Slay and Stephens, 2013). However, there is very little information of how this is achieved in practice (Durose et al, 2015), particularly in the type of relationship described in these findings. Clearly defining roles and responsibilities and setting ground rules for communication at the outset would have provided the university and agency teams with a foundation from which the reciprocal processes of co-production could have been established. The process

of negotiating roles helps to facilitate a mutual understanding and recognition of each other's professional expertise, perspectives and expectation, without which meaningful communication and relationships, can be more difficult to develop (Hall, 2005). The different ways of working for both parties presented challenges in relation to communication styles, flexibility of approach and responsiveness for decision-making. A lack of face to face interactions, particularly at the start of the collaboration meant the common social mechanisms that support more open dialogue and generation of trust were not developed. As both parties attempted to maintain control over their own processes, the collaboration was not able to move beyond 'mutual recognition' towards the transformative shifts in power and resources synonymous with co-production (Needham and Carr, 2009). Paying closer attention to the everyday routine social practices within which meanings are reinforced and recreated has been suggested as a way to generate a shared interpersonal momentum in co-production initiatives, sustaining motivation for involvement and helping to mitigate external pressures and internal disagreements (Clarke et al., 2018). Additionally, the role of individuals acting as boundary spanners to facilitate and co-ordinate relationship-building (meetings, dialogues etc) to support effective co-production has been recommended (Beckett et al., 2018).

(iii) Making effective use of resources

Planning and resourcing issues affected the ability of the collaborating partners to fully adhere to the co-production elements. There were limited resources for undertaking the intensive period of community engagement and co-design activities consecutively across the ten intervention sites. Additional support was secured through the recruitment and training of a team of student volunteers from the university. Maintaining a consistent number of students for the engagement team throughout was challenging, with an initial enthusiastic high turnout for the first few sites (Woodstead East, East Parkham) tailing off such that only one or two volunteers were able to support the engagement process in the last few sites (Northarms, Old Church, Derlestone). This had an impact on the reach of the engagement process and the numbers of community members and stakeholders recruited as co-design workshop participants. Limited resources meant that good quality promotional materials to support engagement were overlooked with a reliance on sparse black and white printouts. Volunteers wanted some form of

'official' identification which would make them look more authentic or legitimate when approaching people on the street or if they were challenged about who they were.

Table 8 shows low fidelity across nine intervention sites for the engagement team's understanding of the intervention and purpose of engagement activities. No adherence was recorded for Eastgate Park, as the engagement team began engagement activities in the intervention control site, demonstrating their lack of understanding about the intervention as part of a RCT.

Observations of engagement activities also highlighted that the engagement team were unable to provide clear information to community members about the details of co-design workshops, e.g. when and where the workshops would be held, the benefits of attending, crèche facilities and expenses and what would happen in the workshops. The design agency stressed that planning for the co-design workshops was an ongoing and iterative process and was largely dependent on the insight gathered during engagement activities, so from their point of view this lack of clarity was to be expected. Again, the differences in understanding on the approach to intervention development between the two teams came into play here. The university engagement team had expected that residents from the engagement phases would be 'kept warm' for the co-design phase through follow-up. However, resources for this were not factored into the rollout of the overall process, or for the additional work needed to keep in contact with 320 residents who had expressed an interest in attending the co-design workshops. Although Karima offered to help with this work, her offer was not taken up by the Agency team at the time. However, reflecting on the project afterwards during her interview Ashley recognised that their ability to keep participants engaged had been an issue:

...one slight issue was just about keeping everybody engaged throughout that process. Because we were doing ten different wards, by the time we got around to doing co-design the first ward that we'd done the engagement with was actually quite a long time ago and it, whether actually it would have been better to do, a bit of insight, a bit of engagement and then the co-design, actually sort of staggered them or something. (Ashley, Agency consultant)

Consequently, as Table 8 illustrates, no adherence was shown towards a commitment to reciprocity and mutual benefits for people expressing an interest

in participating in co-design workshops. The inability to maintain engagement over this period resulted in lower than expected turn-out at the co-design workshops and additional last-minute recruitment. As shown in Table 9 attendance was significantly lower than expected in five intervention sites and last minute 'mop-up' recruitment was required across all intervention sites in order to make some of the co-design workshops feasible. In MidCross and Eastgate Park all of the participants were recruited in this way.

These findings show the mismatch in resource allocation for engagement and co-design activities affected the fidelity of intervention development to align with the co-production elements of the intervention design. Co-production is often defined in terms of improving cost-effectiveness and adding value to services and projects (Filipe et al., 2017; Bovaird and Löffler, 2012; Boyle and Harris, 2009). However, increasing attention is being paid to how co-production occurs and whether these processes reflect the key principles discussed in the co-production literature. Fundamentally, the processes and impacts of co-production are founded on relationships and trust, which need time, resources and commitment to develop (Walter et al. 2003; Sadler et al., 2017). Therefore, time as a resource is increasingly becoming recognised as a cost that needs to be factored into the co-production process, as well as having the right people in place to facilitate the complex engagement and relationship work (McConnell et al., 2018). These findings provide practical insights to support the literature that suggests potential of co-production to create added value requires appropriate resource planning and allocation (Filipe et al., 2017).

4.5 Engaging and mobilising communities

The domain of 'engaging and mobilising communities' is aligned with the co-production principles of reciprocity, social capital, releasing capacity and developing capabilities and added value. Co-production champions the inclusion of a diversity of views, values and interests of multi-actor groups to build new relationships and generate new insights and innovations (Filipe et al., 2017; Stott et al, 2018).

As noted earlier, engagement and mobilisation activities were carried out in partnership by the design agency and the university engagement team with

support from a group of student volunteers. Although supported by other staff in their respective organisations, the work was essentially undertaken by two members of staff, one each from the design agency and the university. Engagement and mobilisation activities had to be undertaken in all ten sites within a 11-week period.

Factors that influenced the extent to which engagement and mobilisation activities were implemented as intended fell into three areas: engaging key target groups; mobilising community assets; and understanding intervention site characteristics.

(i) Engaging key target groups

The engagement team were briefed on the groups within each intervention site that the team should particularly seek to reach. The specific groups varied across sites, but typically included one or more specific ethnic groups (e.g. those of Turkish, Bangladeshi or Eastern European heritage) recent migrants and those with language and/or cultural barriers in accessing ANC early. The aim was to engage with a wide range of people within these specific groups including men as well as women, older people who might be grandparents as well as younger groups of childbearing age.

Engagement was primarily achieved through street engagement. Through this method the intention was to gain entry into the community, trigger awareness of the intervention, gain *on the ground* insights on the intervention topic as well as information on local community networks and recruit to the co-design workshops. Street engagement involved the community engagement team initiating opportunistic, informal conversations with local residents at community facilities, marketplaces and other areas of local footfall in each intervention site.

Street engagement had been chosen as a way to provide immediate and direct engagement within a relatively short space of time with a wide range of groups. This approach has also been highlighted in the literature as a way of accessing residents free from the biases of community gatekeepers (McAreavey and Das, 2013) so it is potentially a more inclusive approach to engagement than those which engage through established community networks. However, some target groups remained more challenging to reach through street engagement, and in

these cases, attempts were made to engage community networks. Each strategy had its strengths and limitations in relation to the co-production process.

Street engagement was generally effective in engaging a wide range of residents across the majority of intervention sites. The team were able to conduct multiple conversations with residents in each intervention site about their knowledge and experiences of antenatal care and their thoughts and opinions on the local area which the design agency team was able to use to develop materials and activities for the subsequent co-design events. Through these localised insights community members added value which helped shaped the development of the intervention. The team were also able to report on which target groups had been reached during the engagement phase and the languages spoken. Street engagement was also effective in generating interest from residents in attending the co-design workshops. Residents expressed a range of motivations for registering for the workshops including: to make friends; help the community and give something back such as helping to improve services and other women's experiences of antenatal care; to have an opportunity to talk about their experiences of pregnancy and share them with others; to learn more about antenatal care in preparation for a future pregnancy; and to improve their language skills. Residents were also motivated by the lunch, creche facilities and expenses that were offered for attendance.

Members of the community engagement team had many skills which contributed to the success seen with the street engagement: ability to build rapport and put people at ease through for example, empathy and humour; ability to speak multiple languages to enable conversations with those with limited or no English; understanding the importance of reciprocity through highlighting the benefits of taking part in the co-design workshops; and sheer determination and commitment to ensuring residents were engaged. Many of the student volunteers had health professional training or were parents themselves and were able to show mutual understanding and empathy, using reflective questioning to develop conversations with residents and gather insights in a more natural and reciprocal way. These strategies enhanced the quality of engagement, making it more personal and genuine. The volunteers often worked in pairs with one having the conversation and the other writing notes. They also planned in advance strategies to get people to stop (e.g. using the opener *"what's it like being a Mum/Dad in*

this area?”). The volunteers reported that this made them feel less like “market researchers” and achieve greater credibility and trust.

Street engagement secured interest in attending co-design workshops for at least 10 residents from each site, although not all target groups were always reached in each site (see Table 8 in section 4.3). There were a variety of reasons for this. Despite the engagement team speaking a variety of languages, language was still a key barrier for the street engagement. It was common for people to say they did not speak English and hurry on. As the number of student volunteers taking part in outreach activities reduced over time it was more difficult to overcome the language barrier. Table 8 illustrates this issue, showing higher fidelity in the ability to engage with specified target groups in Woodstead East where there was a larger engagement team than in MidCross where the engagement team was significantly reduced. Accessing some communities, particularly Eastern European groups, remained difficult across all ten intervention sites. Eastern European languages were not represented on the engagement team, therefore initiating conversations proved very difficult.

[name of student volunteer] had approached at least 5/6 women that morning who looked E. European, but who said they did not speak English, or were in a hurry, i.e. more difficult to engage and get them talking [from observation field notes 15/10/2015]

Even accessing these groups through community networks such as Polish shops (a strategy recommended by local residents) was difficult due to language barriers. In some intervention sites the street engagement approach was not as effective at reaching target groups because they were less visible on the street. In MidCross there was little evidence of the large Bangladeshi population who were a key target group and it was recommended by a local community worker that this group would be easier to engage through local community networks rather than street engagement.

The engagement team recognised the difficulties of identifying target groups on the street and reported using a variety of ways to decide who to approach such as: women with buggies and small children, assuming these groups would be the most likely to engage with the topic of antenatal care; or targeting women from similar ethnic backgrounds to themselves. One volunteer reported that they were able to identify residents who had recently arrived from the UK:

[name of student volunteer] raised the issue of 'profiling' women on the street to decide whether or not to approach them. She said she was looking for women who have recently moved to the UK and don't know how to access services. She felt there was a "way they walk" that indicates whether they have recently arrived. [from observation field notes 15/10/2015]

This sometimes meant that target groups were missed. For instance, in Old Church one of the student volunteers focused on targeting women from minority ethnic groups even though the key target group for this intervention site was white British and Eastern European.

(ii) Mobilising community assets

Mobilising existing community assets, such as local health care professionals (e.g. midwives, nurses and general practitioners 'GPs'), faith groups, local businesses and community organisations early in the development process was identified as important for the intervention design. Building alliances with key community stakeholders and organisations was anticipated to be critical for any intervention developed to be acceptable to local communities and in particular to reach those groups of women identified as being most vulnerable to late initiation of ANC. Mobilising community assets are elements of co-production that connect with the principles of social capital and releasing capacity and developing capabilities of people and communities. Both principles are concerned with the activation of resources embedded in a social structure that are accessed and mobilised by people for purposive action (Lin, 2001, p. 29). In this study, these activities were intended to build on insights gained through street engagement outreach to establish links and activate community assets in support of the intervention development and subsequent intervention implementation.

Mobilising community assets across the ten intervention sites was challenging and success varied across the ten intervention sites, with mainly low or medium adherence to relevant fidelity indicators in relation to connecting with key stakeholders, target groups, community influencers and identifying relevant community assets to support intervention development (Table 8).

The engagement team had been provided with information on community assets within each intervention. However, subsequent initiation and development of links with local stakeholders and organisations appeared to be done on a largely ad hoc basis rather than through a planned and co-ordinated approach. The latter was achieved early on in the planning and engagement stage within the first two

or three sites but tailed off thereafter. In Woodstead East, for example, prior arrangements for the engagement team to chat to local parents attending a messy play session at the local children's centre had taken place.

...student volunteers had really enjoyed the experience [messy play session] and were quite excited. Robin debriefed the group - praising their efforts and seemed genuinely surprised by the number of women who had shown interest in the project and participating in it [from observation field notes 05/10/2015]

There appear to be a number of reasons for the tailing off and ad hoc nature of subsequent mobilisation activity. As noted previously, the capacity and resources of the engagement team were limited and mobilisation activities were largely carried out by the two paid members of the engagement team rather than the wider student volunteers or mainly focused on street engagement. There was a relatively short window to undertake all the necessary tasks related to engaging and mobilising assets across the ten intervention sites (e.g. setup up meetings, organising permissions etc). Planning and engagement in all ten sites had to be completed between October and December 2015 – meaning capacity and resources available in each site were very stretched. It became clear that not enough time had been factored into the development plan to identify and develop relationships with available community assets. This situation was compounded by the lack of co-ordination and collaboration between the two organisations carrying out the engagement due to a lack of clarity over each organisation's role and responsibilities (see section 4.5).

More fundamental to capacity and resources was perhaps the different understandings of the model of co-production underpinning the intervention design held by the design agency and the university team which have been discussed previously in section 4.3. Interestingly, design agency staff referred to the engagement process as being '*light touch engagement*', differentiating it from '*engagement in order to activate the community*':

...yeah I'm sure we could have done but...as a whole process really to the kind of research insight work, like what's the problem...what is the potential solution...and then that sort of community activation bit, is sort of, it's almost like a whole other bit of work then...well it is it's kind of what's happening now isn't it... [Ashley, design agency consultant]

This description revealed that the design agency had not considered mobilising community assets as part of their brief. They had understood their brief to be solely insight gathering, which was consistent with the approach usually used by the design agency, as opposed to also trying to activate or release community assets.

These findings highlight the importance of establishing a planned and co-ordinated approach, with the appropriate capacity and resourcing to maintain the ongoing interactions needed to build relationships with community assets and stakeholders that will foster a sense of ownership of the interventions (Bonevski et al., 2014; Chu et al., 2018). The findings suggest in addition that this part of the development process was under resourced and expectations were not altered in light of available resources. The findings highlighted the partners involved in delivering the intervention development had differing ideas about engagement which presented challenges to partnership working and affected the extent to which community assets were mobilised. This reflects back to sections 4.3 concerning the importance of establishing a shared understanding and effective communication without which partners are working in silos and against the overall goal.

(iii) Understanding intervention site characteristics

The community engagement process highlighted some key differences in characteristics across the ten intervention sites. Despite lower than expected fidelity on indicators relating to mobilising community assets, the two to three days of street engagement in each site led to a good understanding and 'sense' of each area and the differences between them such as the differences in the physical make-up of the areas (e.g. housing, shopping districts, churches, GP surgeries etc) and insights into how different groups used the assets within sites. Derlestone, Woodstead East and Moselle Park all appeared to have community assets that were more developed than the other intervention sites which all score low, no adherence (Forest End – activity not undertaken) or insufficient data (Moselle Park – no observation to support assessment) in fidelity to gathering insights on local assets.

The engagement team learnt a lot about the areas from their conversations with local residents as they were asked about what it was like to live in the area and

their local support networks. Residents would describe their area as, for example, difficult for newcomers to integrate into or friendly and welcoming. More specific information was also provided such as details of the smaller community groups or community workers (e.g. a Somali woman's group in MidCross, recommendation to contact a particular community development officer in East Parkham). Often these types of conversations would continue in the co-design workshops. All sites had medium fidelity for gathering additional insights demographic characteristics, local languages, accessing reach target groups, potential challenges/facilitators, except for Forest End (activity not undertaken) or insufficient data Moselle Park (no observation to support assessment) or Eastgate Park (engagement began in control site).

This understanding provided essential information which fed into the co-design workshops and the development and implementation of the intervention (e.g. in the development of the tailored communication materials for each intervention site, identifying potential local community organisations to support intervention implementation and developing the community mapping for intervention outreach activities).

The most noticeable differences between intervention sites were between those that were more inner city compared to those that were more suburban. For example, sites such as Woodstead East, East Parkham and Derlestone were more dynamic with busier streets, more community assets and the local residents appeared to be friendlier and were more likely to engage about the intervention, indicating a greater sense of social cohesion.

[name of student volunteer] has recruited 2 women in their 20s-30s but feels the area is not friendly [from observation field notes 21/10/2015 Redwell]

These features meant that it was easier to engage residents; there was more footfall and residents seemed much more willing to stop and engage with the team. In these sites' recruitment numbers were higher: Woodstead East (51) and East Parkham (41). In contrast, suburban intervention sites such as Redwell, Old Church and Northarms were more spread-out geographical areas, with less dense infrastructure and no main shopping 'hub'. Consequently, these areas were more transport dependent, had a less 'visible' population and fewer community assets where people could be engaged by the team. In these intervention sites the engagement team found it much more challenging to

engage with people about the intervention. For example, in Redwell, one of the target groups the engagement team hoped to engage with, but were not able to, was the South Asian community. They found out that this group were less inclined to shop locally preferring to visit a larger shopping area nearby. This relative lack of community infrastructure partly explains the lower numbers recruited for the co-design workshops in these sites (e.g. 31 in Redwell and 28 Northarms).

The variances in intervention site characteristics could not have been anticipated prior to the start of community engagement activities by the engagement team who did not live or work in the intervention sites. This highlights the importance of building alliances with the communities as early as possible in the development process. In addition, the intensive nature of the engagement process combined with the capacity constraints of the agency meant it was not possible to adapt the street engagement approach to take account of these differences. For example, spending additional time on targeted relational work in the more suburban intervention sites such as Redwell.

Understanding the characteristics of each intervention sites support the co-production principles of social capital and releasing capacity and developing capabilities of people and communities. Findings demonstrate the importance of getting a good understanding of each intervention sites, the commonalities and differences and how these might influence the strategy and tactics and resources needed to achieve the aims of the intervention. As highlighted in this study, some intervention areas may require a different approach, longer time to develop or may not even be conducive to supporting co-production (Thijssen and Van Dooren, 2015).

4.6 Enabling community members to co-design

(i) Practical support for inclusive co-design

Practical measures which supported community residents and stakeholders to actively participate in the co-design workshops included: workshop location, timing and pace, the provision of crèche facilities, hospitality, finance and language support. On several occasions practical matters hampered the effectiveness of the co-design workshops.

Co-design workshops took place in a range of community settings within each intervention site, such as Children's Centres, local libraries and Community Centres. Although there were some exceptions, the locations of the workshops were generally familiar and easily accessible for participants. Workshops took place in the morning and were scheduled to last for two hours with lunch provided at the end.

Time-keeping issues led to inconsistent delivery of co-design workshop agenda. The majority of workshops started over 20 minutes late due to late arriving participants, last minute recruitment, or changes of venue. This left facilitators with limited time to cover all the co-design activities as planned, meaning activities often felt rushed, introductions between participants were not made and the closing of the workshop was rushed. This latter point meant that participants were not always clear about the outcomes of the activities and their efforts, the next steps for the intervention and how they could stay involved with the project if they wished to do so.

Provision of crèche facilities was outlined in the intervention design as being an important factor for inclusivity, enabling those with childcare duties to attend and participate fully in the workshops. Crèche facilities were provided for all workshops and were fundamental to enabling participation:

... I think childcare is a big issue... but I've got my child, is there a crèche...yes there's a crèche no problem (Alisa community participant at Moselle Park co-design workshop)

...even with my son I said I don't want to take him you know to the nursery... they said no its ok you can bring your son... this point it was very good (Gazala, community participant at Woodstead East co-design workshop)

Another important enabler for participating in the co-design workshops was the sharing of food and drink. At the first few workshops no refreshments were made available for participants when they arrived for the start of the workshop and they were not encouraged to help themselves when refreshments were made available. Following a check in session to reflect on progress so far with co-design workshops the intervention development team agreed that refreshments should be made available to create a more welcoming and informal atmosphere, giving participants an opportunity to socialise with one another and the facilitators before the start of the workshop (see also section (iii) below). However, the process of having lunch was often not made to feel 'special' (e.g. food being left out during

the entire workshop or not inviting participants to help themselves) and in some intervention sites, despite advance warning, halal options were either not available or had not been labelled meaning some Muslim women did not stay to eat and interact with other participants.

The fact that travel expenses would be reimbursed was a motivating factor for some residents to sign up to workshops. Reimbursing expenses was not always a smooth process with problems such as residents not being aware of needing to bring receipts and a lack of available change.

The provision of language support for enabling residents with limited or no English to participate, which was key to the intended focus of Community REACH, was also variable across workshops.

Participant 1 was left out of the group in a way because she did not feel comfortable speaking English and would have preferred an interpreter. [from observation field notes 04/02/2016]

Where sufficient notice was given, language support was organised in the form of bilingual interpreters. One member of the engagement team who could speak multiple languages was also able to provide support. As well as the practicalities of organising support, the issue of language was also an area on which the two organisations involved in the development had different views, with the design agency preferring to work with participants with a better command of English to avoid difficulties they had encountered in the past when working with interpreters during the creative aspects of the co-design process (e.g. mistranslation, interruptions in workshop flow).

Creating an inclusive space for people to come together through simple practical measures speaks to nearly all the key principles of co-production identified in this thesis: reciprocity, partnership and collaboration, releasing capacity and developing capabilities of people and communities, social capital and added value. Following these principles requires practices which generate trust and respect, foster equitable and inclusive collaboration, enable people to overcome barriers to participation and recognise the value of different perspectives and experiences (Rashman et al., 2009; Gannon and Lawson 2008; Boyle et al., 2010a). The findings reported here, resonate with previous studies of co-

produced interventions which suggest that working well together in groups is a crucial success factor, although there is currently limited evidence on how to foster working well particularly for co-production with diverse communities (Rycroft-Malone et al., 2016; Flinders et al., 2016). A recent study by Clarke and colleagues highlighted the contribution of everyday rituals and interactions for generating and sustaining inclusivity in co-produced initiatives (Clarke et al., 2018). As well as the importance of repeated interconnected interactions over time, the authors found that that informal localised micro-interactions between different people, such as those at the start of a meeting or over lunch that set the tone for the rest of the meeting are important (Clarke et al., 2018).

(ii) Expectations, roles, and responsibilities

During the observations of co-design workshops, it was noted that expectations of the co-design workshops and perceptions of their roles within them differed between workshop facilitators, resident participants and local stakeholders. Many residents seemed unclear about the purpose of the workshops and their role within them. Residents expected the workshop to be an opportunity for them to share their experiences of pregnancy and local maternity services and so were not necessarily prepared to take part in a creative design activity:

*“...no, she said just we would talk about antenatal care and just talk about your experiences and what you know, how did you find the antenatal care in your local area”
(Gazala, community participant at Woodstead East co-design workshop).*

This placed participants at a disadvantage in terms of understanding their role prior to their attendance and what was expected of them. This was particularly acute for those participants lacking confidence or language skills to speak out in front of strangers. The lack of ‘readiness’ meant that facilitators spent a longer than expected amount of time at workshops explaining their purpose and ‘priming’ participants for co-design activities. This could take up the first hour of the workshop, and in this time, residents were required to take in a lot of information with very little interaction or opportunity to negotiate or confirm their role.

The role of other local stakeholders such as midwives had not been fully negotiated between the intervention development partner organisations. The university team held the view that these local stakeholders would add value to

the co-design process through sharing their professional expertise and local knowledge and being available to address any queries or sensitive issues that might come up related to pregnancy. Their involvement would support the social capital and capacity building components of the intervention model. Given this context, the involvement of stakeholders was inconsistent across intervention sites. Facilitators did not engage stakeholders particularly well – they were often not formally introduced - or make best use of their specific knowledge and expertise. Some residents described feeling disappointed to find out local midwives had attended but had not been given the opportunity to speak or be introduced. This was described by one of the community residents, Gazala, as follows:

... oh, you are a midwife but why you didn't talk, she did like this and she went like (gesture - shrug) (Gazala, community participant at Woodstead East co-design workshop).

In workshops where stakeholders were enabled to participate, they were observed to have a positive impact on activities, contributing information about local service provision, answering women's questions, developing a shared understanding with participants and greater analysis of co-design activities.

As might be expected, the facilitators from the design agency had a very clear view on their role in the design process, emphasising their role in steering the process to fully realise design ideas:

...I also think the kind of role of facilitation and that is really important, because I think they come up with an idea but actually what they've done is just restate the problem...and then you have to sort of push people to go to kind of like the next, what's your actual idea...and the fact that we, unless there was someone sitting with a group kind of facilitating pushing that, people didn't always get there, which is quite normal. (Ashley, Agency co-design facilitator)

There was also a recognition that the facilitators might have done more to ensure that participants were supported more to be able to participate in the co-design process given that the workshops “*must have been quite a bizarre and very abnormal experience compared to the [laughing] rest of their lives and what they would normally do*”.

Resident participants had expected that their contribution to the workshop would be to share their past experiences but there was some evidence to suggest that

the rapid nature of the co-design activities in the workshop may have led to participants feeling that their experiential knowledge was not valued. The fact that many of the workshops overran and the outcomes of the co-design activities and next steps were not always made fully clear may have reinforced this perception. Gazala, one of the workshop participants, described this feeling saying she only fully understood the purpose of the workshop and the value of her contribution through the interview:

“...so it’s going to be like another stage... thank you very much [for] to let[ting me] know...because it’s very important...I thought when this workshop finished its finished... so there is something after... because I thought it was not important what I was saying you know in the workshop” (Gazala, community participant at Woodstead East co-design workshop).

Enabling people to understand their role and responsibilities in the co-design process connects with the co-production principles of releasing capacity and developing capabilities of people and communities and added value. Participants of the co-design workshops were expecting to discuss their experiences of ANC and pregnancy in a much more conventional style of workshop and had not anticipated participating in a creative process-driven co-design workshop. The lack of preparedness limited the ability of community members to actively engage and contribute on an equal basis. Co-design is a decision-making process and as such involves the negotiation of power relations (Bratteteig and Wagner, 2012). Therefore, the underlying power structure defines how much scope there is for shared decision-making between designers and participants (Frauenberger et al., 2013). Facilitators of the co-design workshop had a much clearer understanding of their role and responsibility and what they wanted to achieve from the co-design, therefore the balance of power lay with them. Much of the co-design literature emphasises the importance of ‘grounding’ or ‘context-mapping’ participants to the topic and coming to a mutual understanding before the actual co-design session (Détienne et al., 2012b; Sleeswijk Visser et al., 2005). This step-by-step process allows participants make sense of their own experiences and determine their role in the co-design process (Détienne et al., 2012b). The requirement to contain the whole creative process in one workshop meant there was not enough time to facilitate this process in any meaningful way. If people are uncertain of their role they may lack the confidence to contribute and their voices, which may have informed and broadened the discussion, go unheard.

(iii) Social interactions

Creating space in the co-design workshops to encourage social interactions between all parties had a positive effect on the participants and the co-design process. Indeed, many of the participants (the majority of whom were women) indicated their motivation for attending the workshop was to meet other local women, make new connections and learn from others. Facilitating social interactions helped participants to feel welcomed, generated a friendly atmosphere and contributed to all parties coming together collaboratively as a group. However, the extent to which opportunities for social interactions were created was consistently low across intervention sites, with later workshops such as those at Moselle Park and Eastgate Park actively putting into place strategies to facilitate social interactions. From observations of the workshops a number of factors explained this variation: how workshops started; room layout; numbers attending workshops; time and pace of workshop; and the characteristics of workshop participants and facilitators.

A lack of opportunities for participants to connect at the start of the workshops set the tone for the later group activities. Although group activities were visual, fun and creative, it was sometimes difficult for participants to join in fully with group activities without generating some initial rapport with their fellow participants. This was less of a problem in workshops where some of the participants already knew each other as these pre-existing personal connections (family members, friends or community acquaintances) helped to generate a '*buzzier*' atmosphere, and cohesion of the group and sense of purpose about the co-design activities appeared to happen more quickly. However, it was more difficult for participants without a pre-existing connection to integrate into a group who were already familiar with each other without the opportunity to interact with them on a social level.

One strategy which worked to encourage social interactions from the start of the workshop was to set up the room in an inviting way with copies of the agenda and creative materials on the tables, poster displayed on the walls and refreshments for people to help themselves. In the two workshops where this happened observation revealed that this had an immediate effect on how participants interacted in the space and with each other, creating a much more social atmosphere that encouraged informal conversations between all parties.

This atmosphere was then carried over into the more formal session of the workshop, where there was a greater level of interaction and contribution between participants during the creative activities. Both workshops had a good pace and participants were able to move through all the creative activities including the sharing and discussion of ideas, which had often not been fully managed in other workshops.

Where attendance was low and participants had no pre-existing personal connections or did not feel confident about their language abilities or speaking in front of strangers, facilitators favoured working with them one-to-one rather than facilitate their inclusion with other participants in a group. In some workshops, for example in Redwell and Northarms, this meant participants left the workshop having had very little interaction with the other participants, although the design agency noted that this one-to-one approach allowed for deeper conversations and greater support for individuals to express their thoughts and ideas:

...I think we were quite prepared to turn up and do the workshop with whoever was there and that wasn't a problem and actually, some of the workshops where there were only 3 or 4 people were the best ones, because you can have quite a rich conversation with someone and really draw out their thinking and develop your ideas'. (Ashley, agency consultant)

The extent to which social interactions took place was often undermined by a lack of time due to poor organisational planning resulting in delays to start-times. Such delays affected the ability of participants to interact socially at any time during the workshop as facilitators concentrated on getting through the co-design activities.

At some workshops the individual personality traits of some participants helped to facilitate social interactions. These participants had good networking skills and were able to put others at ease and bring them into conversations. In Old Church, one of the participants was described as being '*dynamic*' and identified as potentially '*being a good leader of a peer-led intervention*'. Similarly, when Karima from the university engagement team attended the workshops, she had an existing familiarity and rapport with many of the participants, developed through the engagement and recruitment process. She was often already aware of participants that would need additional support and encouragement to participate and was able to focus on bringing them into conversations. In contrast, some participants with more dominant personality traits or their own agenda

tended to take over conversations and suppress wider social interactions with other participants.

In her interview, Jade, a community stakeholder with experience of community development, felt facilitators could have done more to enable participants to build relationships and extend their local networks. Jade saw relationship-building as a key outcome of the workshop. However, the workshops did not have enough space for these processes to be fully developed:

“... from a community development approach where you want to get to, an outcome from that kind of engagement is building relationships with people....so when you're questioned and then you've got to answer the question, where is the time for building the relationships bit ... it felt a little bit bitty...” (Jade, community stakeholder, Woodstead East co-design workshop)

Social interactions facilitate the putting into practice of the co-production principles of reciprocity, collaboration and partnership, social capital, releasing capacity and developing capabilities of people and communities and added value.

Social interaction is a key process in facilitating information exchange and studies have shown some form of social interaction is essential in order for individuals to successfully engage in collaborative practice (San Martin-Rodriguez et al., 2005; Petri, 2010). This was evident in the findings here, which demonstrated the positive impact of creating opportunities for informal social interactions on the overall atmosphere of the workshop, and potentially the generation of more fully formed solutions through increased interactive discussions. Iacono and Marti (2014) stress the importance of getting to know one another in helping people to express their opinions when participating in co-design. They suggest creating a 'family atmosphere' to prepare people for the creative processes of co-design (Iacono and Marti 2014).

(iv) Facilitating active participation and innovation

Active and inclusive participation in the co-design workshops were key fidelity indicators in relation to co-production. The three themes presented above have already detailed many of the factors related to the conditions necessary for active and inclusive participation. In this section, the focus will be on the task-orientated co-design activities themselves.

Workshops were facilitated by two staff from the design agency. The main device for active participation involved using realistic descriptions or '*personas*' of women who had not attended ANC (see Appendix 7). The personas were created using information captured during the engagement process to develop a series of twelve different '*personas*' to reflect women's experiences from different ethnic backgrounds. Each '*persona*' had been given a name and a particular scenario for why they might not have accessed antenatal care based on the challenges and insights gathered from residents during street interviews and from earlier formative research. Participants were asked to choose a persona and discuss whether they were realistic and seemed representative of women in their area and whether they could identify with the issues it raised. Participants were then asked to come up with ideas of what might help these women go to ANC earlier.

As revealed by fidelity table 6, although participants generally enjoyed their experience of the co-design workshop and responded positively to co-design activities across sites (all but three sites were assessed as showing medium fidelity on these indicators except for Northarms, Redwell and MidCross), all but two sites (Woodstead East and Eastgate Park) were assessed as showing low fidelity or no adherence to the extent to which participants were enabled to actively participate. From observations and interviews with participants and facilitators, this appeared to be related to an imbalance between the open and more fixed elements of the workshop agenda. This was played out in: directing the choice of personas; rushing participants through the activity; and prioritising expressions of solutions at the expense of adequate time discussing experiences. This imbalance was compounded even further by workshop timings not always going to plan such as starting late or needing longer than anticipated to explain the purpose of the workshop for those had come with expectation to participate in a more traditional style workshop. This meant that for the majority of the workshop the facilitators were doing most of the work whilst participants sat and listened

When it worked well, the persona activity really captured participants' attention; they were able to relate to the descriptions and participants appeared to be able to contribute on a more equal footing with the facilitators and other participants. In the interviews with participants of the co-design workshops, the activity using the personas was often described as the best activity. At the first few workshops

participants were able to choose the persona they wanted to work with. However, as the workshops progressed facilitators were more directive in giving out a particular persona for participants to work with to ensure that all twelve personas had been discussed across workshops. This sometimes made it more challenging for participants to engage with the scenario presented in the persona if the description was not one, they could relate to from their own experiences.

Although working with personas was the most popular activity with participants, there was not always enough time to run the activity. In these cases, the activity was often rushed through and heavily controlled by facilitators, with participants being asked a series of questions one after the other. Facilitators also took control of writing down, capturing and feeding back on their ideas. This meant the conversations seemed very one-sided. In workshops with higher fidelity scores for inclusivity and active participation in co-design activities, there was more time to discuss the different personas and generate ideas. Facilitators encouraged participants to 'push' their ideas further and were invited to share their ideas for a wider discussion.

For many participants sharing their experiences of pregnancy were particularly emotive, especially if the experience had been a negative one. Managing these discussions was challenging for the facilitators. Facilitators wanted to keep participants focused on '*the positive*', concentrating on ideas where there was more potential to make a change, i.e. not focusing on service changes. However, Gazala, felt not enough time was allowed to discuss the negative issues relating to ANC, pregnancy and local services and she felt it was important to understand what the problems were in order to develop the solutions to them:

... I can talk about positive stuff all the time...its ok...but you can't do anything you can't...I don't think it will help, you have to talk about the negative to do some positive stuff (Gazala, community participant at Woodstead East co-design workshop).

Another workshop participant felt that the workshop facilitators became frustrated when there were other types of conversations going on that were not sticking to their agenda. Like Gazala, Jade felt that there should have been more validation given to participants sharing their experiences and the facilitators should have "*come off agenda and maybe learn something amazing in the process*".

The effectiveness by which the workshop outcomes, next steps (i.e. what would happen to their ideas), and how participants could remain involved were communicated, was inconsistent across the workshops. Timing issues impacted the level of information provided at the end of each workshop, meaning some participants were leaving the workshops with no clear sense of the outcomes or what would happen next. However, in their interviews most participants described enjoying the workshop as a new experience and felt the issues raised around ANC were important to discuss. Participants were given a certificate of attendance to acknowledge their input into the co-design workshop at the end of each workshop, which most participants appeared pleased to receive.

Co-production and co-design are both processes promoting the importance of establishing equal relations between the different parties involved, usually described as service users and professionals (Dimopoulos-Bick et al., 2018; Bason, 2010; Bate and Robert, 2007). These findings show that although community members and stakeholders engaged with the content and enjoyed the experience of participating in the co-design activities, the balance of power remained largely with the facilitators. In delivering the co-design workshops the facilitators showed a greater commitment towards achieving the deliverable of generating ideas for the intervention design than fostering an inclusive, equitable environment.

In addition, the findings show that the time and resources allocated to deliver the co-design workshops were not sufficient to match the expectations of the intervention design of enabling community participants to collaborate on an equal basis. The process of developing equal relations requires commitment to working in a different way and supporting engagement with dedicated time and resources (Dimopoulos-Bick et al., 2018). The co-design literature cites '*grounding*' as a key process for promoting equal relations by encouraging participants and practitioners to discuss their narratives together as a group. The discussion of different narratives helps to establish a common frame of knowledge and mutual understanding of the problem and potential solutions (Détienne et al., 2012b).

Given the emotive nature of the topic, the diversity of participants and perspectives, this interactive process would have benefited the co-design workshops by ensuring the construction of mutual understanding was in place before beginning the task-oriented activities (Détienne et al., 2012b). The notion

of empowerment is central to the motivation behind involving community members in the design process by enabling them to take action and make decisions about issues and services that impact their lives. Bypassing these fundamental relationship-building activities ensures there is no change in the power relations to support collective action (Stempfle and Badke-Schaub, 2002; Détienne et al., 2012b).

4.7 Chapter summary

This chapter has discussed the factors that shaped the co-production process in the development of the Community REACH intervention.

Fidelity measures were used to assess the extent to which the intervention was developed as planned and delivered the co-production elements. Both the critical factors of using co-production in the development of the intervention were highlighted. Fidelity indicators showed variable adherence to delivery of the co-production elements across the ten intervention sites. The process of developing the intervention in line with the co-production elements highlighted the importance of trust-based relationships and the advantages to investing sufficient time in developing these relationships.

In the collaboration between the university and agency teams, challenges arose from different disciplinary perspectives, organisational cultures and processes, including different methods and communication. They also arose from unrealistic expectations about what could be achieved within the resources and time available. Attention should be paid to establishing a shared understanding, agreeing roles and responsibilities, and setting ground rules for communication at the outset. A more reflective monitoring and feedback process would have benefited shared learning and innovation.

Street engagement was effective in areas where target groups were in evidence in public spaces. In areas where local assets and communities were more dispersed, reaching target groups through street engagement was more challenging and would have benefited from mobilisation of assets and local stakeholders. Gaining an understanding of the characteristics of each intervention site was essential to understanding where adaptations to the intervention design may be required in response to target groups, community assets and resource factors.

Co-design was an effective method in generating ideas for intervention development. However, there were difficulties in creating an inclusive environment that allowed for active participation. Closer attention to the social aspects of relationship-building through simple practical measures and social interactions are key to fostering inclusivity and supporting the co-production of different types of knowledge and innovation.

Chapter Five, which follows, presents the findings which relate to the key factors that influenced the co-production process in the implementation of a co-produced community-centred intervention - the Community REACH intervention - in three selected intervention sites.

Chapter 5

Factors influencing the co-production process in the implementation of the Community REACH intervention

5.1. Overview of chapter

This chapter describes the findings from the second phase of my empirical research which aimed to examine the co-production process in the implementation of the Community REACH intervention.

Firstly, I present my findings of the extent to which the intervention was implemented as planned, assessed both through fidelity to the operational deliverables and through the extent to which the implementation delivered the co-production elements.

Secondly, I present my findings from thematic analysis derived from in-depth qualitative data collection from three of the ten intervention sites including observations at nine volunteer training sessions (5 at Eastgate Park, 2 at MidCross, 2 at Northarms) and seven site visits during intervention implementation (3 at Eastgate Park, 3 at MidCross, 1 at Northarms) and in-depth interviews with project managers and co-ordinators at each of the three community organisations implementing the intervention (N=6) and twelve Community REACH volunteers who were involved in implementing the intervention (4 at Eastgate Park, 4 at MidCross, 4 at Northarms). Summary descriptions of the three intervention sites, community organisations and participants' characteristics have been presented previously in chapter 2.

5.2. Fidelity of implementation

i. Fidelity assessment of the intervention across three intervention sites

In commissioning local community organisations for Community REACH, a number of specific operational deliverables and milestones that were set in advance by the study team were provided to track and measure progress.

As described in Chapter 3, these 'operational' deliverables were translated into a set of fidelity indicators, shown below in Table 12. This table summarises the

findings of the extent to which the community organisations met these operational deliverables in the three-month 'local set-up' and the 6-month 'implementation' phase.

Based on the logic model for the Community REACH intervention, successful implementation would involve community organisations delivering key co-production elements in addition to the operational deliverables. The components of the intervention set out in the intervention logic model (Appendix 1), together with evidence from the literature (Chapter 2), were translated into a set of 'co-production' fidelity indicators shown in Table 10 and 11 below. These tables summarise the findings of the extent to which community organisations delivered the co-production elements in the three-month 'local set-up' and the 6-month 'implementation' phase.

Overall implementation fidelity

Overall, Voyager achieved a higher fidelity for implementing the Community REACH intervention than either Enterprise or Discovery. In particular, Voyager had higher fidelity towards the co-production elements. In contrast Discovery and Enterprise both had higher fidelity to implementation of the operational deliverables.

Operational fidelity in 3 months 'local set up' and 6 month 'implementation' phase

In relation to adhering to the operational deliverables in the set-up phase, Voyager had slightly lower fidelity score compared to Enterprise and Discovery (Table 10). Voyager had high fidelity for *recruitment of co-ordinator for role* but had no adherence for *holding a launch event*. Enterprise and Discovery performed consistently across all deliverables in set-up phase.

All community organisations had medium fidelity for *recruiting the required number of Community REACH volunteers* as well as for the *project planning and management* deliverables for *creating collective and individual local outreach plans* to outlines key activities and timelines.

Again, Voyager had slightly lower overall fidelity score fidelity to operational deliverables than Enterprise and Discovery. Discovery had significantly higher fidelity to achieving deliverable of *number of conversations carrying out* on average 488 per month compared to 95 for Enterprise and 91 for Voyager, but

had lower fidelity for *creating local profiles of community assets* to use for planning outreach activities. Enterprise and Voyager had medium fidelity for this deliverable.

Voyager recorded no adherence to *setting-up and convening 3 Local Advisory and Action Group (LAAG) meetings* within the 9-month intervention set-up and delivery period; Enterprise and Discovery both showed medium fidelity to this indicator.

All community organisations recorded high fidelity for *completing the required monthly report and final project report* providing feedback on outreach activities, targets met, volunteer management, learning, issues and developments within the project. Medium fidelity was recorded for all community organisations for *attending the three pan-REACH project workshops* where all participants were invited to feedback and share learning about being involved in implementing the intervention.

Table 10: Fidelity assessment of operational deliverables - extent met in three selected intervention sites ('local set up' and 'implementation')

Operational deliverables		Enterprise Eastgate Park			Voyager MidCross			Discovery Northarms		
Implementation 3-month set-up phase	Recruit a Community REACH Project Coordinator.	■	■		■	■	■	■	■	
	Draw up collective and individual local outreach plans.	■	■		■	■		■	■	
	Create a project plan that outlines key activities and information on timelines.	■	■		■	■		■	■	
	Recruit at least 10 volunteers onto the project from within the local intervention site and recruit additional volunteers as needed.	■	■		■	■		■	■	
	Hold a launch event to introduce the project.	■	■		□			■	■	
	Fidelity score out of possible maximum of 15		10			9			10	
6-month implementation phase	Support each volunteer to carry out at least 50 conversations per month over the life of the project and where possible collect demographic information (e.g. whether the person lives in the intervention site, gender, language of the conversation, ethnicity, age, and where the conversations took place).	■ (95)	■		■ (91)			■ (488)	■	■
	Create local profiles and mapping of community assets to inform local outreach strategy.	■	■		■	■		■		
	Set up and convene 3 Local Advisory and Action Group (LAAG) meetings within the 9-month intervention set-up and delivery period	■	■		□			■	■	
	Complete a monthly report and a final project report (outlining ANC outreach activities, participants reached, targets met, number of volunteer hours/month, learning, issues and developments within the project).	■	■	■	■	■	■	■	■	■
	Attend pan-REACH project workshops to feedback and share learning.	■	■		■	■		■	■	
	Fidelity score out of possible maximum of 15		11			8			11	
Fidelity score out of possible maximum of 15		20			17			21		

Key: ■ Green square/s indicates extent to which intervention deliverables were met/successful progress made
 ■■■ = High fidelity; ■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

ii. *Co-production fidelity*

Overall, across both 'set-up' and 'implementation' phases Voyager had higher fidelity in relation to the extent to which the co-production elements were delivered as intended, than Enterprise and Discovery (Table 12). Enterprise performed at a consistent level across both phases, whilst Discovery performed slightly better in the 'set-up' phase than during 'implementation'.

In the 'local set up phase', in comparison to the other two community organisations, Voyager had a good *understanding of the intervention as a co-produced intervention*, and what that entailed. Voyager also had higher fidelity to *commitment to openness and relationship building*, as well as to *ensuring capacity, support and resources* to implement the intervention effectively. Discovery in particular, had a low fidelity to most of the fidelity indicators relating to *understanding and supporting the intervention*. Enterprise had medium fidelity in relation to *understanding the intervention and processes* and low fidelity to *openness and capacity*.

Both Enterprise and Discovery had issues with capacity to support the co-ordinator role, and there was less shared responsibility and decision making in comparison to Voyager, which had high fidelity. In relation to having local community knowledge, fidelity was low at Enterprise as the co-ordinator did not have a good knowledge of the local community and support in accessing to community links, networks and local community events. However, there was medium fidelity for the co-ordinator working collaboratively with volunteers, to drawing on volunteer assets and showing commitment to developing volunteer capabilities. In contrast at Discovery, there was medium fidelity for the *co-ordinator's knowledge of local community assets and stakeholders*, but low fidelity for *sharing information on community events and activities*. Discovery also had low fidelity for *working collaboratively with volunteers in developing the volunteers outreach plan and developing volunteers' capabilities*. Voyager had high fidelity in all these areas, apart from the *co-ordinator's knowledge of the local area and stakeholders* which showed medium fidelity.

Table 11: Fidelity assessment of delivery of co-production elements - extent met in three selected intervention sites (3 month 'local set-up' phase)

Implementation 3-month set-up phase	Intervention <i>co-production components and processes</i>	Co-production principles	Enterprise (Eastgate Park)	Voyager (MidCross)	Discovery (Northarms)
	Community organisation recruited and involved in the development and delivery of site-specific intervention strategies The extent to which: - community organisation understands the intervention, its aims and their role; - community organisations understand what they can gain from co-production processes and results (over and above the achievement of the primary goal); - there is a commitment to openness and relationship building; - the community organisation has the capacity, support and resources to enable them to implement the intervention according to co-production principles	- Reciprocity. - Collaboration and partnership			
	Community organisation and project manager supports project coordinator to deliver intervention and manage volunteers. The extent to which: - there is shared responsibility and decision making for implementing the intervention - there is appropriate capacity and resources for the project co-ordinator to implement the intervention	- Collaboration and partnership. - Releasing capacity and developing capabilities of people and communities			
	Project co-ordinator develops outreach plan for intervention outreach activities with support from community organisation. The project co-ordinator is supported to identify local organisations, stakeholders and communities for launch event to get buy-in from local organisations and communities and to inform the assets for the outreach plan. Extent to which: - the co-ordinator has access to key community links, networks, stakeholders; - local knowledge of community events, activities is shared with the co-ordinator; - the co-ordinator has knowledge of the local area and stakeholders; - co-ordinator is able to develop local relationships to support intervention	- Reciprocity. - Collaboration and partnership. - Social capital			
	Project co-ordinator works with volunteers to develop their own outreach plan The extent to which: - works collaboratively with volunteers to develop their own outreach plan (e.g. drawing on volunteers' own community knowledge and social networks to identify community assets); - the community organisation is committed to identifying the assets of volunteers and developing their capabilities	- Reciprocity. - Collaboration and partnership. - Releasing capacity and developing capabilities of people and communities			

Key: ■ Green square/s indicates extent to which intervention development deliverables were met/successful progress made.
 ■■■ = High fidelity; ■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

Table 11 (continued): Fidelity assessment of delivery of co-production elements - extent met in three selected intervention sites ('local set-up' phase)

Intervention <i>co-production components and processes</i>		Co-production constructs	Enterprise (Eastgate Park)	Voyager (MidCross)	Discovery (Northarms)
<p>Project co-ordinator identifies and recruits people from within the local intervention site as 'Community REACH volunteers' and maintains volunteer retention throughout the life of the intervention with support from community organisation.</p> <p>The extent to which:</p> <ul style="list-style-type: none"> - volunteers were recruited from the local community; - the community organisations has access to key networks to enable diversity in recruitment, particularly from target groups; - the community organisation is committed to working reciprocally with volunteers and values their experiential knowledge equally; - the community organisation has considered and planned for sustainability with volunteers; 	<ul style="list-style-type: none"> - Reciprocity. - Releasing capacity and developing capabilities of people and communities. - Social capital. - Added value; 				
		<p>Project manager, co-ordinator and volunteers attend and participate in 2 days tailored training for Community REACH volunteer role</p> <p>Extent to which:</p> <ul style="list-style-type: none"> - the training is well attended and reflects the local community; - volunteers actively participated in all aspects of the training (theory and role play), sharing experiential and local knowledge; - the training met the needs of the participants (training matched to abilities of participants); - group moved towards developing group cohesion (developing relationships and supporting each other); - participants developed understanding of key intervention messages and overall aims of the intervention and are prepared for the volunteer role; 	<ul style="list-style-type: none"> - Reciprocity. - Releasing capacity and developing capabilities of people and communities. - Social capital. - Added value; 		
Fidelity score out of possible maximum of 63			34	56	33

Key: ■ Green square/s indicates extent to which intervention development deliverables were met/successful progress made.
 ■■■ = High fidelity; ■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence

*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

In relation to the implementation phase, the outreach team at Voyager *engaged with a wide range of different groups about the intervention*, including *key target groups*. Similarly, Discovery were able to *engage with a wide range of different groups* about the intervention but had low fidelity for *engaging with the key target groups* in Northarms. Enterprise had medium fidelity for *engaging with a wide range of different groups* including *key target groups*.

Fidelity indicators showed a positive response from community members to the intervention messages and outreach team, particularly in MidCross, where the community response helped to *tailor outreach activities*. In Eastgate Park and Northarms innovations to outreach activities generated by community response were less apparent. Quality of the engagement across all three sites was medium to high, intervention messages were embedded through reciprocal interactions and volunteers in all three sites showed medium fidelity for commitment, active participation and adding value. The *level of support* volunteers received to deliver their role and in *developing new skills and competences* to advance their personal goal varied across the 3 sites. Generally, support for volunteers at Voyager and Enterprise was medium to high, compared to Discovery where volunteer support was low to medium. Volunteers at Voyager had a high level of *support to use and develop their assets* and capabilities and reported *improved levels of confidence for volunteers* as a result of participating. This contrasted with Discovery where fidelity was low for these indicators, as well as for *volunteers improving their social networks* and *connection to their local community*. At all 3 sites, there was medium fidelity to *improved volunteers' health literacy* as a result of their participation in the intervention.

Voyager had a high level of adherence to *activities to tailor the intervention to the local area* and *working with local stakeholders to embed the intervention more widely*. Fidelity was high across all indicators. At Discovery adherence to these indicators was low, the organisation did less work in relation to *tailoring outreach activities* and *working with local stakeholders to ensure intervention messages were embedded* at all levels within the local community. Enterprise had greater adherence than Discovery in their ability to *work with local stakeholders to support the intervention* and *embed intervention messages more widely* in the local area, but had low fidelity to the extent to which *outreach activities were tailored in the intervention site*. In terms of *sharing learning and providing*

feedback openly about the 'on the ground' experiences of delivering the intervention, Enterprise and Discovery both found this more difficult to achieve than Voyager; and also, in *maintaining an ongoing dialogue between the university team*. However, all organisations had medium adherence to *attending and participating in the pan-REACH project workshops* to share learning and experiences about implementation, discuss issues and identify solutions. Enterprise had a higher fidelity for *volunteer representation* at these events.

Table 12: Fidelity assessment of delivery of co-production elements - extent met in three selected intervention sites (6-month implementation phase)

6-month implementation phase	Intervention co-production components and processes	Co-production constructs	Enterprise (Eastgate Park)	Voyager (MidCross)	Discovery (Northarms)
	Engage with a wide range of community members about the intervention. Extent to which: - outreach team was able to engage with a wide range of different groups within the intervention site; - outreach team was able to engage with target groups within the intervention site; - community members responded to intervention messages and outreach team; - quality of engagement – embedding intervention message through reciprocal interactions; - response from community members add value to intervention/leads to innovation; - volunteers are committed, actively participate and add value;	- Reciprocity. - Collaboration and partnership			
	Community REACH volunteers are supported in their delivering their role, in their personal growth through developing new skills and competences, and in next steps. Extent to which: - volunteers were able to use and develop their assets and capabilities; - participating improved volunteers' health literacy; - participating improved volunteers' levels of confidence; - participants made new friendships and relationships and built social networks; - participation led to improved community connection - participation led to improved personal outcomes for volunteers (employment, education, training; volunteer roles)	- Reciprocity. - Releasing capacity and developing capabilities of people and communities. - Social capital. - Added value;			
	Community organisations draw on their local knowledge and expertise. Extent to which: - co-ordinators tailor outreach and engagement activities in each intervention site; - work with local stakeholders to provide an advisory role to the intervention to help support efforts to orientate local systems towards the promotion of early initiation of antenatal care; - project co-ordinators work to embed intervention messages at all levels within the local community through local connections, networks and languages	- Reciprocity. - Collaboration and partnership. - Social capital. - Added value;			
	Support the development of the intervention by sharing ongoing learning and feedback of 'on the ground' experiences of delivering the intervention. Extent to which: - community organisations share learning and provide feedback openly; - there was ongoing dialogue between the university team and community organisations;	- Reciprocity. - Collaboration and partnership. - Added value;			

Key: ■ Green square/s indicates extent to which intervention development deliverables were met/successful progress made.
 ■■■ = High fidelity; ■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence

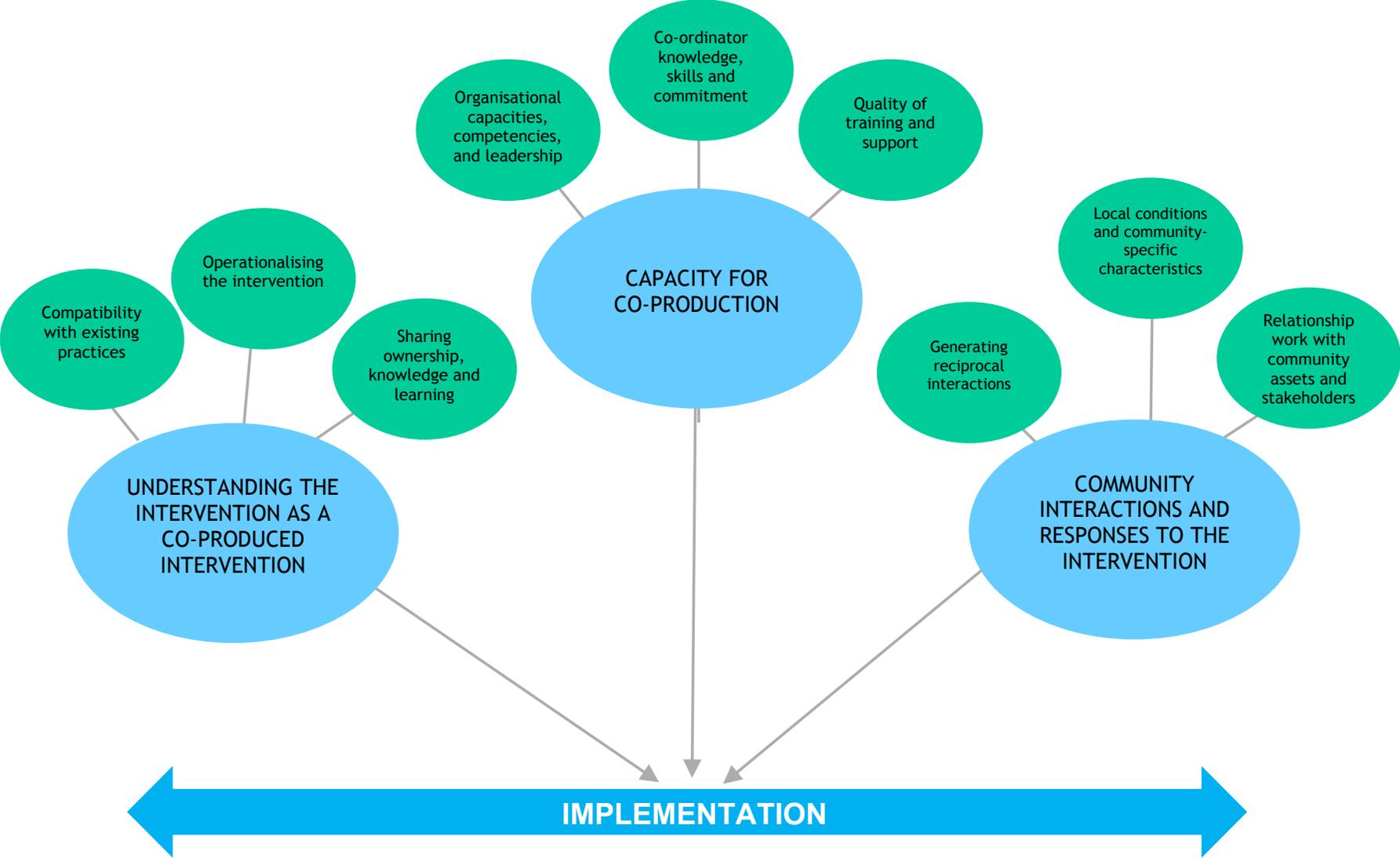
*A worked example detailing the determination of fidelity scoring is presented in Appendix 7.

5.3. Findings from the thematic analysis

Key themes have been identified through the thematic analysis of the data set and by drawing on the current literature in these areas; they are: Understanding the intervention as a co-produced intervention (section 5.4); Capacity for co-production (section 5.5); and Community interactions and responses to the intervention (section 5.6).

These themes are summarised in a thematic map below in Figure 9. and findings are set out in detail in sections 5.4, 5.5 and 5.6

Figure 9. Thematic map representing themes relating to factors that affected the implementation of the Community REACH intervention across three intervention sites



5.4. Understanding the intervention as a co-produced intervention

This theme captures how each of the community organisations understood the intervention as a co-produced intervention in relation to how to achieve the desired outcomes of intervention. The extent to which each of the community organisations understood the intervention as a co-production process was shaped by: (i) *Compatibility with existing practices* of the community organisation; how they set about (ii) *Operationalising the intervention* and the way in which traditional hierarchies between ‘commissioner’ and ‘service’ provider were negotiated to enable (iii) *Sharing of ownership, knowledge and learning*.

(i) Compatibility with existing practices

The only interviewee to bring up the term co-production without prompting was Nadine, the project manager at Voyager, who discussed the organisation’s interpretation and the wider implications of the term:

...the organisations view of co-production is very much working with others on an equal basis to look at what the challenge ... is and look at the best way to go about working on that. So, we actually see the co-production ... ongoing with the people we’re involved with... (Nadine, Project Manager, Voyager)

Nadine also commented on the frequent, in her view, misuse of the term in the context of commissioning and tendering:

There is an awful lot talked about co-production within commissioning ... at the minute that is not co-production. It is...a formal consultation on stuff that has already been designed... (Nadine, Project Manager, Voyager)

Nadine’s comments showed there was already a good understanding of the concept and practices of co-production at Voyager.

When asked about their understanding of co-produced health interventions, both project managers at Discovery and Enterprise described being familiar with the term but offered no further elaboration of their understanding of the term or their experience of it in their work. This suggested that they were not confident in their understanding of co-production or use of the term to describe their participation activities:

Yes, co-creation, we do, because for example, the work I'm doing with [name of organisation] is co-creating health in [name of country] so, we do understand it, yes (Cynthia, Project Manager, Discovery)

I think it [Community REACH] is...Yes, I'm familiar with it, I do know this term... It's [Community REACH] more co-produced. (Alina, Project Manager, Enterprise)

Co-ordinators only referred to co-production when asked directly what the term meant to them. Naomi, at Voyager referred to co-production when discussing the support she was receiving from Voyager to implement the intervention.

The way in which the intervention was communicated may have contributed to these differences in understanding and perception about the intervention. When discussing the intervention with the community organisations, the university commissioning team rarely used the term co-production, instead using phrases such as *working collaboratively, learning from you, sharing knowledge and recognising your expertise*; while often, at the same time, also setting-out project deliverables, which may have led to a conflation of meanings about the intervention.

Nadine's comments demonstrated an understanding of the broader scope of the intervention as a co-produced intervention. Nadine was interested in the wider strategic potential of the intervention model, how Voyager could learn from it.

In contrast, Discovery and Enterprise conceptualised the intervention as not dissimilar to their current volunteer models which also aimed to raise awareness around health issues. At Discovery, both Cynthia and Grace described the intervention as being the same as their existing volunteer project:

'As far as I was concerned it was part of community engagement, providing information and advice to the community, the project is not especially specific as such, it is basic information about health and wellbeing..., it's not different from what we have done with wellbeing ambassadors. (Cynthia, Project Manager, Discovery)

In not differentiating the intervention from their existing volunteer models, both organisations focused their approaches more closely to meeting the performance deliverables, set out as part of the commissioning process.

Voyager's approach to the intervention was flexible and adaptive, and focused on the relational dimensions, quality of engagement and embedding intervention messages at all levels the community.

Discovery's existing practices were more compatible with the opportunistic, informal street engagement component of the intervention design, rather than the planned, relational components of developing local networks to support and embed the intervention more widely in the community. This approach was driven by the desire to meet the commissioning deliverables i.e. '*supporting each volunteer to have at least 50 conversations per month*'. Discovery were one of the few community organisations regularly reaching the project deliverable. This performance-driven approach could potentially have led to more people being reached and broader dissemination of the intervention message through the intervention site.

Enterprise's approach to implementation attempted to combine both the structured commissioning deliverables and relational co-production components of the intervention. Alina described the informal working practices at Enterprise as '*grassroots*', reflecting the organisation's volunteer-led model which emphasised empowerment through nurturing long-term relationships and devolved decision making and oversight:

'...this sort of organisation is grassroots... they build up with the community...empower them, so they are the main part...working here is a different culture than working in a private sector or the government because everyone's from the community and I think this is the culture here... we are more like a family. It is more social. (Alina, Project Manager, Enterprise).

However, Alina and Ginny both commented that Enterprise's values and working practices made implementing aspects of the intervention challenging. Their existing volunteer-led model required a more flexible and less formal approach in

relation to expectations of volunteers (e.g. availability to commit to a regular pattern of volunteering to meet conversation targets), it also required time to build relationships:

'From my experience...because these are people who you wanted to help in the community, so, if you recruit them, you need enough time to get to know them, to support them in a way that empowers them in order to grow in the future..., it takes a minimum of six months...' (Alina, Project Manager, Enterprise)

These findings highlight the range of abilities among the community organisations to integrate the intervention into their normal working practices.

(ii) Operationalising the intervention

The co-ordinator role

The co-ordinator role was pivotal in operationalising the intervention 'on the ground' and was more involved than had perhaps been appreciated by some of the community organisations. Understanding the scope of the co-ordinator role, and the skillset and commitment needed was fundamental to the community organisations' ability to operationalise the co-ordinator role effectively.

At Voyager, the co-ordinator was recruited externally and specifically for the role. Nadine demonstrated Voyager's understanding of the strategic nature of the role – the importance of networks and connections to embed the intervention at different levels within the community.

In contrast, both Enterprise and Discovery recruited co-ordinators whose professional experience as midwives and skillset were more relevant to the topic of the intervention rather than the coproduction elements and reflected the organisation's understanding and perception of the co-ordinator role, as:

'...providing information and advice to the community, the project is not especially specific as such, it is basic information about health and wellbeing.' (Cynthia, Project Manager, Discovery)

At Discovery once implementation was underway the co-ordinator position appeared to be functioning on an ad hoc basis shared by a number of staff members, meaning it was not fully clear who had responsibility for the role:

'I run alongside Grace in coordinating it...but because Cynthia has clients as well, so I do four hours a week around the project... It's not really full time ...' (Vivienne, Co-ordinator, Discovery)

The ad hoc approach to the co-ordinator role reduced both Discovery's ability to support the role within a formalised structure and its ability to be strategic in its approach to outreach activities and relationship-building with community stakeholders.

At Enterprise, the perception of the intervention as '*... a volunteer-led project*' and the culture of community capacity building and internal staff development led to the co-ordinator role being filled internally by an existing staff member. However, the role ended up being filled by default and by a co-ordinator whose expertise lay in her professional background as a midwife and who found delivering this type of community-centred intervention challenging:

'I just didn't have the physical time to go with them... it's been really difficult just juggling it all. I think it's a full-time job. I think if you try and do it along with your other work, it doesn't work ...' (Ginny, Co-ordinator, Enterprise)

These findings demonstrate the different values placed on the co-ordinator role and reflect how the organisations made sense of the intervention and the requirements for implementing it. The literature highlights the role of key individuals (including front-line staff, co-ordinators etc) in influencing the delivery and quality of implementation of co-produced interventions (Needham et al., 2009; Boyle and Harris 2009).

The role of local volunteers

All of the community organisations were experienced in working with and managing volunteers and shared a range of values and perceptions of the importance and benefits of volunteerism; including civic duty - a citizens' responsibility to give something back to the community; as a route to

employment, as an opportunity to improve professional skills and/or improve one's chances of finding work; and as an equal partnership – seeing volunteering as a mutual partnership that recognises and values different skills. The dominance of different viewpoints and dearth of understanding and valuing, across the community organisations, of the importance of recruitment and development of local volunteers as community assets and as an important part of community capacity building that enables co-production, influenced how the Community REACH volunteer role was managed.

The perception of volunteering as a civic duty was most strongly held by Discovery:

'... I think the way that society is going and all the hard work the communities are putting in to volunteering, people should be more committed, I don't know, they said that I am very hard but I think citizens should be more committed. I mean we are here, the community has given a lot to us... (Cynthia, Project Manager, Discovery).

All organisations perceived the role of volunteering as a route to employment. However, Discovery viewed this dimension from a more transactional perspective, reflecting the organisation's underlying performance-related attitudes and motivations:

It was explained that each volunteer would be expected to spend 5 hours per week volunteering ...and ... aim to complete 30 conversation forms ..., emphasising that if they don't do the forms, they won't get their stipend. [from field notes at volunteer training session 18/05/2017]

In contrast, Voyager and Enterprise conceptualised the volunteer role as an equal partnership and described their volunteer models as being volunteer led, with the organisation facilitating volunteers' development through provision of training, support and resources. This suggests recognition of local volunteers as community assets to be developed and supported and worked alongside in coproduction activities. However, the informal culture and governance structure at Enterprise appeared to create assumptions of volunteering as 'doing

something for nothing' rather than people entering into a reciprocal relationship with the organisation:

'...because they're not paid members of staff, they're not going to act like a paid member of staff...' (Alina, Project Manager, Enterprise)

At Voyager, Nadine described the organisation's cultural shift from a more traditional perspective of volunteering, to its current position of working alongside community residents to develop opportunities, sharing expertise and resources to enable them to achieve their objectives; with volunteers being considered on the same level as staff members:

'... it's not a traditional volunteering role, we call it the social action type model... volunteers are seen as, in terms of status and contribution, seen as equal to paid staff members.' (Nadine, Project Manager, Voyager)

As demonstrated by these findings, organisational attitudes towards volunteers as well as the organisations' embedded values, social processes are crucial factors affecting the role of volunteers in interventions using co-production approaches and the way in which they are managed, as these are the factors that constitute the "nurture" aspects of volunteer coordination (Hager and Brudney 2011).

(iii) Sharing ownership, knowledge, and learning

Regular communication about the progress, opportunities and challenges of implementation was encouraged by the university commissioning team to enable community organisations to be part of the ongoing co-production of the intervention and develop a sense of ownership. Channels for communication included the more conventional processes of regular monthly feedback reports (part of the operational deliverables), email and phone communication, and during observations of outreach activities as part of this research project. Three pan-REACH learning events were also held using less conventional world café and appreciative inquiry type approaches which are more in tune with the principles and practices of co-production.

However, it appeared that the commissioning process and operational deliverables led both Discovery and Enterprise to engage less with the collaborative, co-production components where they were encouraged to bring their own knowledge and ideas to bear, adapting the intervention to the local community. Both responded to the commissioning team as a funder rather than a collaborator. Ginny, at Enterprise, perceived the Community REACH as being ‘top-down’ intervention with the University imposing the intervention on the community rather than it being co-produced:

...it doesn't feel like it's co-produced in the community, it feels like we've been given a project to do and we're telling the community this is what the project is... the organisations that we're approaching don't know about it...the community is not part of producing this project, ...it's a top down thing... (Ginny, Co-ordinator, Enterprise)

Enterprise, for example, were not confident in feeding back about the challenges they were facing:

'But we've very much felt that no, they're paying us this money and they see us as a volunteer organisation that we should know what we doing. ..., there were ...instructions and guidelines that we had to stick within ...but at the same time there was confusion ... and I wished they'd have been a bit more approachable at the beginning'. (Ginny, Co-ordinator, Enterprise)

Ginny's comments suggest Enterprise did not feel the relationship was reciprocal at this point.

At Discovery, Cynthia and Grace viewed collaboration pragmatically, concentrating their feedback mainly on the practical issues of implementation rather than issues which might impact the wider intervention strategy:

'...it's dealing with challenges when we find them, like when we wanted more T-shirts, they sent it, things like that...I know that they're there if there is anything we need...'
(Cynthia, Project Manager, Discovery)

A key challenge, fed back by all community organisations, concerned ability to reach the initial target of 500 conversations per month. Many felt these targets were unrealistic and some felt the intervention prioritised targets over the

engagement with local people in more reciprocal conversations. This led the university commissioning team to ask community organisations to re-focus outreach towards the quality of the conversations rather than the quantity. However, Discovery's approach to implementation remained fairly unchanged.

In contrast, Voyager had the confidence to know what elements were problematic and to find their own solutions. Naomi felt comfortable to feedback about her learning experiences. Naomi felt focusing implementation on the relational work would be more effective in addressing the barriers to ANC and by working with key influencers within the community to cascade and embed the intervention messages. For Naomi the potential of the intervention would be restricted by relying solely on volunteer conversations:

'...having conversations is one thing...you need to work at it at every angle...an outreach project should not rely on having conversations within the community. That community includes health and social services and how do we have those conversations with them so that they understand why this is relevant to them.' (Naomi, Co-ordinator, Voyager)

Naomi's comment demonstrates that she understood the importance of relationship work in developing trust and community buy-in and that she had begun to take ownership of the intervention, feeling confident to suggest improvements.

Some of the project managers and co-ordinators would have preferred more opportunities to communicate face to face with the university team. Alina, at Enterprise, felt providing some of their feedback at meetings with the university team would have been beneficial to *'make joint decisions on how we can overcome any challenges'*.

The pan-REACH events provided an opportunity to facilitate the relational aspects of the co-produced intervention by bringing together all those involved in its implementation. Three pan-REACH events were held and brought together members of the university team with project managers, co-ordinators and volunteers from across all ten intervention sites. Community organisations were invited to input into the agenda and the events involved updating participants on

project developments, inviting participants to provide their own updates and insights, using group activities to talk through challenges and find solutions. These new insights led to modifications in the intervention, tailoring implementation to the local the local area. Attendance at these events was good, with project managers, co-ordinators and some volunteers from the three community organisations attending at least one event. All those who attended said they had enjoyed attending and found them beneficial on the whole:

I think it was good setting to meet with other organisations and talk about their experiences and share knowledge. That was good.... I felt there was some objectivity, openness that people were able to say that is not working for us, can we change that...I think that was good. (Cynthia, Project Manager, Discovery)

Some felt the events were too facilitated and not enough space was given to community organisations to freely discuss some of the issues they were experiencing:

I would have really loved to have a better opportunity to talk... a real mingling session...I really wanted to have a conversation with other co-hosts to say how are you motivating your volunteers...what insight do you have...what tools do you use...what approaches do you use...I didn't get that opportunity (Naomi, Co-ordinator, Voyager)

However, Nadine at Voyager felt the events were in line with the principles of co-production and were important for capturing the knowledge and insights of volunteers:

"...the project would not exist without the work and the commitment and the knowledge and expertise of the volunteers. In terms of the whole thing of co-production, ... You could argue...that they're the people who are key to the success of the project. (Nadine, Project Manager, Voyager)

These findings emphasise the potential consequences of performance indicators and linking funding to clearly quantifiable outcomes in reinforcing the power and hierarchical differences co-production seeks to equalise (Flinders et al., 2016). The findings also show the importance of shared learning and feedback in generating innovation through the introduction of new ideas and insights (Clarke

et al., 2018; Fredette et al., 2007). Discussion of these findings is further developed in Chapter 7.

5.5. Capacity for co-production

This theme captures the key factors in relation to how capacity for co-production impacts on achievement of the desired outcomes of the intervention. This was shaped by: (i) Organisational capacities, competencies, and leadership (ii) Co-ordinator knowledge, skills and commitment and (iii) Quality of training and *support*

(i) Organisational capacities, competencies, and leadership

Organisational competencies, capacities and leadership findings relate to the ability of the community organisations to realise the coproduction elements in implementation of the intervention.

Community connections and local knowledge

Capacity for using co-production in implementation was enhanced where community organisations had good community connections and local knowledge. The ability to draw on existing networks helped in mobilising local assets, including supporting volunteer recruitment and providing outreach and cascade opportunities for wider engagement with, and reach into the community about the intervention. Accessing existing networks helped recruit a more diverse range of volunteers which, in turn, increased the potential to reach different ethnic groups within the intervention site.

The development, organisation and maintenance of community networks differed between community organisations. Nadine described Voyager, as being 'well connected', with an extensive database of local community organisations, charities and 'below the radar' contacts. Voyager had also developed connections specifically within the intervention site, collaborating with a local partnership group on various health-related projects. Nadine recognised the breadth of Voyager's local networks was significant in supporting their ability to deliver the intervention, providing Naomi with access to the key influencers and

their networks in the community. Naomi was able to work on building relationships within these networks, recruit a volunteer team and begin to foster a *sense of ownership* in the intervention by involving them in the initial stages of the implementation:

'...the other thing that I think was crucial for Naomi's success...was actually her linking in with key community influences...she keyed in...with some of the key women in Bangladeshi community in that area. And it's through their networks...the recruitment started and then, they started to own it which is a co-production type principle. She had to work to get their trust but once that was there, I think the recruitment was quite impressive, especially during Ramadan'. (Nadine, Project Manager, Voyager)

At Discovery and Enterprise, rather than being a collective resource at organisational level, community connections and local knowledge were more individualised to specific staff, making it more difficult to leverage for organisational work. Alina at Enterprise described knowing *'every single corner'* of Eastgate Park and hoping *'everyone knew her'*. However, Ginny was unfamiliar with the intervention site and found it challenging to recruit a volunteer team within the set-up timeframe and without the support of existing relationships or access to key influencers; she had to resort to recruiting volunteers across from other projects:

'...I actually didn't know Eastgate Park at all... we were also aware that we were trying to get volunteers to get to reach hard to reach communities... it was hard...So I've ended up... literally went through all our folders looked for any volunteers that we've got, that we know worked well within other projects that lived in Eastgate Park'. (Ginny, Co-ordinator, Enterprise)

At Discovery, Cynthia and Grace described having good local knowledge and connections. However, they were both absent for periods of time, which meant their collective local knowledge and connections could not be fully utilised by the remaining outreach team. Cynthia explained that historically the organisation had found it difficult to access certain population groups:

'...what we haven't done a lot is to have access to community groups in their meetings... because some communities are not so open. When I went to the Mosque, they said we'll get back to you and they never do... it's quite difficult to penetrate a community...I tried....

So, we have to rely on catching people on the streets. (Cynthia, Project Manager, Discovery)

Cynthia's account highlights the difficulties in negotiating access to different ethnic groups. Without the benefit of pre-existing connections to help navigate and understand complex social and cultural barriers, Discovery's approach to implementation relied on opportunistic street engagement rather than spending time on the relational components of the intervention.

Leadership

Consistent and responsive leadership support had a positive influence on implementation by providing direction and input on how to approach the intervention to ensure the co-production elements were met. At Voyager, Naomi described feeling '100% supported' by Nadine and the wider team which gave her confidence in her abilities to deliver the intervention:

'...she's [Nadine] ...I think she has enough confidence in me to be able to just get on with it...and I really appreciate that. But she's also equally there and so are the other members, in case I need...'. (Naomi, Co-ordinator, Voyager)

Leadership support at Discovery and Enterprise focused on project oversight to ensure key deliverables were being met, rather than in ensuring the coproduction elements were met. Cynthia at Discovery described her role as making sure '*things are done according to the specifications that REACH wants*'.

Enterprise's more devolved management style meant Ginny sometimes lacked the relevant support and direction needed to implement some components of the intervention, leaving her feeling isolated and not knowing how to proceed in some areas:

'...I didn't really know what the project was or how we could deal with the challenges...It's been a steep, it's been quite a steep learning curve for me as well'. (Ginny, Co-ordinator, Enterprise)

The findings presented here suggest that there are important considerations in commissioning of community organisations in terms of their organisational

capacity to engage fully in co-production processes. Discussion of these findings is further developed in Chapter 7.

(ii) Co-ordinator knowledge, skills and commitment

The knowledge and skills of the co-ordinator was vital in ensuring the co-production elements of the intervention were delivered. Of particular significance was the ability of the co-ordinator to support and motivate volunteers to carry out their role, in general, and in realising the co-production elements.

The co-ordinator was key to facilitating opportunities for social interactions, shared learning and skill development among the volunteer team, which volunteers had identified as being an important motivating aspect of their participation. For example, volunteers were less willing to undertake outreach activities without the presence of their co-ordinators:

‘Actually, her presence really matters. It makes the group have some motivation. If she’s not there, I don’t think we can continue doing what we’re doing...’ (Almaz, volunteer, Voyager)

At Enterprise, Ginny was unfamiliar with the intervention area and had few local connections to help support implementation, so she developed a more collaborative approach with her volunteer team. She worked with her volunteers, drawing on their local intelligence to map local assets and develop the outreach plan. In return, Ginny participated in outreach activities providing her professional expertise to support and give credibility to the volunteers to carry out their role:

‘It’s an equal thing because I come in, I was there with my t-shirt...I’ve let the volunteers take the lead. And I’ve said to them listen, I don’t know this area, you’re the ones in the community, you know. And they’ve been excited to say, this is a good place to go.’ (Ginny, Co-ordinator, Enterprise).

This collaborative approach was seen as a way of balancing the relationship between the co-ordinator and the volunteers, and more closely reflects the literature on co-production as a way of transforming relationships of power,

control and expertise. Ginny viewed her volunteers as equal contributors and valued their local knowledge and experience (Boyle and Harris 2010).

(iii) Quality of training and support

Training and support were considered as an important investment in participants involved in implementation to help create competencies in the co-production approach, a sense of ownership in, and commitment to, the intervention. The training and support provided was both formal i.e. two days training for all co-ordinators and REACH volunteers, and informal i.e. open dialogue with the University team and support structures for volunteers provided by the community organisation and co-ordinator.

Volunteer attendance at each training session was fairly similar (between 10-14 volunteers) across the three community organisations. However, the level of participation in the training by co-ordinators varied. Co-ordinators in MidCross and Eastgate Park (later sessions), participated fully in the training, which in turn helped to promote volunteer commitment and enthusiasm towards the intervention and volunteer role and supported the role of the trainer:

Naomi was very good at supporting volunteers and Alison [trainer] to reinforce why the intervention is important at the local level – seemed to generate enthusiasm and buy-in by volunteers [from field notes of training at MidCross 07/06/2017]

Northarms and Eastgate Park (earlier sessions) co-ordinators did not stay for the full training session, which may have been a missed opportunity to get to know the capabilities, local knowledge and potential support needs of their volunteers to help inform their subsequent outreach plans. In addition, as the main point of contact for volunteers, any lack of co-ordinator participation affected volunteers' commitment to attend both training days which was crucial to their understanding of the volunteer role:

...it was a shame Rahima [co-ordinator] didn't stay for the whole session to provide support for those women that needed it and get a better sense of how the volunteers performed [from field notes of training at Eastgate Park 28/02/2017]

...only 6 of the volunteers' turned up for the second training day, Rahima is on leave and no one from Enterprise had contact details to check volunteer's attendance [from field notes of training at Eastgate Park 07/03/2017]

Active participation was encouraged through the training activities and enabled participants to feel safe to share their experiences and ideas in an environment that was supportive:

The new young volunteer ... has some experience of living in hostels and knows of 2 or 3 she could go to – which is really great in terms of getting access to 'hard to reach' groups. [from field notes of training at Eastgate Park 16/05/2017]

The main focus of the training was on 'signposting' women to ANC early and 'having conversations' with people. In Northarms, this was more strongly emphasised because the planned outreach approach through street engagement had been set out by the co-ordinator at the start of the session. This effectively closed off wider discussions to draw on volunteer's knowledge concerning making use of community assets and networks, that took place in the training at both MidCross and Eastgate Park.

Alison says that the plan is to 1) enable you to be volunteers who can signpost women to go for ANC early; and 2) learn how to have the conversations with people where you can find them. [from field notes of training at Northarms 18/05/2017]

Highlighting the role as 'signposting' was to ensure participants did not step outside the boundaries of the role by providing advice that they were not medically trained for. However, much of the content of the training concerned the medical aspects of ANC such as, scans, tests and medical conditions. The trainer explained to participants that this was to enable them to have a '*deeper understanding yourselves of why people might not go to ANC and what the issues might be if they don't so that you can better direct them*' i.e. increasing relevant health literacy. Subsequently, during outreach activities, it was observed that many of the volunteers focused on the medical aspects of ANC in their conversations with community residents. It was suggested that there could have been a more a holistic message around health promotion and awareness-raising

to reflect the nature of the intervention and the work the volunteers would be doing in their communities:

...maybe the training is...to get all the volunteers to say why don't people...have early pregnancy referrals and just explore that a bit and explore the barriers more rather than focussing on the sort of the antenatal medical side. ... about reaching the men and the mother in laws and those people that sort of in control of certain family dynamics and stuff (Ginny, Co-ordinator at Enterprise)

There was concern that on completing the training some volunteers still did not fully understand their role and would have benefited from follow-up training further into delivery.

Participating in the training helped to release and improve individual and organisational capacity (Cox et al., 2018; Jensen and Krogstrup 2017). These findings suggest that the training was valued by participants, enabling them to acquire new skills and knowledge through their shared learning experiences. Developing health literacy in relation to ANC helped participants make sense of the intervention and aided the development of shared understanding and collective action (Harris et al., 2015). Palumbo and Manna (2018) argue that individual and organisational health literacy are essential to facilitate equal collaboration in a co-productive partnership.

5.6. Community interactions and responses

This theme captures the key factors in relation to how community interactions and responses impact on achievement of the desired outcomes of the intervention. This was shaped by: (i) *Generating reciprocal interactions* (ii) *Local conditions and community-specific characteristics* and (iii) *Relationship work with community assets and stakeholders*

(i) Generating reciprocal interactions

Reciprocal interactions and connections describe the multiple layers at which reciprocity occurred from the interactions of the intervention in the community. Reciprocity related to the exchange of information that occurred between the

different actors (i.e. community members, volunteers and other community-centred organisations) implementing and interacting with the intervention.

The ability of the outreach teams to generate reciprocal interactions with the community led to more meaningful engagement. Communicating the intervention messages was a complex process and involved the outreach teams working together in co-production, using their learned knowledge and training, personal experiences and interpersonal skills, to get people to stop and engage with them about the intervention.

Across all three intervention sites co-ordinators and volunteers reported receiving a positive response from many of the people they spoke to about the benefits of early care in pregnancy. They felt that because pregnancy is an issue that affects all cultures and community groups many people recognised that the topic was important to discuss:

'...I remember somebody I spoke to..., I explain, I gave the leaflet and he came back again and asked for more information. That was a man. And he said yes, this is important, I wish my wife was here'. (Joyce, Community REACH volunteer, MidCross)

Whilst most people the outreach teams spoke to said they were aware of the importance of ANC, some said they were not aware of the benefits of attending for care early in pregnancy. Other people said they did not know about the self-referral options; or the wider support services available through ANC, such as mental health or nutritional support:

'...many people saying they haven't accessed early pregnancy care because either they didn't know or they didn't think it was important. (Shazfa, Community REACH Volunteer, Northarms)

These accounts suggest that community members perceived the intervention messages as being of value. Community REACH volunteers introduced new information to many of the people they engaged with. They were able to participate in critical dialogue with them, within their own social and cultural context, around the issues of ANC and how and when to seek support in their local area (de Wit et al., 2017, Sykes et al., 2013). Through these interactions'

community members are able to turn abstract health facts into meaningful, practical information (Harris et al., 2015)

The ability of the outreach team to generate reciprocal interactions with community members was enhanced when: outreach activities took place in a specific community setting or venue; volunteers spoke to people in their own language; and by the skills and experiences of the outreach team.

Engagement in specific settings or venues led to longer conversations and a greater exchange of information. Co-ordinators and volunteers reported that they [volunteers] felt more comfortable approaching people in a specific setting or venue, such as a health centre or local library. People were more inclined to engage with the intervention messages, because they had more time to listen and were more relaxed talking about the topic within these settings. Volunteers also felt the context of a healthcare setting made conversations seem more '*appropriate*' than when they tried to speak to people on the street:

'...and if it's in the street if someone comes up to me...I put myself in it and said about pregnancy care I would think it was the wrong place to talk to...so someone where people are sitting down relaxed'. (Nasreen, Community REACH Volunteer, Eastgate Park)

These settings provided conditions for more relational connections and exchanges to occur and potentially new levels of understanding about the intervention messages, that was more difficult to achieve during shorter, quicker conversations on the street. Ginny at Enterprise felt these settings enhanced the '*quality*' of conversations as volunteers appeared more credible. Receiving more positive responses helped motivate the volunteers. Outreach in these settings also helped develop trust based social networks for both the volunteers and the community organisation with local community assets:

'...they preferred those conversations, the positive feedback...has come when they've done the health information stalls...they're sitting in the GP surgery...and they can talk in a safe environment.... The approaching people on the street thing, some of them did it really well but people just didn't want to engage or they weren't as keen'. (Ginny, Co-ordinator Enterprise)

Volunteers who were able to speak to community members in their own language understood the differences in norms and values and were able to deliver more culturally appropriate intervention messages. They created rapport and trust more easily and could use everyday terms. This helped to overcome some of the cultural and language barriers and increased the potential for disseminating intervention messages to certain groups in the community who may not have been otherwise reached:

'...we have been talking to different types of people... and that is why I speak some of the time in Arabic because some of the women don't speak English... one...women, I was talking to her in English and she could not understand and then she said to the other one in Arabic, you know, I don't understand what this woman is talking about. And when I started speaking Arabic, and she understood...' (Joyce, Community REACH Volunteer, MidCross)

However, Almaz, a volunteer in MidCross felt concerned about the ability of some of the volunteers to deliver the intervention messages correctly in their own language. She observed some struggled to explain in English the intervention messages they had been communicating to their community. She felt some of the key points may have got lost in translation and it was important for the coordinator to be able to check how the volunteers had presented the information during outreach activities:

it is advantageous to have a Bengali speaking person, it is also good to have someone who can speak both languages rather than just one language if the information is done properly, has it made any changes and did they get the information'. (Almaz, Community REACH Volunteer, MidCross)

Generating reciprocal interactions was more difficult where the value of the intervention messages was perceived to be of no value, where cultural and social norms were a barrier and where outreach teams had not managed to gain access to particular community groups, for example Eastern European.

The outreach teams also reported finding it particularly difficult to engage men in the intervention messages. Volunteers said that men were less willing to stop

when they heard the intervention was about ANC, because they perceived the issue as not being relevant to them, particularly younger men:

'Men are very difficult to speak to... men will always ask you...why antenatal care, we're not married, because they don't understand...and I say no, this has to do with everybody, all of us in the community'. (Joyce, Community REACH Volunteer, MidCross)

Some of the female volunteers reported finding it challenging to approach men, partly because of their own cultural norms. The only male Community REACH volunteer found that by linking the relevance of the intervention messages to helping a female family member, he was able to demonstrate why ANC might be an important topic to the men he spoke to.

Enterprise was established to support women from the Bangladeshi and Somali communities and historically focused their work within these communities. Therefore, gaining access to new community groups as they move into the local area may be difficult if connections or reputation have not been developed within these communities. Other comments from Ginny suggest that some communities may have different ideas about the culture of volunteering and may not recognise the value of formal volunteering. Further consideration in the intervention design may be appropriate to plan in advance how the messages could be best disseminated within these communities.

(ii) Local conditions and community-specific characteristics

An important finding was that in order to realise the co-production elements of the intervention, local engagement plans needed to be adapted to meet local conditions and community specific characteristics.

These adaptations helped to enhance implementation of intervention, but also highlighted the extent to which the intervention design had flexibility to allow for these adaptations.

Differences in local characteristics and spatial infrastructure influenced how local residents used the community i.e. for living, shopping, working and socialising. These differences influenced the strategies used by the outreach teams to reach

and engage with local residents in the intervention. For example, Northarms was located in a suburban setting, with a greater geographical spread of infrastructure and housing, was more transport dependent and had fewer formal and informal community groups and organisations. Therefore, the outreach team adopted more opportunistic methods to engage with the local community. This mainly involved approaching people on the street, at bus stops or at the local supermarket, rather than through more formal community groups and networks. In contrast, MidCross and Eastgate Park were both inner-city locations with more connected infrastructures, higher density social housing and amenities, and a broader mix of formal and informal community groups and organisations. Both areas also had large Bangladeshi communities. In these two intervention sites, the outreach teams focused more on using their local community through local groups and networks and community assets to engage with local people about the intervention. In MidCross, despite its inner-city location, the outreach team noted that there were very few people on the streets. The team identified that accessing local residents through local community groups and networks would be the most effective way to engage and communicate the intervention messages, particularly to those target groups who had been identified as not attending care early:

‘the ladies [from Bangladeshi community] don’t go out...they live here...more than 20 years, they don’t speak the language...because they don’t go out, they don’t mix with people and they don’t get that information...so... if we go into the centres and try to arrange timing to get in touch with them, be patient with the process...then that will be successful I think...’. (Almaz, Community REACH volunteer, MidCross)

These accounts demonstrate the need to consider how local spatial structures may influence the co-production elements of implementation and identify appropriate methods of approach to ensure intervention effectiveness.

(iii) Relationship work with community assets and stakeholders

Co-ordinators and volunteers reported a mixed response to the intervention from local services and stakeholders, community organisations and businesses. Where community organisations had an existing relationship with a community

stakeholder or key influencer it helped facilitate access to informal and formal community assets and built support for the intervention within the local community. This meant that outreach teams had multiple channels through which to disseminate and reinforce intervention messages more widely within the intervention area.

In Northarms and Eastgate Park, participants reported finding GPs and healthcare services supportive of the intervention, allowing volunteers to engage with local people attending their services. Discovery had well established relationships with local healthcare services and, in addition, both the intervention co-design workshops and launch event had been held at the local combined healthcare and library, and therefore staff were already familiar with the intervention:

Staff in the medical centre and library are very friendly towards Raveena – they say hello – Raveena says she has become a well-known face in the library now. She says some staff seemed familiar with the project [from the co-design events or intervention launch?]. She also signposts people coming into the library to services – perhaps staff see her as an asset. [from field notes, observation of outreach activities Northarms 01/092017]

Ginny at Enterprise reported a similar response from the local medical centre, allowing volunteers to speak to local people in the waiting area, and inviting volunteers to participate in the centre's regular health stalls. Ginny felt her professional background as a midwife had been influential in facilitating access and gaining support from the medical centre:

'...I think midwives have a certain amount of respect within communities, so people might listen a little bit more and have that access (Ginny, Co-ordinator, Enterprise).

However, the volunteers discovered that women attempting to make early ANC appointments at the centre were being turned away by receptionists. They found that both the receptionists and the practice manager were not fully aware of the intervention's key message for women to initiate their ANC ideally within 10 weeks of pregnancy. Ginny felt this would be barrier to the effectiveness and

sustainability of the intervention in the local area, if local health services were not involved in the intervention at an earlier stage:

'...I think there needs to be a message to all the health organisations involved, from whoever is running the project, to say these are the NICE guidelines, that women should be seen before 10 weeks...the receptionist should know that from the start. They, more than anyone should know because actually women do go early and are turned away... then there is no point in encouraging women to do that if they're just going to be batted away at the first hurdle. (Ginny, Co-ordinator, Enterprise)

Naomi also felt earlier involvement of healthcare services was crucial in getting access and support. Naomi had been unsuccessful in gaining support for the intervention from local GP services, despite having strategic links within local commissioning and service provider networks. She described her frustration at the lack of response to her efforts of trying to get to speak the practice managers:

'One of the other challenges is GP practices. They've had the letters...I've called them actually five to ten times.... I've gone in physically and I've left a note, given my details, I've left a copy of the letter, I've emailed. I think you have to be really persistent and that is a real challenge... that's where there's a lot of learning...in terms of the responsiveness of the NHS...' (Naomi, Co-ordinator, Voyager)

Both Ginny and Naomi felt that more 'groundwork' would have been beneficial to establish connections, prepare healthcare services and build support for the intervention prior to beginning implementation. While a letter from the University team was sent to all GP practices in each intervention site introducing Community REACH and outlining the aims of the intervention, Naomi felt face-to-face communication would have been more effective in getting buy-in ahead of implementation.

Establishing a Local Action and Advisory Group (LAAG) was an important relational component of the intervention, designed to provide support for the intervention, with the LAAG acting in an advisory and facilitation role to implementation within the local community to enhance sustainability of the intervention. In practice this was challenging to organise as many stakeholders found it difficult to commit their time to participating within the intervention

timeframe. Co-ordinators reiterated that a more 'official' introduction to the intervention would have helped support their work in advance of implementation:

'The LAAG...was difficult...we were supposed to have one and then people couldn't make it... I think again...if we had the support of a bigger organisation to say that this is what's happening in all these places... I felt like we were making up our own version and that didn't give us any authority (Ginny, Co-ordinator, Enterprise)

These comments highlight the advance preparation and time required for relationship work within the co-production process. It also demonstrates the importance of all parties understanding the purpose and opportunities of such a partnership for building capacity and strengthening networks in the local community, in addition to providing strategic support, innovation and enhancing sustainability of the intervention.

Co-ordinators reported shifting their focus from trying to bring stakeholders together for the LAAG, towards connecting individually with organisations, local services and stakeholders, which co-ordinators viewed as a better use of the time they had to gain input and support.

Naomi at Voyager regarded the relational components of the intervention as central to embedding the intervention more widely in the community. Naomi felt a more effective approach was to share intervention messages directly with specific groups and communities and encourage them to cascade intervention messages through their own networks. She described this approach as "*moving away from having conversations to engagement*":

'I've had some amazing, amazing feedback and response from other areas of the community, the barbers still have their poster up, the salons still have their posters up, I've gone by to check and they smile at me there's a relationship there, the men still go in...it's a by the door where its visible any man walking in its still there'. (Naomi, Co-ordinator, Voyager)

Naomi felt that by developing relationships at the local level she was able to uncover specific community networks that she might not have found out about

otherwise. However, she acknowledged that this type of approach required innovative thinking and a greater investment of time to properly develop relationships within the local community and build trust and connections within marginalised, harder-to-reach groups:

'I just found last week he's a boxer and he teaches children to adults boxing and he has a community ...I'm going to use that as an opportunity to cascade the information to relevant groups to go into that boxing community and have a conversation ...it comes down to relationships that's all it is and I'm not saying I've mastered that... (Naomi, Co-ordinator, Voyager)

Uncovering and mobilising existing assets proved to be an important facilitator in the effectiveness of implementing and realising the co-production elements of the intervention in each site (Lam et al., 2017). As highlighted, the intervention was delivered in a *'living system'*, which included various actors (residents, service providers, businesses, local policy makers), all operating within the physical, socioeconomic and cultural local environment (Sheridan et al., 2010). The findings illustrate the potential for co-production in community-centred interventions to 'get stuck' without developing community trust at all levels, through early groundwork and relationship building to support 'buy-in' for the intervention.

5.7. Chapter summary

This chapter has discussed fidelity of implementation and key factors that affected the use of co-production in the implementation of a community-centred intervention - the Community REACH intervention - in three selected intervention sites. Findings focused on fidelity to co-production elements in implementation and key factors affecting the extent to which the co-production components of the intervention were implemented as intended.

Fidelity indicators provided a useful framework to understand the extent to which the intervention was delivered as intended, in relation to both the operational deliverables and the co-production elements. Findings showed differences in fidelity to both, across the community organisations and between operational deliverables and co-production elements

Thematic analysis of the qualitative data identified key factors affecting the extent to which the co-production components of the intervention were implemented as intended, across three main themes: understanding the intervention as a co-produced intervention; capacity for co-production and community interactions and responses to the intervention.

The findings presented in this chapter are discussed in detail in Chapter 7: Discussion

Chapter Six, which follows, presents the findings relating to the impact and experiences of participants involved in co-producing the Community REACH intervention.

Chapter 6:

Findings exploring the experiences of community members participating in a co-production process and the perceived impact of their participation.

6.1. Overview of chapter

This chapter explores the experiences of community members who participated in a co-production process to develop and implement a community-centred intervention – the Community REACH intervention and the perceived impact of their participation.

My analysis draws on data from interviews and observations from both the intervention development and implementation phases of the co-production process. Interviews were conducted with six community members who participated in the co-design workshops and twelve Community REACH volunteers who were involved in implementing the intervention. Analysis also draws on data from interviews with one agency consultant and one co-ordinator from university engagement team involved in intervention development; three community organisation project managers; and four co-ordinators involved in intervention implementation. Observations were undertaken of community engagement processes, activities and co-design workshops, and observations at nine volunteer training sessions and seven intervention activities across three intervention sites.

As described in chapter 3, in my role as a researcher I attended volunteer training sessions across the three intervention sites, as well as several outreach sessions. Through my observation of these activities I was able to see how some of the volunteers, in particular, developed in their roles over time, develop a rapport with them in preparation for subsequent in-depth interviews and gain an understanding of the context in which they were working.

Summary descriptions of the intervention sites, community organisations and participants' characteristics have been outlined in chapter 3 section 3.4.

The main themes presented in this chapter have been identified through a thematic analysis of the data set and in context of the current literature on social capital, community connectedness and volunteerism.

6.2. Involvement of community members in the co-production process

The Community REACH intervention aimed to use a co-production approach to activate individual and community assets and build capacity (personal growth and skills development), build social networks (social capital) and promote new perspectives (social norms) in relation to the value of early initiation of ANC.

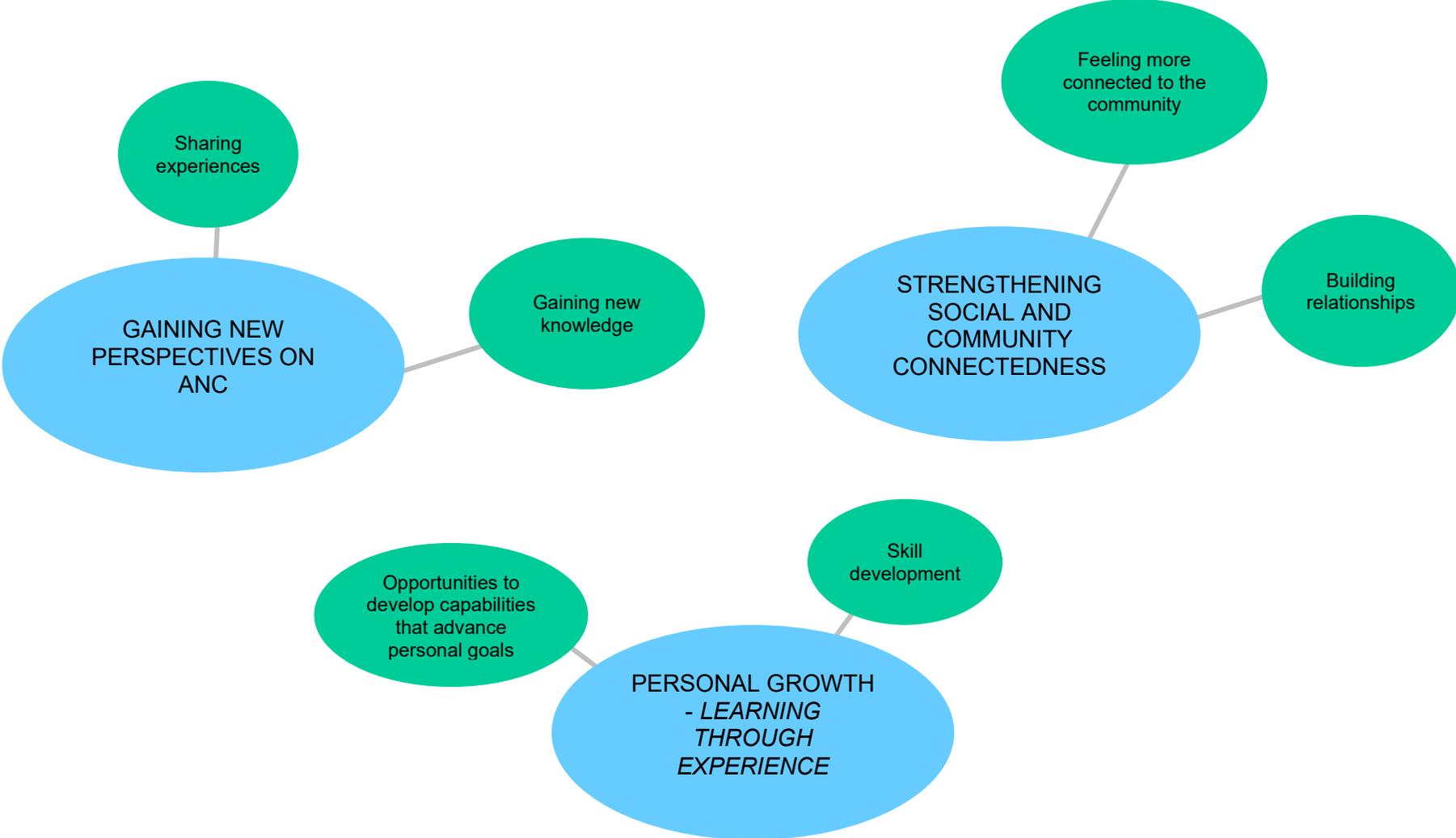
As described in chapters 4 and 5, community members were involved at two different stages in the co-production process. In the first stage, community members participated in co-design workshops sharing their experiential knowledge and perspectives on the issues and solutions to improve early initiation of ANC and helping to tailor the intervention design and content of key intervention messages. In the second stage, community members were involved as Community REACH volunteers in implementing the intervention in their local areas. Community REACH volunteers trained as 'ANC champions' to enable them to discuss the importance of ANC and early access to care, as well as understand their volunteering role and its place in the Community REACH intervention.

In their roles as Community REACH volunteers, participants used their local knowledge and worked with their local co-ordinator and other volunteers to develop an outreach plan. Working as a team or individually, participants undertook a number of outreach activities to deliver the intervention messages through their local networks, community groups and organisations. Participants provided feedback about their outreach activities and how the people they engaged with responded to the intervention messages. This information provided important insight for further tailoring the intervention. Some volunteers participated in local advisory group meetings and pan-intervention workshops to talk about their role as a Community REACH volunteer.

The analysis of the interview and observation data identified three main themes that describe how participants experienced and perceived the impact of their involvement in the co-production process to develop and implement the intervention. Figure 10 below shows the identified themes and how they relate to each other: *Gaining new perspectives on ANC* (section 6.3); *Strengthening*

social and community connectedness (section 6.4); and *Personal growth - learning through experience* (section 6.5).

Figure 10. Thematic map representing themes relating to the experiences of and impact on community members involved in the Community REACH intervention



6.3. Gaining new perspectives on ANC

As a consequence of being involved in co-production activities participants interacted with a wide range of people including other participants and community members, health professionals, design agency staff, and university researchers. These interactions took place in a range of different settings including co-design workshops, volunteer training, pan-intervention workshops, outreach activities on the street and in local community settings. (e.g. GPs surgeries, health centres, children's centres, pharmacies, libraries, shopping centres, community groups).

Through these various interactions participants shared their experiential knowledge and were exposed to different viewpoints, gaining new knowledge and learning concerning the issues relating to early initiation of ANC. Gaining knowledge on ANC enhanced participants understanding of the importance of ANC as well as a greater awareness of the perspectives of others. In particular, for participants who were involved as Community REACH volunteers these new insights enhanced their ability to engage with their communities about the intervention messages as they came across as competent and confident.

(i) Sharing experiences

For nearly all participants sharing their experiences of ANC and pregnancy was the key motivator for wanting to participate in the Community REACH intervention. The consequence of participants sharing their experiences was significant not only in providing valuable insights (social and cultural) which were critical to tailoring and shaping the development of the co-design workshops and intervention design, it provided opportunities for reciprocal exchanges and exploration of knowledge.

Opportunities to come together and exchange similar life experiences was valued by participants. The majority of participants involved in intervention development and implementation were women and many were mothers themselves. Therefore, to be able to share their experiences of ANC and pregnancy was a way for these participants to connect on a social level and feel part of the group. Pregnancy is an emotionally intense experience and many participants spoke freely about their difficult and often traumatic experiences. These accounts

connected participants on an emotional level, and it appeared through these interactions participants received support and feedback. Alisa, a community stakeholder who participated in a co-design workshop described the value of being able to discuss experiences of ANC and pregnancy with people who would understand what it was like:

...sometimes you might not need counselling or therapy but sometimes just to collate and just be able to have the opportunity to discuss what had happened and whether it was a good experience, or a bad experience, but just to talk about it in an environment where everybody is, knows about it as well. (Alisa, community participant, Moselle Park co-design workshop)

Alisa's comments suggest that participants felt a strong sense of mutual support when surrounded by peers who had similar life experiences, and this gave some participants a sense of freedom to talk openly about their experiences.

Many participants described wanting to gain new knowledge and a better understanding of ANC and pregnancy through sharing their experiences with others. Sharing their own experiences was a way that participants could relate to and again an understanding of the issues concerning ANC. In the co-design workshops, sharing experiential knowledge was the way participants were able to connect with and contribute to the creative activities. In general, the format of the co-design workshops and time-keeping issues restricted opportunities for more in-depth discussions of participants' experiences across many of the intervention sites. This is highlighted in Table 8 in chapter 4 which shows there was medium and low fidelity and in some sites no adherence to enabling participants to actively participate in co-design activities through opportunities to share their experiences and local knowledge. Therefore, the creative exercises involving group discussions provided participants with opportunities where they could be involved in some of the decision-making processes and make an active contribution to the outcome of the workshop. These were the activities where participants appeared to be the most engaged.

It was noted that the activity involving the 'personas', as described in chapter 4, was the activity that generated the most engagement and discussion from participants. This activity involved participants discussing issues and finding solutions to support the particular 'persona' to access ANC. This activity invited debate between participants and required them to consider and critically assess

alternate views, values and perspectives in relation to the particular issue at hand, in order to generate a solution. Table 8 shows there was medium fidelity across the majority of sites in participants' response to the co-design activities.

However, variations in attendance (see table 8 chapter 4) across the workshops meant some participants did not experience the same level of peer to peer discussion. Despite this, in their interviews all participants were able to recall this activity and described it as the one they enjoyed the most.

Through the process of sharing experiences and asking questions about their and others' experiences, participants appeared to be seeking to make sense of their own experiences. Some participants described wanting to learn more about ANC as they were planning to have more children and wanted to improve their knowledge so that they had the ability to feel more confident about asking questions and making choices.

Having an opportunity to share experiential knowledge was also described by some participants as a way of being able to help other women have better experiences of pregnancy by raising some of the issues, they themselves had experienced:

...I knew there might be an element where I could be disclosing what had happened with me. But it was an opportunity to talk about it as well and just raise awareness so I was okay. (Alisa, community participant, Moselle Park co-design workshop)

Sharing experiences among peers and more widely with health professionals and other community members enabled participants to gather new information through the exposure to different viewpoints, attitudes and values. Exposure to new information and perspectives encouraged participants to reflect on their own individuals' perspectives and the social norms of their community.

Sharing different perspectives about ANC encouraged the Community REACH volunteers to begin to consider how they might make their approaches and deal with different reactions which might arise when delivering the intervention messages in their communities. Role play activities provided additional support in preparing volunteers to develop their potential strategies. Although some of the

volunteers found these role plays uncomfortable, most felt they were helpful in providing them with the right amount of information and practice to talk to people about ANC and deliver the intervention messages. Table 12 in chapter 5 highlighted that participation in training and role play activities showed medium fidelity across all three selected intervention sites.

When discussing their experiences of the outreach activities, participants reflected that hearing personal stories in their own communities helped to reinforce the intervention messages by making the issues discussed real. Many of the conversation's participants described highlighted the potential issues of not accessing ANC. Some participants described reflecting on their own experiences of ANC. Both Nasreen and Shazfa described not being fully aware of the benefits of accessing ANC during their own pregnancies:

...when I had my children, I wasn't aware of this, I had them at a very early age (Nasreen, Community REACH volunteer, Eastgate Park)

it was educative because as a mother you know, when I was pregnant there is a lot of information I don't even know...this 10 and 12 weeks is very important, so I might be pregnant so I'll say oh I'll go, later, and that week will just go like that...so with this training it's very important to just know to go for earlier ANC (Shazfa Community REACH volunteer, Northarms)

Reflecting on their own experiences made the issues other women described more relatable, as participants shared a more personal understanding of importance of the importance and benefits of early ANC.

Community participants sharing their experiences and knowledge was significant in highlighting the way the intervention was being communicated by the 'professionals' and differences in the aspects ANC community members felt were important in comparison to those being presented.

(ii) Gaining new knowledge

Many participants described wanting to gain new knowledge and a better understanding of ANC and pregnancy. Several of the community organisations highlighted that the messages in the volunteer training focused on the importance of ANC rather than promoting the benefits of accessing care early. In her

interview, Jade, a community stakeholder who participated in the Woodstead East co-design workshop, said she felt women receive a lot of information at their ANC appointment which can sometimes be overwhelming. She felt that many women needed to have an opportunity to talk to someone, she described as a '*maternity helper*', about their worries or concerns to enable them to make more informed choices:

...we don't have to think about things always being so clinical (Jade, community stakeholder, Woodstead East)

Jade's account demonstrates the value of including community voices in the co-production processes in highlighting differences in perspective between the 'professionals' and community members. These important insights were fed back into the development and implementation of the intervention. For example, in the later volunteer training sessions, the trainer focused more on promoting the benefits of ANC.

Similarly, in the volunteer training, participants described the activities where they were able to have more control over their level of input as those they enjoyed the most. During the volunteer training participants were actively encouraged to ask questions to contribute to group learning. One of the ways this was done was by providing a 'myth busting bowl', where participants were invited to anonymously put a question related to pregnancy in a bowl, which would then be pulled out at random to be discussed more widely with the group. This provided participants with a safe way to share their experiences of ANC and pregnancy whilst also gaining information to enhance their understanding of their experiences. However, the idea of 'myth busting' could imply that some of the beliefs held by participants were corrected by the trainer.

Sarah, a community member who participated in a co-design workshop in Northarms, had previously had two miscarriages and wanted more information so that she might be better informed for future pregnancies:

...I'm going to have another child so what we learned here yeah it gave me more ideas when to see a doctor when to see a nurse and midwife. There was a time when I was afraid and I said no I don't want to go in... I got more information that next time it's going to help me... about how to take care of your child, when you, how to take care of yourself. But there are certain things that I will ask. (Sarah, community participant, Northarms co-design workshop)

Sarah's account demonstrates the value she placed on being able to gain new information that might help her to feel more confident about asking questions of healthcare staff for any future pregnancy.

Joyce, a Community REACH volunteer from MidCross, described how the new information she had obtained from the training and discussion with other participants had caused her to reflect on the social norms within her own community:

meeting different groups...when we were able to talk about how our community behaves...my community...as I said...early pregnancy must not be talked about and if a girl is pregnant and not married, it must not be talked about...and some people say in my tribe, it's the same...so we were able to say what can we do...we got this training...we have to stop this...and exchanging of views, ideas, and what happens in our communities, I thought that was very important. (Joyce, Community REACH volunteer, MidCross)

For Joyce participating in the training and peer to peer interactions gave her a deeper understanding of the benefits and issues connected to accessing ANC and a broader and more empathetic understanding of different perspectives associated with accessing care.

It was noted in observations of both the co-design workshops and volunteer training that information presented about the intervention and ANC focused primarily on issues from a medical perspective. However, community participants often focused on the more holistic aspects of ANC and pregnancy. In the observations and during interviews participants spoke about wanting more information on aspects such as nutrition, mental health and peer support.

Sharing experiences and experiential knowledge is a key facet of co-production, particularly in relation to addressing power imbalances between different participants (Filipe et., al 2017). The findings presented demonstrate how the co-production process tapped into participants' natural desire to share their experiences and gain new knowledge of ANC and pregnancy. The process of sharing experiential knowledge facilitates increased reflection of the lived

experiences and perspectives of those involved and the potential for greater inclusivity and sense of empowerment (Durose et al., 2011; Jones 2006). There is also evidence to support increased collaborative engagement and social learning through the processes of in group shared experiences (Shteynberg and Apfelbaum, 2013).

Note: Missed opportunity to access men's views

It must be noted that gaining a balanced gender perspective and accessing men's views on ANC and pregnancy was a feature of many participants' accounts. Not achieving a greater male representation in the intervention was perhaps a missed opportunity to gain new insights on increasing men's involvement in ANC and contribution to, and impact on, better health outcomes for their partners and their children.

A note of the findings on this theme, which is not directly related to this thesis, is included in Appendix 8.

6.4. Strengthening social and community connectedness

Across the majority of interviews, participants expressed a desire to gain an increased connection with their community (meeting new people, making friends and getting to know the community) through their participation in the Community REACH intervention. Social and community connection was facilitated in the Community REACH intervention through the promotion of social networks and reciprocal relationships. Throughout the intervention participants interacted with a wide range of people involved in the intervention including design agency staff, health professionals, university researchers, community organisation staff members, other volunteers, as well as a variety of people from their local communities. These interactions allowed participants to develop different forms of social networks. The extent to which participants were able to develop these different forms of social networks and gain a sense of connectedness to their community are captured in the sub-themes presented below.

(i) Feeling more connected to the community

Most participants spoke about being involved in community life prior to their involvement with the project either through volunteering activities, using community services, such as community centres, local libraries and healthcare facilities, or attending community events, such as community fayres, or religious celebrations. Some participants were engaged in formal ways, such as through volunteering roles at local community organisations or as a representative on a parent engagement panel. Others were engaged in more informal ways through their social networks, helping their friends or families with community activities. Participants who were more formally engaged in community life appeared to have a broader knowledge of their local community and a wider range of community connections. Participants with a more extensive level of community knowledge were able to make a greater contribution to Community REACH.

Encouraging participants at the co-design workshops to share their knowledge about the local community helped facilitate social interactions between them. Participants were keen to share their community knowledge and gain new information about the community from their peers who might have different socio-cultural backgrounds and community experiences. These interactions helped to create social connections and feelings of a shared community identity.

Enabling Community REACH volunteers to use their knowledge and networks to support the community mapping and planning of outreach activities encouraged a sense of responsibility in volunteers to take a more active role in implementation. In two of the intervention sites, Eastgate Park and MidCross, the value of volunteers' local knowledge was recognised in supporting the role of the co-ordinators who were both less familiar with the area. As described in chapter 5, this resulted in a more collaborative way of working with the volunteers in these intervention sites (as shown in table 12 in chapter 5, fidelity was medium and high in these two sites for volunteers being able to use and develop their assets and capabilities). At the start of implementation, I noted that volunteers who had an extensive knowledge of the intervention site were particularly motivated and

enthusiastic to share their knowledge often taking the lead during outreach activities.

Hasna appears to have a good knowledge of the local area and a number of contacts – she is a local childminder. She is taking charge of the outreach activity, making suggestions to Naomi of various different local assets and thinking of ways to access different communities; e.g. she suggests visiting a local Muslim run taxi firm as a way of cascading information through local networks...other volunteers are now beginning to make suggestions of local assets/networks [notes taken at outreach activity in MidCross 26/07/2017]

This account demonstrates the value of community knowledge sharing in creating a resource of new information for community participants about their local area and encouraging feelings of connectedness.

Similarly, in Eastgate Park, volunteers were more familiar with the local area and took the lead in identifying local assets, events and activities for outreach activities. However, the area was also undergoing regeneration and gentrification with privately-owned new build housing developments bringing a more affluent population to the area. Zania commented on how the area was changing with new people moving in, making some parts feel unfamiliar:

'... now it's young people coming in, new faces, and some of them are quite busy and [!] don't know them, they're just working in the morning, they come and go'. (Zania, Community REACH volunteer Eastgate Park)

These changes may have disrupted some volunteers' connections with their local community. In relation to delivering the intervention it may have contributed to volunteers feeling more hesitant about approaching people on the street and undertaking their outreach in areas which felt unfamiliar to them. I attended an outreach activity with Ginny and Kelley in a recently redeveloped area of the intervention site and noted how this had a negative effect on Kelley's level of comfort:

Kelley said she didn't know this area very well, she didn't come here. She seemed a bit uncomfortable and self-conscious, commenting on how it seemed 'a bit posh', as though she didn't feel like she fitted in. The area has been gentrified, lots of trendy new flats and the community centre has been redeveloped into a trendy coffee shop and arts centre.

Kelley comments that she feels the people attending the event 'won't need this information' – implying they will already know about the benefits of attending ANC early. [observation notes taken at outreach activity in Eastgate Park 03/09/2017]

Participants' involved in more formal community activities appeared to have a wider range of cultural connections and had less difficulty making new connections or approaching people from different communities. When asked about who they had spoken to during the street engagement activities, most volunteers said they had spoken to a wide range of people from different community groups, genders and backgrounds. However, some volunteers indicated that they found it more comfortable speaking to people, particularly other women, from their own community in their own language. This was something I observed in community engagement activities during intervention development, as well as during outreach activities, where volunteers preferred to focus their approaches on engaging with someone with perceived similarities rather than someone perceived as being from a different community group, gender or background. This was particularly the case if the volunteer had received a number of rejections from people they approached. Volunteers who were not as connected to the local community seemed to require higher levels of perceived similarity with somebody prior to approaching them in the street.

Findings highlighted that local community knowledge contributed substantially to implementation in practical ways, allowing some participants to work collaboratively with the co-ordinators in their area. It was also a valuable social resource (Ottmann et al., 2006), as a means of starting conversations and bonding amongst participants (Harris et al., 2015). To an extent, increasing feelings of connection with the community appeared to match the confidence participants had; those with more formal existing community connections appeared to be at ease making new connections whilst those with little confidence became even less confident in areas where they felt less of a connection to the community. Increased community connectedness and sense of belonging is associated with increased health and social well-being and reduced social isolation (Ross 2002; Shields 2008), and a greater willingness to contribute to community action (Parsfield, 2015).

(ii) Building relationships

Across the three intervention sites community participants experiences of building relationships with other participants involved in Community REACH varied. The mobilisation and enhancement of social networks is a key mechanism in the process of co-production. The extent to which participants were enabled to build new relationships and social networks was largely dependent on facilitation by the co-ordinator.

As described in chapter 4, the one-off co-design workshops provided limited opportunities for participants to get to know one another or build new relationships with their peers. There was very limited time within the format of co-design workshops for meaningful social interactions. This lack of opportunity for social interaction was highlighted in table 8 in chapter 4 showing low fidelity and no adherence toward participants making new friendships and relationships and building social networks. However, it is possible to speculate that some participants may have formed acquaintances with participants or local stakeholders they were not previously familiar with. On reflection the co-design workshops may have represented a missed opportunity for more relational work to take place in preparation for the implementation stage of the intervention.

All Community REACH volunteers reported enjoying the experience of meeting a wide variety of different people during their involvement of implementing the intervention. However, the variety and strength of these connections varied among participants.

Some participants who took part in the implementation indicated that they had strong family ties and a pre-existing close circle of friends, whereas other participants described themselves as more socially isolated and not very outgoing prior to their involvement as a Community REACH volunteer. Participants who described having fewer social connections were more motivated to participate in Community REACH as a means of meeting new people and widening their social networks and life experiences. Almaz described this as her experience:

...I think I am very much isolated in a sense, compared to people I know. I'm not an outgoing person or I don't have that many people but I'm alright... when you go out in the street, you meet different people.... you get in touch with the community... it's a good way of getting in touch with the community (Almaz, Community REACH volunteer, MidCross)

In contrast, other participants were encouraged to get involved in Community REACH by their friends or acquaintances who were also taking part. In Eastgate Park the core group of volunteers consisted of five friends from the same social and ethnic group. As a result of these existing social connections, a sense of group cohesion and support formed quickly within this group of volunteers. This was evident in their support for Sharmeen, who had participated in the volunteer training but was struggling with her confidence and language abilities to take part in the outreach activities. The group tried to encourage her to come out with them to watch how they approached people, but Sharmeen felt unable to participate in the outreach despite encouragement from her peers:

...she said last time ... she's not confident to talk to people...because she might have not done anything like this but we did try...if she had come around with us and saw how we approach people she might she might get alright with it.... and she could just do it bit by bit. (Nasreen, Community REACH volunteer, Eastgate Park)

The cohesiveness of this group meant that they operated more as a team. They often organised outreach activities among themselves, either going out together or separately and then feeding back to Ginny their co-ordinator. As a consequence, it appeared it was more difficult for other volunteers, outside of this group to integrate and feel part of a team. Nasreen explained that Ginny had tried to bring the group of volunteers together socially, with limited success as not everyone was available and meant they were not familiar with the new volunteers:

...we haven't met the new volunteers, we know them by name...no, Kelley we never got to know her very much [Nasreen, Community REACH volunteer, Eastgate Park]

Nasreen's comments indicate that there was limited interaction with other members of the volunteer team, with this group of volunteers remaining mainly 'inside' of their community of ethnicity.

However, in carrying out their outreach activities, volunteers were often required to go 'outside' of their community of ethnicity or social-cultural boundaries. Throughout the volunteer role, volunteers were encouraged to actively consider ways to expand their current social networks, in order to identify and gain access to local community assets where they could deliver intervention messages. However, the extent to which volunteers were able to expand their social networks was heavily dependent on the support of the co-ordinator. Co-ordinators played a crucial role in supporting volunteers to gain access to local assets and enabling them to expand their social networks by building relationships with local stakeholders. Volunteers often described being unable to gain access to some community assets such as local Children's Centres without a more formal introduction.

Across the three intervention sites, volunteers reported a lack of opportunities for more social integration of the volunteer team (reflected in medium to low fidelity across the three intervention sites as shown in table 12 in chapter 5). Many volunteers described hoping the volunteer role would have had more opportunities for socialising as a group. Zaida felt the social aspect of the volunteer role was important for sharing experiences, and giving support and advice between volunteers:

...maybe at the end of the month or maybe in the middle of the month we can get all the volunteers and then we can talk... to see the benefit from it and all the learning... but together all these volunteers...we are a group, then we have to meet to have coffee... I think this is making it even stronger (Zaida, Community REACH volunteer, MidCross]

Zaida's comments suggest that she understood the value of social interactions in building relationships to support the collective actions of the group.

Working in groups was described by project co-ordinators as being one of the key motivating factors for volunteers' participation. All volunteers expressed a preference for undertaking outreach activities as part of a group, although some volunteers who had more community outreach experience were more confident about doing outreach on their own. Most volunteers described enjoying the social interaction, opportunities to learn from one another, and team identity conferred

by working as a group. Working as a group created opportunities for social bonds to develop as volunteers learned to navigate the volunteer role together. These group activities also helped volunteers to forge bonds with their co-ordinator and they valued the opportunity to learn from them. Raveena described the impact of working with Grace:

'Grace is definitely my mentor...[I did] one meeting with Grace and I find that I know how to do a meeting...So that's something I learned from Grace...I was with her for 10 or 15 minutes and she could grab as many as people and she would not let go of them...it's one of her many charms...that's something I really loved doing with her...' [Raveena, Community REACH volunteer, Northarms]

As the intervention progressed in each site, issues with volunteer drop-out and availability of remaining volunteers (primarily due to family commitments) reduced opportunities for outreach activities to be undertaken as a group. This affected any progress that had been made towards creating a group dynamic. It also meant volunteers were not as motivated or confident to undertake outreach activities on their own.

In Northarms, the development of social bonds between the volunteer team was disrupted by the loss of several volunteers and the absence of the co-ordinator, Grace over extended periods of time. As a result, there was no-one in place to facilitate social interactions between the remaining volunteer team, and this was reflected in low fidelity to many of the components associated with supporting and developing the volunteers, such as making new friendships and social networks, improved confidence and community connection. Michael and Olena, who were members of staff at Discovery, had a pre-existing connection and often went out on outreach activities together. This isolated both Raveena and Shazfa, who were externally recruited volunteers and had not had sufficient time or opportunity to build a relationship with any of the other volunteers. Raveena carried out the majority of her outreach activities on her own in the local library and health centre. This was a key community hub and enabled Raveena to extend her social networks and build connections with the staff members. However, without support from other team members, Raveena's experience of the volunteer role was limited to this one location:

'I did tell Grace...that if I don't have anyone...I'm not happy to go and do it outside...so I'm happy to do it indoors, and she said just keep it where you're happy and comfortable...but, I haven't done anything outdoors so, yeah. I won't come across anyone from the street' [Raveena, Community REACH volunteer, Northarms]

Raveena's description highlights the challenge for volunteers in maintaining their confidence and motivation towards a particular task in the absence of a social support system.

These findings highlight the importance of the co-ordinator role in facilitating social networks to enable community members to create new and further enhance existing relationships (Harris, et al., 2015). Volunteers much preferred doing outreach activities as a group, supporting and learning from each other. Despite it being a strong motivator for participation, there was a lack of opportunities for social interaction between volunteers across all intervention sites and many participants commented on this. Social interactions and relationship building are identified as crucial factors for facilitating co-production processes (Clarke et al., 2018; Filipe et al., 2017). Volunteers found it hard to build connections outside of their existing social networks without the support of co-ordinators. The co-ordinators were able to mentor them and their official status was helpful in opening doors to community assets.

6.5. Personal growth - learning through experience

Personal growth and opportunities for positive learning experiences were important motivating factors for involvement and ongoing engagement in Community REACH. Most participants articulated a desire to gain some form of personal growth through their participation in either the co-design workshops or as a Community REACH volunteer. Participants spoke about wanting to gain new skills, knowledge, and experience, and improve their confidence. A number of participants had very clear goals and aspirations about their future development/careers. For example, one participant wanted to train to become a childminder, two were interested in training to become midwives, and another was looking for work in health administration. These participants were all looking

to gain experience through participation in Community REACH which would enhance their employment prospects.

The sub-themes outlined below are those which were identified from participants' accounts of the skills and experiences they perceived themselves to have gained through their involvement in Community REACH.

(i) Skill development

The Community REACH volunteer role provided opportunities for participants to enhance their communication, decision-making and team working skills, as well as building self-confidence.

The community members involved as Community REACH volunteers were demographically diverse in terms of their ethnicity, age range and level of education attainment see table 5 chapter 3. Participants brought a range of personal assets, training and employment experience to the Community REACH intervention. Some participants had previously trained in a healthcare field (e.g. as a midwife or mental health worker) or had previous volunteering and outreach experience supporting people and signposting information to community members. One participant ran her own small community organisation, providing health related projects, such as healthy eating and exercise classes, and was in the process of opening a community hub and café. Other participants had less experience either of employment or volunteering having been occupied by childrearing and/or family care responsibilities. Consequently, the skillset in relation to health promotion varied among participants.

The most frequently cited benefits in the interviews for participating as a Community REACH volunteer were learning new or enhancing existing skills, gaining experience and references to help with gaining access to training or employment and improving communication skills. Some volunteers were keen to improve their English language skills, particularly their conversational English abilities. Sharmeen, a single mother of six with little formal education was motivated by her desire to work with children. She described how she was attempting to improve her English skills by studying at college. She said most of her friends spoke Bengali rather than English and she felt participating as a volunteer in Community REACH would help improve her spoken English:

.... have lots of friends and...they only speak Bengali...my benefit [of participating in Community REACH] is I learn English because it's not good...I am not very good...that's why I try...because the home is boring, after my children go to school then I cooking and finish my house empty then I feel well...I think I go outside and meet people and my time is gone. (Sharmeen, Community REACH volunteer, Eastgate Park)

Almaz, who had worked as a midwife in her own country before coming to the UK, described how she enjoyed the experience of the outreach activities because it gave her the opportunity draw on her previous experience but to deliver the health information in English to different people in different situations:

...back then, I didn't use English to talk to people, so this is what makes it different here for me. You have to give all this information in English. I enjoy it...a new experience in getting in touch with people in English and educating these people, that's the difference...apart from that it's all about pregnancy and having ANC (Almaz, Community REACH volunteer, MidCross)

For other volunteers the flexibility of the intervention which encouraged them to translate and deliver intervention messages in their own language was an opportunity to hone their communication skills. Volunteers described how this made them feel more comfortable during outreach activities, particularly if they were struggling to remember how to phrase the intervention messages in English. Some volunteers could speak several languages and felt having the flexibility of using their own language enabled them to speak to a broader range of people:

...because of this training, I can talk to my own people in my own language, that one I find very easy. Because sometimes I can't remember the way I have to speak in English, explaining everything in English. But this one is for any people, because I know three languages, English, Bengali and some Hindi. So, because of the languages, it's very good for me to explain...and in this area, it's mostly Asian people. So, it's really good. (Sameea, Community REACH volunteer, MidCross)

The two-day tailored volunteer training was valued by most participants as an opportunity to gain new knowledge and learn new skills. They enjoyed the structured learning experience in combination with the practical role play

activities. The training allowed them to gain an understanding of the topic area and responsibilities of the volunteer role, as well as developing the communication and interpersonal skills required for delivering the intervention messages in their local communities.

Shazfa also described the training as enhancing her cultural understanding of the conversational communication health messages, allowing her to practice her interpersonal skills for her role as a phlebotomist:

...fantastic...this training taught us how to talk to people, politely... it's helped me a lot, [as a] phlebotomist you have to be friendly to people before they say, 'okay take my blood'...so with this project, at least I know how to...you know...say... oh hello how are you today...stuff like that, it's really helped me a lot. (Shazfa, Community REACH volunteer, Northarms)

However, some of the volunteers felt the training provided a lot of information about ANC which they were not able to make use of during the outreach activity. Raveena felt she was not able to make full use of the information she had learned about ANC in the training and felt the volunteer role was primarily concerned with signposting people to services:

...what I'm trying to say is we learnt a lot, that was a lot of information I was happy because I was interested in it. But that's a lot of training for that little outreach. Because for the outreach all you need to say is phone your GP, just go to your GP, just go to your hospital... honestly, I expected this to be more... advice based, I thought probably we have to advise more on antenatal care, we had to advise and see the mums and really talk about what antenatal care is. (Raveena, Community REACH volunteer, Northarms)

Raveena was interested in retraining as a midwife and was hoping for a more involved role. She wanted to be able to give more advice about ANC and sometimes found it difficult to keep to the boundaries of the role if people pressed her for more information. Managing the boundaries of the role was something Raveena described learning over the course of the volunteer role.

Most participants identified communication and interpersonal skills as the key skills they felt they had developed or enhanced. Although participants did not always directly articulate the particular skill they felt they had developed, it was possible to identify some of these skills from participants' accounts of how they dealt with particular situations throughout their involvement in the intervention. It was also possible to witness skill development in participants during my observations of the outreach activities.

Participants described the street engagement outreach activities as the most challenging aspect of their role and where they felt their communication skills had developed the most. All participants described street engagement as a new experience. The unpredictable nature of the street engagement and the range of community members they engaged with required participants to constantly reflect on and revise how they went about making their approaches and make decisions about who they should speak to. Participants spoke about developing strategies to identify who to approach and how to get people to stop and engage with them. During outreach activities it was possible to observe participants trying various strategies to make their approaches, often learning from their peers to develop an approach that made them feel most comfortable.

As described above delivering the intervention messages involved a multi-layered conversation, requiring volunteers to employ their verbal and active listening skills to establish rapport and trust with community members. The conversations also involved decision-making skills to adapt to changing situations and ensure they remained within the boundaries of the role. Some participants reported having to deal with sensitive conversations where people had discussed difficult topics. Participants said they responded by trying to listen without judging and communicating with sensitivity and empathy.

Participants were also exposed to negative responses from community members who were not willing to engage and were sometimes rude. Some participants were able to demonstrate a level of resilience and self-awareness in understanding that the rejection was not personal and were able to 'bounce back' more quickly. Other participants said they found this more challenging to the extent that they did not want to do the street engagement without the support of other volunteers.

Some participants such as Talibah, had the opportunity to communicate about the volunteer role and their experiences more widely with local stakeholders or during the three-monthly pan-intervention workshops (reflected in the higher fidelity scores shown in table 12 in chapter 5 for Eastgate Park for volunteers actively participating in sharing learning across the intervention). Talibah described these opportunities as helping her to learn about communicating at a *'higher level'*. These opportunities helped to maintain Talibah's motivation, and she said that these were the experiences she enjoyed and valued the most during her participation in the intervention:

Working with professional people...like you...and Ginny...and Alina...and attending the meetings with professional people...I feel proud...it's something new that I'm learning...but I feel proud (Talibah, Community REACH volunteer, Eastgate Park)

Most people articulated a desire to gain some form of personal growth or skill development through participation and this was achieved in some form by most participants. There were many opportunities to gain new skills at all stages in the intervention from the initial training, through outreach activities themselves, to interacting with co-ordinators and stakeholders. Participants had ample opportunities to develop their communication skills, language skills, and others whilst also gaining in self-confidence. The findings support previous research suggesting an asset-based approach which recognises and builds individual existing assets a key mechanism for enabling effective community participation (O'Mara-Eves et al., 2013). However, there is very little current research detailing specific skill development of community members participating in a co-production process (Fox et al., 2018)

(ii) Opportunities to develop capabilities that advance personal goals

Opportunities existed to varying degrees across the intervention sites for Community REACH volunteers to develop capabilities that advanced specific personal and career goals. These development opportunities were primarily limited by the capacity of the project co-ordinator to provide volunteer support, but also by the availability and motivation of the volunteers.

Participants specified a range of career related goals as their motivation for volunteering, which they perceived as a helpful step in their pathway to paid employment. The motivation of finding employment often coexisted with other motivations.

A number of participants spoke about the importance of the project co-ordinator in supporting their learning and personal development experiences. Some participants said they felt they had lacked the requisite skills or experience or the confidence to progress towards their career goals prior to the intervention but had become more competent and confident in their abilities through the support of their project co-ordinator. At the start of the intervention most participants had opportunities to work alongside the co-ordinator as part of the volunteer outreach group. Participants felt the presence of the co-ordinator was a key facilitating factor in their motivation and engagement with the intervention. Participants perceived their co-ordinator as a 'professional' and 'authority figure' who organised and gave structure to the outreach activities. This gave them confidence to carry out their role.

Some participants had the opportunity to work in a more collaborative way with their co-ordinator. In MidCross, Sameea worked collaboratively with her co-ordinator, Naomi, in delivering intervention messages to men in the local Muslim community who came together at a nearby Bangladeshi community centre. The Bangladeshi community were a key target group in MidCross, but the outreach team were experiencing difficulty in gaining access to talk to them about the intervention. For Sameea, working closely with Naomi was an opportunity to develop self-confidence and competence in her role. She described how she was looking for an opportunity to develop herself, as her four grown-up children were becoming more independent. She perceived the volunteer role as an opportunity to gain relevant experience to enable her to achieve her aspirations of working with young children.

Initially Sameea said she had lacked confidence and felt nervous about the volunteer role, particularly as it involved approaching people on the street, questioning whether she could do it by herself. However, she felt the knowledge and practical learning gained at the volunteer training had improved her confidence. She felt able to draw on her own local knowledge and networks to suggest to Naomi a way of cascading the intervention messages to the local

Bangladeshi community by speaking to men who attended a Bangladeshi community centre.

Sameea explained that initially this was culturally very difficult for her as often Muslim men do not acknowledge women who are not family members. However, over a period of three months Sameea and Naomi gained the trust of the men attending the community centre and were able to speak to them directly about the intervention. Naomi said she felt she had learned a lot from this process and from working with Sameea, particularly the importance of considering time, cultural sensitivities and showing respect to develop a relationship before engaging with information about the intervention. She had followed Sameea's lead in making this approach and felt Sameea had shown great strength in crossing a cultural boundary by making it clear to the men the capacity in which she was there. Naomi felt Sameea had gained respect within her community by taking this approach. Sameea felt that once the men at the community centre understood her role, the importance of the intervention message and also what she was hoping to achieve personally as a result of her volunteering role (employment), they were more willing to help her achieve this.

Through the supportive partnership with Naomi, Sameea said she felt she had developed her self-esteem. She described feeling more confident now in talking to people about the intervention:

'... I learned my self-esteem, because before I was so scared, to talk to the people in the street.... now I feel confident to stop somebody...and when we found people that were interested to talk and listen.... that feels good' (Sameea, Community REACH volunteer, MidCross)

Sameea also said she particularly enjoyed working with Naomi in the community settings. She felt in these settings people listened to her and she had more influence, particularly within her own community, because being a Community REACH volunteer gave her a more 'official' status. Having the opportunity to learn new interpersonal and self-management skills helped to facilitate Sameea's continued engagement with the intervention and supported her development. She felt she had benefited by gaining communication skills and experience that would enhance her employment prospects. She said Naomi had commented on her personal growth too:

...from when I first started [as a volunteer], I felt scared doing any other things and she [Naomi] said no go and do it and now she sees me and says you've got more experience and energy, confidence, with people. (Sameea, Community REACH volunteer, MidCross)

Although, I did not have the opportunity to follow-up with Sameea directly at the end of the intervention, Naomi reported that she had subsequently secured a place on a university course

Sameea's experience contrasted with the experiences of some of the other volunteers, who did not have the opportunity to work in such a collaborative way or wanted to work more independently. As described in chapter 5, in Northarms the approach to the intervention was more outcome focused. Outreach activities were driven by achieving the required numbers of conversations per volunteer and were consequently more reliant on volunteers' self-management skills. Two of the volunteer team, Michael and Olena, also worked on a part-time basis at Discovery and perceived the Community REACH volunteer role as an extension of their roles at Discovery. They had both been asked to get involved by the manager at Discovery and described their motivations for participating as gaining new knowledge and experience. Michael and Olena said they had enjoyed the role and felt they had gained new knowledge about ANC and pregnancy and a new experience of engaging with the community on the street as opposed to a fixed setting.

Two other volunteers, Raveena and Shazfa, who were recruited externally to Discovery were both driven by aspirations and goals for personal development in relation to midwifery. As previously described in chapter 5, both the manager and co-ordinator were absent during periods of the implementation meaning there was a lack of continuity in volunteer support. As a result, there were very few opportunities for building the capabilities of the volunteers or supporting their personal growth or aspirations.

At the end of her interview, Shazfa asked for advice about studying midwifery:

'you know do I go to university, I don't know... [!] just want to start at the college and do the access to midwifery... I don't even know where to start'. (Shazfa, Community REACH volunteer, Northarms)

Shazfa's comments highlight the need for support in order to maximise the opportunities for volunteers' personal growth. The contrast between these two sites (MidCross and Northarms) is highlighted in the differences in fidelity scores shown in table 12 chapter 5, in relation to co-production elements relating to the support for volunteers in delivering their role, developing new skills and competences to support their personal growth.

Self-confidence was an issue for some volunteers who, despite having clear career aspirations, were unable to take advantage of gaining experience through the volunteer role. Sharmeen, who had described wanting to use the volunteer role to improve her English language abilities as she wanted to work with children, participated in very few outreach activities, despite encouragement from her friends who were also volunteers:

...she said last time she said she's not confident to talk to people...because she might have not done anything like this but we did try...if she had come around with us and saw how we approach people she might she might get alright with it.... and she could just do it bit by bit. (Nasreen, Community REACH volunteer, Eastgate Park)

As a single parent Sharmeen also had family commitments that made it difficult for her to continue with the volunteer role.

Kelley, another volunteer and single mother in Eastgate Park, had also struggled with confidence issues. Ginny, the co-ordinator in Eastgate Park had encouraged Kelley to participate because she had worked with her on another project so was familiar with her abilities and felt it would help her feel less isolated. Kelley participated in the volunteer training sessions and one outreach activity which I observed. I noted that although Kelley needed Ginny's support and encouragement, she was very competent in her role. She was capable of building rapport very quickly with the people she spoke to and conveying all the key points of the intervention message, despite it being her first experience of outreach activities. During a conversation Kelley spoke about her aspirations of retraining in midwifery:

Kelley says she would like to do more, she feels she's just wasting away at home. She's looking for ways to get back to work but would really like to go to university to study

midwifery but says they make it so difficult. She says she's not sure she could manage it
[from observation field notes 03/09/2017]

Both Sharmeen and Kelley's account highlight the need for some volunteers to have additional support in order to overcome their self-confidence issues and really take advantage of the opportunity inherent in the volunteer role.

I subsequently discovered from Ginny that this had been Kelley's only outreach activity. Ginny had tried to encourage her to continue but did not have the capacity to provide the support Kelley needed to build her confidence:

... unless I'm with her, she just lacks confidence...she's really good at it when we're doing practising and then she's gone back in to herself again... some people needed help to take them out there and they can do it, they just don't have self-confidence...with people like Kelley I was really keen to just help them raise their confidence a bit (Jules, co-ordinator, Eastgate Park)

Although participants had found some aspects of the volunteer role challenging, all participants were able to describe positive experiences during their involvement in Community REACH. Participants reported that outreach activities had improved their levels of confidence and communication skills, given them a new experience and opportunities to meet new people, make friends and get to know their community. In the intervention sites where the approach to implementation involved working closely with Community REACH volunteers and developing community connections, participants reported a greater sense of fulfilment.

For participants who had identified clear goals and aspirations, co-ordinators reported that most had been able to achieve advancement towards these goals as a result of the experience gained or new connections made from participating in Community REACH. Table 12 in chapter 5 shows medium fidelity scores across all three intervention sites in relation to improved personal outcomes for volunteers through their participation in Community REACH.

For Almaz, this experience was particularly beneficial as she was able to successfully draw on it directly during an interview to secure a position as a health administrator at a local university hospital at the end of the intervention:

...he wanted to know if I am volunteering and I said yes, I am, at the moment, in two projects. What he wanted to know was will I be able to talk to people...and I said well, my volunteering is approaching people and talking to people and raising awareness and he said that's good because he wanted to know if I am able to talk to people and get in touch with people (Almaz Community REACH volunteer, MidCross)

In MidCross Naomi reported that at least five volunteers had been successful in gaining training (e.g. Sameea), employment (e.g. Almaz) or other volunteer opportunities (e.g. Joyce). In Eastgate Park Nasreen, Talibah and Zania all reported that they were working in other volunteering roles. In Northarms, Cynthia reported that one volunteer had gained full time employment, and another received the local borough Mayor's Volunteering Award.

Some volunteers said they would continue to deliver the intervention message to their family, friends and other social networks even when the project has come to an end:

'I think it is now like an ongoing thing... working with the community...I think that it will be very good for us to continue informing people of the importance of this... definitely people will ask questions and we say we have done the training, we have been working on this project for six months and we feel that we have to continue informing the people' (Joyce, Community REACH volunteer, MidCross)

Joyce's comments suggest that the volunteers perceived their role to be of value to their communities, valued the importance of the intervention message and were committed to sharing the information they had gained with others.

The perception of the value of the volunteers was shared by Nadine, project manager in MidCross. Nadine felt there had been a significant investment in the volunteers in terms of their training and intensive outreach experiences. She felt through this process the volunteers had become a valuable community resource:

...I've seen them at work and think, if only more senior people within the NHS could see this in action, you would actually get to see, in a sense, what level of resource is there but it's just giving them the support to develop. (Nadine, Project Manager, MidCross)

Nadine described being so impressed with the skills and abilities of many of the volunteers that she was considering ways in which Voyager could sustain their development. However, she felt a key learning point of the Community REACH intervention was to have planned out in advance what would happen with the volunteers at the end of the intervention.

Whilst not the only motivator, career development was significant for some volunteers whose interests lay in related fields such as midwifery or childcare. In some instances, confidence issues prevented volunteers from taking full advantage of the opportunities. In such situations their development depended very much on the support of the co-ordinators, who did not always have the capacity to provide it. There were examples of volunteers whose personal growth was evident, who with confidence rising were able to make valuable contributions that demonstrated their competence. Some participants went on to advance their careers and increase the talent pool in areas related to the intervention. It may have been possible to further leverage the success of this work through a longer-term plan to sustain the valuable talent base developed. These findings demonstrate the potential of participation in a co-production process for personal growth and advancement towards career goals, currently not well described in the co-production literature (Verschuere et al., 2012; Fox et al., 2018; Voorberg et al., 2015, Durose et al., 2016).

6.6. Chapter summary

This chapter has described the experiences of community members who participated in the co-production process to develop and implement the Community REACH intervention and the perceived impact of participation on them. The themes describing these experiences and perceived impact are 'Gaining new perspectives on ANC', 'Strengthening social and community connectedness', and 'Personal growth - learning through experience'.

Participating in the Community REACH intervention enhanced participants' awareness of the benefits and value of accessing ANC early, through the sharing of experiential knowledge and experiences. The combination of professional and

peer group information sharing helped participants to gain new perspectives on ANC. The Community REACH volunteer role had the potential to improve participants' social and community connections through the formation of social relationships. However, opportunities for participants to build these relationships relied on the co-ordinator to provide ongoing support. Findings demonstrated that the volunteer role enabled participants to develop their existing skills, capabilities and confidence to be able to access new opportunities i.e. training, job opportunities. Through their participation in a co-production process Community REACH volunteers became a valuable community resource with knowledge to help change values and norms in relation to ANC.

The next chapter (7) discusses findings presented in this thesis in relation to the use of co-production as an approach for developing and implementing a community-centred health intervention designed to improve health outcomes and reduce inequality in access to antenatal care, including the implications for research, policy and practice.

Chapter 7: Discussion

7.1. Overview of this chapter

In this chapter, the findings of the research are considered in relation to the research questions, the research literature and implications for policy and practice. Firstly, the principal findings of the research on the use of co-production in interventions to reduce health inequalities are outlined and then discussed in terms of how they fit with, and add to, the existing literature. This will be followed by a discussion of the strengths and limitations of the empirical research. A discussion of the implications of the findings for the theory and practice of co-production, including the implications for both policymakers and practitioners will then be presented. The chapter will conclude with suggestions on the directions for future research arising from this thesis.

7.2. Overview of principal findings

This research sought to explore the use of co-production in the development and implementation of public health interventions, and in particular, its use in community-centred interventions to reduce health inequalities. Despite improvements in health, health inequalities remain prevalent worldwide. Addressing health inequities and facilitating access to health services presents policy makers and health practitioners across the world with a universal challenge (WHO, 2010). Community engagement is increasingly advocated as one way to help address health inequalities and has been found to be effective in improving health-related outcomes for disadvantaged groups (NICE, 2008; O'Mara-Eves et al., 2013). Community engagement is part of a broader family of community-centred approaches within public health all of which can be considered as co-production approaches (South, 2015). However, there remains very little assessment of the effectiveness of co-production as an approach and the mechanisms through which it operates in different contexts (Voorberg et al. 2015; Fox, et al., 2012; Verschuere, Brandsen, and Pestoff, 2012). Existing evidence is limited and few studies utilise theory-based approaches to evaluation which make

clear what it is that co-production is supposed to offer and how it should be defined and operationalised (Fox, et al., 2012; Voorberg et al. 2015).

In this context, the research described in this thesis has generated new findings which strengthen the evidence base in relation to the factors that support or hinder the use of co-production in the development and implementation of interventions to reduce health inequalities. The research focused on the relational dimensions of co-production (Durose et al, 2015); and provided insight into factors such as the type of community organisation that is most effective in achieving co-production; the mechanisms through which key co-production elements can be achieved; and the type of impact that is achieved from the perspectives of those taking part.

My research has also developed and applied a set of fidelity indicators derived from the literature on co-production to assess the extent to which co-production principles and practices are adhered to in the development and implementation of interventions. Despite recommendations in the current literature for improved methodological approaches to assess co-production, including assessing implementation fidelity (Fox et al., 2018), a set of fidelity indicators for co-production has not, to the best of my knowledge, been developed and applied before. Initial analysis of my data on the process of developing and implementing the Community REACH intervention suggested differences in adherence across intervention sites to the co-production components of the intervention as set out in its logic model, leading to the development of fidelity indicators.

I turn now to discussing the findings of the thesis in relation to the key concepts and principles of co-production I identified in my literature review (reciprocity, collaboration and partnerships, social capital, releasing capacity and developing capabilities of people and communities, and added value) in order to further clarify my research findings in relation to previous work.

7.3 Reciprocity

Reciprocity can be considered as the underlying principle of co-production that transforms traditional ways of working through mutual exchange of skills, knowledge and value, bringing about equitable power sharing.

There was generally low fidelity to the relational elements of co-production which relate to reciprocity (such as establishing an open and ongoing dialogue, sharing learning, and a commitment to openness and relationship building) in the development and implementation of the intervention. For example, during the development of the intervention, reciprocity between the design agency and the university team had not fully developed, limiting the extent to which both partners were able to share skills, knowledge and power and hence for the engagement and co-design activities to be fully realised in accordance with the principles of co-production. These findings highlight the tangible complexities of integrating professional stakeholders from different disciplinary backgrounds, which is under described in the current co-production literature. Establishing a shared understanding and negotiating roles are important foundational processes for building trust among different groups (Langley et al, 2018), developing mutual understanding and recognition of each other's professional expertise, perspectives and expectation, without which meaningful communication and relationships can be more difficult to develop (Hall, 2005).

Similarly, the relationships between the university team in their commissioning role and the community organisations implementing the intervention had the potential for reciprocity but this was only achieved in the relationship with one of the organisations from the three intervention sites selected for in-depth study. This organisation appeared to have a deeper understanding of co-production and their role in it and co-production was compatible with their existing practices. This meant the organisation and its staff had confidence to divert from mandated courses of action and deliverables specified in the commissioning brief to generate their own insights and ideas to do things differently. Other organisations adopted a more traditional approach, sticking to the commissioning brief and preserving the traditional power relations between commissioner and service provider even though the university team had highlighted the potential for flexibility.

Although there was limited reciprocity between community organisations and the university team, there was evidence of good levels of reciprocity with some of the project co-ordinators and the volunteers they worked with. This was particularly true where there was recognition of the value that the other could add, creating a self-serving mutually beneficial exchange. For example, many of the volunteers wanted to advance their own personal skills and career goals through working with the co-ordinators, whilst the co-ordinators had a requirement for the local knowledge and social connections of the volunteers. This reciprocity led to many very strong and fruitful working relationships. This kind of reciprocity was already a part of their normal working practices and would have fitted very well in the intervention if it had not been for the obstacles of limited capacity and commissioning deliverables they could not meet.

Another proposed mechanism for the development of reciprocity other than immediate self-interest is investment in reputation building:

Humans have evolved unique cognitive mechanisms which allow them to keep track of past interactions with others for long periods of time, keep track of individuals' contributions in collaborative activities and transfer all this relevant information to others. This allows humans to engage in direct and indirect reciprocity and maintain cooperative interactions at a dyadic level between unrelated individuals. (Melis and Semmann, 2010).

The desire to build or preserve reputations could therefore be a barrier to openness and honesty in collaboration if one party does not feel comfortable with how it is performing against the expectations of the other partner. There was evidence to suggest that this could have been a contributing factor to the lack of an open dialogue between the university team and the community organisations regarding the difficulties they had with the commissioning deliverables.

Reciprocity was most apparent in the interactions with local communities during street engagement and outreach activities where people from the community were talking to their peers and connecting on an emotional level. These activities were largely based on sharing experiences through discussion and establishing a connection, a naturally reciprocal activity. It seems likely that there is an emotional payoff from this activity for both parties. There is very little literature that provides empirical evidence to support the proposed mechanisms that

generate reciprocity specifically within a co-production context. This study adds to the evidence base by exploring the way that the underlying concepts of co-production such as reciprocity play out in the development and implementation of an intervention and translating these concepts into fidelity indicators to assess how well co-production elements are implemented.

7.4 Collaboration and partnership

Collaboration and partnership refer to a commitment to fostering mutual and inclusive working methods between organisations in co-production. The potential of co-production has been described as residing in the equal integration of different perspectives and knowledge from diverse different stakeholders with diverse backgrounds to generate new insights and tangible change (Bovaird, 2007; Stott et al, 2018). Across the development and implementation of the Community REACH intervention, a number of collaborations were involved, some of them more aligned with co-production principles than others.

Collaborations between the university team with the design agency and the university team with the community organisations were characterised by power imbalances connected to differences in disciplinary and working practices as well as insufficient attention dedicated to relationship-building. The briefing and grounding of the project did not clearly articulate the co-productive nature of the intervention and thus did not instigate a change in the normal working practices of the organisations involved and an explicit sharing of power. This supports previous studies in multidisciplinary collaboration which emphasise the importance of establishing a shared understanding between different disciplinary teams at the outset of a project to support strategies and methods for coherent and effective working (Beland Lindahl and Westholm, 2014). Effective collaboration involves individuals sharing a similar *mental model* and shared understanding of the goals of the task (Qu and Hanson, 2015). Therefore, discussion and negotiation are needed to come to joint consensus on the representation and meaning of the task, as well as on the different roles or responsibilities of individuals (Qu and Hanson, 2015).

Some community organisations may be more capable of facilitating co-production than others (Pestoff, 2013). The ethos and values of co-production already

existed within Voyager who adopted a collaborative approach and took ownership of their part in the intervention, working well with the university. Consequently, Voyager displayed higher fidelity towards the co-production elements of the intervention.

There were co-production elements embedded within the deliverables, but they had not been co-commissioned and there was not time to come to a shared understanding of the intended implementation. Not all the organisations interpreted the deliverables in line with co-production principles or were able to meet the deliverables as intended. However, the extent to which organisations could critique, challenge and contribute to the intervention implementation tactics was largely untested. Voyager was the only organisation to exert their own power, adapting their methods to achieve the desired outcomes in a realistic way that reflected their own strategy and capabilities rather than sticking rigidly to the commissioned deliverables. Organisational flexibility has been identified as an important variable in effective co-production (Brown et al., 2012, Schlappa, 2012).

Although Farr (2018) is talking about professionals and service users in the following quote, the point is also valid in relation to the relationships between the organisations involved in developing and implementing Community REACH:

... the ideal of creating 'equal partnerships' between staff and service users can obscure an intricate web of power dynamics that operate in practice... Constantly reflecting upon how different power dynamics are manifesting themselves through co-production processes can support a greater understanding of how to minimise the effects of different inequalities. (Farr, 2018).

Where co-ordinators in the community organisations worked with volunteers there were several examples of collaboration and partnership working. The co-ordinators mentored the volunteers, and this worked very well but was in many cases hindered by a lack of capacity. In one organisation the co-ordinator role was largely seen as a manager of human resources rather than one side of a collaborative relationship with volunteers, consequently failing to deliver the outcomes achieved by other co-ordinators in the intervention.

There was evidence to suggest that mutual respect was fostered despite a power imbalance between co-ordinators and volunteers. This power imbalance was a helpful part of their relationship in that the volunteers needed a mentor-type relationship to develop their skills and confidence. The co-ordinator and volunteers both had a share of power and value to add but not equal status as this would have been counterproductive and unrealistic. The co-ordinators through their professional skills and official capacity had authority that could not be shared with volunteers on an equal basis. That is not to say that the individuals themselves are anything other than equals but their roles were clearly different, and this was naturally understood. Rather than seeking equal power with the co-ordinators during the intervention they sought to develop their own skills and confidence in the relationship whilst adding real value to the collaboration.

7.5 Social capital

In the context of co-production, social capital involves being connected to resources embedded in a social structure. It is considered crucial for individuals, social groups and communities to achieve their objectives and goals. Co-production explicitly seeks to develop new social networks or sustain existing ones. Social capital is recognised as an important individual and community asset. Increased community connectedness and sense of belonging is associated with increased health and social well-being and reduced social isolation (Ross 2002; Shields 2008), and a greater willingness to contribute to community action (Parsfield, 2015). Boyle et al (2010a) note that co-production can increase tolerance, enabling people from different backgrounds to work together, which is of particular relevance in deprived urban areas such as the ones in this intervention. With a focus on building social networks, co-production has the potential to increase the connectedness of participants. This can be with their fellow participants but also community organisations. Outcomes can include greater social cohesion and new friendships (Slay and Stephens, 2013).

Throughout the intervention community members interacted with a wide range of people involved including, design agency staff, health professionals, university researchers, community organisation staff members, other volunteers, as well as

a variety of stakeholders from their local communities (e.g. businesses, health services). These interactions allowed participants to develop different forms of social networks. Some participants were already engaged in their community in formal ways, such as through volunteering roles at local community organisations or as a representative on a parent engagement panel. Others were engaged in more informal ways through their social networks, helping their friends or families with community activities. Participants who were more formally engaged in community life appeared to have a broader knowledge of their local community and a wider range of community connections and were able to make a greater contribution to Community REACH.

Social capital and a sense of connectedness appeared to improve the performance of volunteers in the outreach activities. As noted above, participants involved in more formal community activities appeared to have a wider range of cultural connections and had less difficulty making new connections or approaching people from different communities. Those who had less social capital appeared to be more confident in areas where they felt more of a connection to the community. Confidence was notably lower in areas undergoing regeneration and gentrification, with some commenting on how the area was changing with new people moving in, making some parts feel unfamiliar. This may have contributed to volunteers feeling more hesitant about approaching people on the street and undertaking their outreach.

Those who had more social capital appeared to have a greater ability to contribute to the intervention and those who had lower social capital appeared to want to participate partly to increase their social capital. Participants who described having fewer social connections were more motivated to participate in Community REACH as a means of meeting new people and widening their social networks and life experiences. Improving social capital would appear to have the double benefit of aiding the recruitment of participants as well as making them more effective contributors. Most volunteers described enjoying the social interaction, opportunities to learn from one another, and team identity conferred by working as a group. Working as a group created opportunities for social bonds to develop as volunteers learned to navigate the volunteer role together. These group activities also helped volunteers to forge bonds with their co-ordinator, who they valued the opportunity to learn from.

Across the three intervention sites, volunteers did report that they would have liked to have had more opportunities for social integration of the volunteer team. Given the reported importance of the social integration and the observed benefits of connectedness the intervention might have benefited from the creation of more social opportunities. There were also some missed opportunities to increase the social aspects of existing activities, sometimes through the simple attention to practical matters required to facilitate conversations in a more relaxed manner. Social interactions and relationship building are identified as crucial factors for facilitating co-production processes (Clarke et al., 2018; Filipe et al., 2017).

Volunteers found it hard to build connections outside of their existing social networks without the support of co-ordinators. The co-ordinators were able to mentor them and their official status was helpful in opening doors to community assets. Some strong bonds were forged with other community groups and volunteers and co-ordinators working together developed their own community networks and social capital. This supports the literature on community co-production which is considered to produce wide-ranging benefits such as more cohesive communities, new social networks and increased levels of social capital (Griffiths and Foley, 2009: 5). One of the project co-ordinators (Naomi from Voyager) felt that by developing relationships at the local level she was able to uncover specific community networks that she might not have found out about otherwise. However, she acknowledged that this type of approach required innovative thinking and a greater investment of time to properly develop relationships within the local community and build trust and connections within marginalised, harder-to-reach groups. Since the co-ordinators did not have sufficient capacity to respond to all of the volunteers' requirements for support it is likely that more could have been achieved in this area had additional capacity been made available.

Social capital has potential to spread health information through a community, increasing the adoption of healthy behaviours. Social networks, one component of social capital, may also provide access to resources of various kinds (Mackinnon et al., 2006). Kendall states that the quality of relationships in this micro-social world is increasingly seen as vital in achieving and maintaining better health (Kendall 2003). Whilst it is difficult to assess the outcomes of the Community REACH intervention in this current study, responses from community

members suggested they valued the intervention messages. Similarly, volunteers reported valuing the knowledge gained and some suggested they would continue to deliver the intervention messages through local networks.

7.6 Releasing capacity and developing capabilities of people and communities

Co-production is characterised as an asset-based approach, changing the focus from people's problems to their capacities, skills, experience, knowledge and connections. One of the purported benefits of co-production is its ability to create value in the form of increasing skills and capabilities embedded in the community. Asset-based approaches are considered important for addressing health problems and inequalities. The focus of asset-based approaches is in helping people to take more control of their lives through releasing their existing capacities and capabilities (Foot and Hopkins, 2010).

This study demonstrated that participating in a co-production process enabled volunteers to strengthen their social networks, develop their capabilities and confidence to access new opportunities, becoming valuable community resources. There is very little current research detailing the specific skill development that occurs amongst community members participating in a co-production process (Fox et al., 2018).

The intervention facilitated the development of community outreach skills amongst volunteers. This was partly through specific training provided at the outset for volunteers prior to outreach activities, developing the skills they would require to engage community members and deliver intervention messages. This development activity was enjoyable and provided the opportunity to share experiences and have social interaction with other volunteers. During the subsequent outreach activities volunteers often worked in groups, providing peer support to develop their skills and knowledge further. The process of sharing experiential knowledge facilitates increased reflection of the lived experiences and perspectives of those involved and the potential for greater inclusivity and sense of empowerment (Durose et al., 2011; Jones 2006). There is also evidence to support increased collaborative engagement and social learning through the processes of in group shared experiences (Shteynberg and Apfelbaum, 2013).

Where they had capacity, the co-ordinators facilitated the growth and development of highly engaged volunteers who were able to increase their competence through this support. Many had come to the intervention with personal and career development goals which they were able to make progress towards as a result. This increase in their personal assets may translate into increased future autonomy. Autonomy has been found to be a key outcome from co-production activities in previous studies:

Autonomy may be supported by the focus that co-production places on individual agency, and the change in the professional's role from one who delivers services and therapies, to one who supports and facilitates... Coproduction involves a transfer of power towards the person getting support, and so can create more autonomy and control over long-term goals, as well as everyday activities and types of support (Slay and Stephens, 2013; p13-14).

The co-ordinator was an essential part of the process for building the personal assets of the volunteers. Without them many of the volunteers would have failed to take advantage of the development opportunities. This finding suggests that co-production interventions that invest appropriately in support for the participants will achieve better outcomes in terms of developing capacity and community assets.

The community organisations could have used the intervention to increase their own capacity through an expansion of their connections to other community organisations. Arguably, it required a strategic view to recognise and take advantage of this opportunity. Organisations expressed the opinion that it would have been beneficial for them to have been involved in the intervention at an earlier stage and indeed this may have given them more time to think strategically. Later, when they were invited to participate in joint workshops to share learning, they were already operating at full capacity in the implementation stage and had limited resources to contribute at this strategic level. This suggests that interventions involving community organisations ought to enter discussions early and agree realistic planning horizons with them.

The findings highlighted the partners involved in delivering the intervention development had differing ideas about engagement which presented challenges

to partnership working and affected the extent to which community assets were mobilised. During the co-design phase there were different expectations about the workshop objectives. The university team perceived co-design as empowering when it is used to engage people in a creative process as it may help them appreciate their own skills and recognise themselves as assets (Lam et al., 2017). The agency had a different perspective though and assumed the co-design phase was predominantly about gathering insights. To achieve the full benefits of co-design and co-production, people must be given a chance to go through the whole design process rather than restricted to consultations for requirements gathering and limited ideation (Lam and Dearden, 2015). The workshop attendees were not adequately briefed and the engagement itself was too short to deliver the full benefits of co-design activities. This was a missed opportunity to build further capacity by engaging more fully with the participants.

Co-production interventions can uncover the hidden assets or previously underutilized individual capabilities of community members. A key learning point identified in this study concerns planning for sustainability to support the individual and community assets created through the co-production. Although the individuals whose autonomy and personal assets have increased could be considered both the guardian and disseminator of that knowledge it makes sense to retain them more securely within the community networks. For example, the participants of the co-design phase were not followed up or provided with an update on the results of their contribution. Although some of the volunteers were kept on by the community organisations, others were relinquished at the end of the study, leaving those who had helped them develop wondering if they ought to have been retained somehow. Given that connections had already been made, it might have been worth creating some form of simple communication or social event to help promote long-lasting friendships and peer support groups, the intervention alumni, in an attempt to prolong the positive outcomes.

7.7 Added value

The concept of added value emphasises the potential of co-production to produce different forms of value other than economic, such as the generation of new forms of knowledge, insights, and social connectedness. The potential of co-production

to deliver this comes from bringing together diverse stakeholders with diverse experiences, values and perspectives in collaboration as a group to find solutions and work towards achieving common goals. Co-production champions the inclusion of a diversity of views, values and interests of multi-actor groups to build new relationships and generate new insights and innovations (Filipe et al., 2017; Stott et al, 2018). The concept draws on the co-creation literature which suggests that the value is co-created through the processes of co-production (Prahalad and Ramaswamy 2004, Vargo and Lusch 2008). The current study examined the value added by using co-production in the development and implementation of Community REACH.

The reciprocal interactions between the volunteers and the community members added value through the creation of more relevant and persuasive intervention messages. Co-creation should be considered alongside social innovation, where citizens as end-users of public services are considered to be valuable partners (Bason, 2010; Osborne and Stokosch, 2013). The European Commission has adopted added value in their guidance to support the understanding and practice of co-production. This guidance suggests a shift in focus to the wider value of co-production and ensuring outcomes that demonstrate added value for individuals, groups and society as a whole (Stott, 2018).

This study found that there were many opportunities to add value to the intervention through the sharing of experiential knowledge and social interactions which occurred throughout the intervention. Volunteers who had an extensive knowledge of the intervention site were particularly motivated and enthusiastic to share their knowledge often taking the lead during outreach activities. The added value this brought was in gaining a more in-depth understanding of the local community, accessing local networks, 'below the radar' groups and developing a cultural understanding of the social processes involved in building relationships with certain groups within the local communities.

The involvement of community members through outreach activities brought new insights to bear on how best to communicate the intervention. This finding demonstrates the value of involving people from local communities in the development and implementation of health interventions to ensure their efficacy, acceptability and feasibility in their intended context.

Co-creation supports the exploration of questions such as “how can we improve the quality of life for people living with a chronic illness?” Although social networks may be used to help identify and locate the participants, the real work in this form of co-creation favours more personal interactions and conversations (Sanders and Simons, 2009). In Community REACH intervention the activities within local communities using street engagement and outreach generated new information and insight about culture, gender, community and wider perspectives on ANC.

During the implementation stage some of the co-ordinators, and thus the community organisations, gained significant new knowledge from the volunteers. In one instance the co-ordinator gained new knowledge concerning the process of relationship building with community organisations. This led to a changed approach in implementation that put more of the effort into the relational components of the intervention. This was an innovation in the context of the intervention, reducing reliance on street engagement and enriching it with the use of social networks. Although this method required a greater investment of time to properly develop relationships within the local community, it built trust and connections within marginalised, harder-to-reach groups. This was a clear demonstration of added value.

Although co-design workshops did not have potential to significantly impact on developing capacity, being a relatively short element of the intervention, there was evidence that the ideas generated added value to the intervention design. Added value was not always achieved in all areas of the study. Some opportunities were missed, particularly when organisations were working across disciplines. This suggests that partners did not value or were not able to commit to working differently to draw on each other’s expertise and share learning.

7.8 Strengths and limitations of the research

In this thesis the use of a mixed methods approach helped to broaden the scope of the research, allowing for a more robust explanation of the processes being investigated to build a rich and contextualised picture of the use of co-production in the development and implementation of a community-centred intervention to reduce health inequalities. A key strength of mixing methods is the use of different

methods to answer different research questions about a phenomenon leading to a more complete picture of the phenomenon under study (Harden and Thomas, 2005). The mixed methods approach allowed me to explore participants' experiences of involvement in the co-production process and identify factors that supported or hindered the use of co-production in the Community REACH intervention, and to develop fidelity indicators to assess adherence to co-production principles and practices. An important component of mixed methods research is the integration of the findings from both qualitative and quantitative methods. In this study, I integrated the qualitative findings presented in chapters 4, 5 and 6 in the development of the fidelity indicators and the principles of co-production developed in this thesis from the literature, provided the theoretical framework to frame this research (Greene et al., 1989).

Qualitative methods allowed for the identification of factors that might support or hinder the effectiveness of a co-produced community-centred intervention, and an in-depth exploration of the experiences of those involved in developing and implementing the intervention and how involvement impacted them. The combination of different types of qualitative methods of data collection employed in this thesis enabled me to get an in-depth understanding of the challenges of co-production in practice. The combination of observation and interviews enabled me to investigate co-production practices in real-life settings and gain an understanding of the complexities involved in the development and implementation of the intervention. The use of observation enabled me to more clearly understand the context of participants' daily lives, which influenced their engagement with intervention. Establishing an understanding of participants' daily lives and the context in which the intervention was implemented enhanced both the interview process by more easily establishing rapport with participants but also the interpretation of the interview during analysis.

Defining the principles of co-production for this thesis from the literature provided a framework to support systematic analysis of the data. This framework helped to draw out the co-production elements involved in the development and implementation of the Community REACH intervention, which were used to develop a set of fidelity indicators. These were generated by identifying the key co-production elements involved the development and implementation of Community REACH grounded in the theoretical and empirical literature on co-

production. This represents a new approach from that commonly seen in assessments of public health interventions which involve co-production.

This research has also highlighted the conflict described in the literature concerning the assessment of co-production practice which focuses on structural elements (e.g. commissioning deliverables) rather than on more 'holistic' methods to assess the relational elements of co-production. An additional strength of the research undertaken for this PhD relates to the assessment of co-production within the context of a pragmatic RCT which will facilitate a more comprehensive assessment of the use of co-production in interventions to reduce health inequalities.

My position within the REACH Pregnancy Programme team provided me with multiple perspectives from which to assess the Community REACH intervention. Being embedded within the wider programme team gave me a unique insight into all aspects of the development and implementation of the Community REACH intervention. From this perspective I was able to witness the challenges of developing, co-ordinating and implementing a pragmatic randomised control trial involving multiple collaborators, community organisations, stakeholders, and community members, across multiple intervention sites. This supported analysis of data sets as the context of the Community REACH intervention was fully understood. However, the embeddedness of the researcher within the programme team could also be considered as a limitation of the current research. The potential for researcher bias is acknowledged an important consideration in the study. Throughout the research process every effort was made to reduce the potential for researcher bias, particularly during data analysis and interpretation. This involved having an awareness of the potential for bias throughout the research process. As the intervention developed, I attended programme team meetings as an observer rather than participating fully in them. Throughout the research process I tried to ensure transparency and reflexivity in data collection, analysis and presentation, through critical self-reflection about my own preconceptions, relationship dynamics with the programme team, and analytic focus (Polit and Beck, 2014). This process was aided by the active use of a reflexive journal, the practice of having another researcher read and code some of the transcripts and in-depth discussions of analysis and interpretations carried out with my supervisory team and other PhD colleagues.

One limitation of the research relates to the sample recruited for qualitative interviews. There was potential for selection bias amongst those who chose to participate in the interviews, for example, where convenience sampling was used or where the project co-ordinator was asked to approach participants for interview (i.e. they may have been more likely to approach those they knew had a positive experience). Therefore, it may be that those who participated were those who were the most positive about the intervention. Those who may have had a more negative experience may not have put themselves forward to take part. I was also not able to follow-up with Community REACH volunteers who left their role during implementation due to the challenges of maintaining contact. In addition, I was not able to include more community stakeholders, such as community midwives and other stakeholders who were involved in the co-design workshops in the sample as anticipated. In their organisation of the co-design workshops the Agency sought to focus on gathering the perspectives of local women rather than wider stakeholders. Therefore, the experiences of other community stakeholders, or those choosing not to participate in the interviews or who left their role as a Community REACH volunteer may have been different from those presented in the current research and made it difficult to determine if I was able to achieve a maximum variation of perspectives.

It was my intention for community members to be the primary focus of my study. However, on reflection, it may have been advisable to seek additional perspectives from the University team, particularly the principal investigator leading the Community REACH Trial and members of the research team who may have provided further insights and broadened the variation of perspectives for the study. I should acknowledge here, that although they were absent from my interview sample, their presence in the co-production chain is visible throughout my thesis. Their contributions helped to shape the research and aided my reflexivity by presenting alternative viewpoints and perspectives through their involvement as my supervisory team and my involvement in research meetings. Descriptions of participants characteristics interviewed in this phase of the study can be found in Table 3.

A further limitation was the small sample size of participants interviewed, particularly of participants involved in the co-design workshop. However, the

focus of the interviews was on gaining an in-depth understanding of each individual participants' experiences and perspectives on their involvement in the intervention development or implementation. Observations in the field enhanced engagement with participants and supported interpretation of interview data. Findings demonstrated the potential for co-production to increase community connectedness, build social networks and enhance the capabilities and access to opportunities for those community members who participate in a co-produced intervention.

Embedding my research within the Community REACH pragmatic RCT meant that my research was subject to time timescales of the trial. Data collection was dependent on its delivery. Due to the complex nature of the trial and delays in intervention development and delivery (approx. 16 months later than planned) my research (data collection, research questions) required continuous readjustment. For example, I was unable to undertake follow-up interviews with Community REACH volunteers to more thoroughly assess their perceptions of the impact of participating in the co-production process.

Another important consideration is the process and conduct of the qualitative interviews. An important part of the research design was the participant's own preference regarding where the interview took place. Each participant was offered the opportunity to choose where they preferred to be interviewed. Interviews took place in a variety of settings local to each participant and included workplace, a community centre, local library and a local café. A number of the Community REACH volunteers were interviewed in a local café and this setting may have influenced their accounts. Participants may have felt self-conscious about being interviewed in such a public setting. To alleviate feelings of self-consciousness I arranged wherever possible for interviews to take place in the morning to avoid the busier peak times. I sought to create a relaxed atmosphere by engaging in everyday conversation before beginning the interview to encourage free-flowing conversation and ensure the interview was as natural as possible. In addition, the potential for some participants to provide socially desirable answers i.e. giving interviewers the answers they feel the interviewer will want to hear (Collins, et al., 2005; Esterberg, 2002) should also be recognised. To reduce the potential for social desirability bias I explained the

research aims, importance of honest reports to the value of the research, as well as emphasising the confidentiality of interview material.

It is important to emphasise, the findings presented in this research are my interpretation of events and participants' accounts that I considered to be most relevant to the current research. Every effort has been made to ensure the quality and validity of the research in line with common criteria for assessing qualitative research. A range of definitions and criteria exist for assessing quality and validity in qualitative research (Bryman, 2012). Yardley et al., (2000) defines four broad criteria: sensitivity to context, commitment and rigour, transparency and coherence, and impact and importance. To ensure the quality and validity of my findings, I have attempted to address each of these components in this thesis. Sensitivity to context concerns the researcher's awareness of all facets of the context of their study – theoretical, socio-cultural, interpersonal and ethical. Extensive consultation of the relevant theoretical and empirical literature provided me with sensitivity to enable me to contextualise and understand issues arising in the current research. My reflection on researcher reflexivity, set out in chapter 3 discusses my sensitivity to the interpersonal aspects of the research context. Sensitivity to ethical considerations have also been outlined in chapter 3.

The concept of commitment refers to prolonged engagement in the field to gain an understanding of the context of the research (Yardley et al., 2000: Lincoln and Guba, 1985). This was achieved through extensive periods of time spent in the field, conducting observations of engagement and outreach activities, and interacting with a variety of actors involved in the development and implementation of the Community REACH intervention. This prolonged engagement helped me to overcome any preconceptions about the intervention site or local community, as well as helping to build rapport and trust with participants which enhanced the interview process

Rigour is the completeness of data collection, analysis and interpretation. This was achieved by the thoroughness of data collection from a variety of sources using different methods until no new analytic categories emerged i.e. data saturation (Green and Thorogood, 2014); and comprehensive analysis of all data sets, as outlined in detail in chapter 3. Rigour was also achieved through ongoing discussion with my supervision team to ensure my interpretations of the data

remained grounded in the data. Transparency and coherence are concerned with clarity in the methods and analysis undertaken. The ability to assess the integrity of the current research was achieved by detailing all aspects of the research process to provide an audit trail to enable the reader to determine the coherence of the study (Yardley et al., 2000; Mays and Pope, 1995). Impact and importance are key factors in determining the value of the research. The value of the research may relate to enhancing theoretical understanding but also may have wider practical impact on policy and future research (Yardley et al., 2000). The current chapter outlines the contributions of the current thesis to knowledge regarding the use of co-production as an approach for developing and implementing a community-centred health intervention and how the research findings might be used to enhance the effectiveness of the application and assessment of co-production and its impacts.

(i) *Reflections on PPI and co-production within PhD study*

In this thesis I have drawn together the theoretical conceptualisations and practices of co-production to produce a framework of key principles of co-production with the intention of translating theory into practice. As discussed in section 3.9, PPI was an integral part of the wider REACH Programme through the convening of a Programme Steering Committee (PSC) and Trial Steering Committee (TSC), both with PPI representation. Through these advisory groups and PPI representatives I was able to take advantage of opportunities for involvement in my research and seek feedback on my research questions, research design, topic guides and preliminary research findings. In addition to these more formal forums, during the implementation phase of the intervention, I was able to share and discuss emerging findings from my research with community organisations and volunteers at the more informal Community REACH 'get togethers'. These were learning events and all those involved in the intervention were encouraged to participate in the research process and share their thoughts on the emerging findings.

In setting out their guidance in co-producing research, INVOLVE suggests such an approach involves '*researchers, practitioners and the public work together, sharing power and responsibility from the start to the end of the project, including the generation of knowledge*' (INVOLVE, 2018). However, it is acknowledged that for doctoral students achieving this level of participation can be challenging

(Coupe and Mathieson 2020; Dawson et al., 2020). These authors cite time and financial constraints as common challenges to Patient and public involvement (PPI), specifically in relation to mismatches in funding timelines, fieldwork time needed to engage with groups cited and compensation. However, these and other authors (Liabo and Roberts 2019; Liabo, 2013) have suggested strategies and recommendations for how PPI can be incorporated into doctoral research. Strategies include planning PPI contributors into the research and involving them from the outset, offering flexibility and understanding of expectations from involvement from both sides (e.g. developing a framework for the way involvement will be facilitated and implemented), tapping into existing university-based PPI panels or topic related advisory groups, using targeted consultation on specific requests or tasks or embedded collaborations (e.g. 'Research Buddies') or setting up a research club (at a local primary school for example). In addition, these authors have provided examples of opportunities for co-production in their own research, and reflected on the value of PPI to the research process and the individuals involved, highlighting: assisting with data analysis; problem solving and improving recruitment rates; improving the usability and appeal of data collection tools and interventions; and developing implementation strategies. Patient and public involvement was considered a rewarding experience, with mutual learning cited as a benefit for both researchers and PPI contributors (Coupe and Mathieson 2020; Dawson et al., 2020, Liabo and Roberts 2019; Liabo, 2013).

Although there were elements of PPI in my research design, reflecting on the insights of the authors above in conjunction with the knowledge gained through the completion of this thesis, I acknowledge that there was greater potential to embed co-production within it. For example, I could have convened an advisory group made up of PPI members or alternatively combined members of the public, academics, community organisations and policy representatives. I could have sought advice from members of the wider REACH Programme research team, university networks and community gatekeepers to advise on potential representatives. Collaborators could have included a representative from one of the local community organisations involved in Community REACH, Community REACH volunteer or community midwife. This group could have helped: to refine the research questions and research design; enhance data collection tools and

techniques (e.g. ensuring tools used plain English and were jargon free, help with participant recruitment and interview practice); review interview transcripts and identify emerging themes; review and develop fidelity indicators for co-production; and in the dissemination of research findings (e.g. co-presenting at research conferences, co-authoring publications, co-facilitating at dissemination events). Embedding co-production more comprehensively in this research could have helped to improve the credibility and validity of the research process and relevancy of the findings. Co-producing the research could also have provided a mechanism for demonstrating/testing the principles of co-production developed in this study. For example, co-producing aspects of the research alongside a community member would have provided an opportunity to share and mobilise experiential knowledge and enable mutual learning and reflection. The opportunity for collaborators to challenge researchers' assumptions and contribute to the direction of the research could have demonstrated the added value of including different types of knowledge and experience. Convening an advisory group could have offered collaborators the opportunity to extend their networks with each other and meet people who they would not usually meet, building their social capital. In addition, embedding co-production in this research study could have served as a practical example of co-produced research and thus contributed to the evidence base.

As the research developed, I did undertake a process of reflection on the difference between 'co-producing research' and 'researching co-production' with colleagues and my supervisory team which culminated in a conference presentation '*Co-producing Research and Researching Co-production*' presented at the IRiS International Conference 2017: global perspectives on research co-production with communities. The presentation invited discussion and the exchange of ideas and experiences of co-producing research and researching co-production and helped to further my own awareness of the distinction and what I would have liked to have achieved in relation to co-production of my own research.

Finally, in reflecting on the principles of co-production developed in this thesis, I tried to ensure that I conducted my research respectfully and inclusively. Whilst recognising the importance of maintaining, as Hammersley and Atkinson (2010, p 90) describe as a 'social and intellectual distance', I tried throughout my

research to recognise the community members who participated in it as people rather than research subjects, through my actions and language. It was important to me to recognise the contributions of community members to my study and I tried to do this in a number of ways. As described above, spending time in the field helped to build trust and rapport with potential interview participants. In all my interactions I treated community members with respect and acknowledged the contribution they were making to my study by sharing their experiences with me. In recruiting participants for interview, I tried to provide as much accessible information about the interview as possible so that participants knew what to expect and could feel more comfortable. I took a flexible approach in arranging the interview setting - all interviews were held in community locations and were chosen by participants themselves. This was an attempt to re-balance the power relations and to meet the needs of participants rather than mine as a researcher.

As someone who is genuinely interested in people and their experiences, the interviews always involved some 'getting to know each other' time at the start and end. Although this added to the interview time, it was enjoyable and helped make the interview more of a shared experience for both participant and myself. I also found that it helped make participants feel less nervous and more at ease during the interview, as most had never experienced a research interview before. During the interview process participants were invited to reflect on their contributions to the Community REACH intervention. This often prompted a greater awareness in participants of their existing skills, and how to articulate them, as well as identifying instances where their involvement in the Community REACH intervention had provided an opportunity for them to improve their skills, develop new knowledge or learning. For staff from community organisations, the interviews provided an opportunity to reflect on the learning from participating in the Community REACH trial, and how they might strengthen their existing assets and processes by sharing ideas and learning with the other community organisations involved. In addition, I also provided refreshments and a LOVE2 Shop voucher for each participant, which I hoped made participants feel valued and respected (Liabo and Roberts, 2019).

I tried where possible to build and maintain relationships with the community organisations and participants who took part in my study. I did this by being approachable, sensitive, tolerant listening and understanding. I also tried to keep

an ongoing dialogue with participants updating and informing them of progress. For example, with Community REACH volunteers I notified them on WhatsApp about the end of intervention 'get together' and they would update me on their latest news, such as getting a new job or volunteering role. However, it was challenging to maintain continuous involvement and relationships with all study participants as the Community REACH trial took place over a long period of time. The experiences, values and perspectives of all actors involved have contributed to the research findings presented in this thesis. These contributions have helped to challenge my assumptions and develop my understanding of the often 'woolly' concept of co-production both theoretically and practically. Further, the different types of knowledge provided by those participating in this research have helped generate new insights into the practical facilitators and challenges of developing and implementing a co-produced intervention in a community setting and illustrated the potential of co-production for reducing health inequalities.

In this final section I have reflected on the way I have worked with the people involved in my research and whilst I am not claiming that this relates to co-production of research, this reflection has been valuable learning for practice in conducting research in which I will embed co-producing research in a stronger way.

7.9 Implications of findings for practitioners and policymakers

The findings of this thesis support and enrich existing guidelines and frameworks on co-production (NICE; NEF; SCIE etc) by providing empirical evidence on the mechanisms that support or hinder the co-production process. If co-production elements are delivered with high fidelity, this will increase the potential of co-production to deliver positive changes in outcomes of factors at the individual level which would be critical to the success of any co-production related programme. The co-production fidelity assessment framework can be used by evaluators and commissioners. For evaluators the fidelity indicators provide a way to more comprehensively assess the co-production elements of interventions. For policy makers and practitioners, it is a tool to bridge the gap between assessment of outputs and outcomes currently debated in the literature

(Fox et al., 2018). Commissioners can use it to translate outcome-focused deliverables into more tangible specifications for commissioning co-produced initiatives, giving them the confidence to support longer-term co-produced initiatives.

The findings of this thesis have demonstrated the ability of co-production to generate valuable community assets. It has identified the requirement to properly resource the start-up phase of any co-production process to extract longer term value through the generation of more self-sustaining talent pools able to provide peer support and learning, extending community social capital. The findings also confirm the importance of creating opportunities for social interactions in co-production. This implies that practitioners should not neglect the more mundane practical requirements that facilitate these interactions. They are part of the conditions that allow co-production to happen and include not forgetting details like the provision of refreshments (and inviting people to enjoy the refreshments) and that adequate resources should be factored in to facilitate the more intangible relational aspects of co-production. This research has also shown that practitioners need to build on the motivations of the people they want to be involved to enable them to more easily contribute; people generally want to work in a co-productive way, so less encouragement is needed for people to do it if conditions are right. The research has also found that whilst community organisations are well placed to support co-production process, they may need support and capacity building to enable them to effectively work in line with co-production principles.

7.10 Unanswered questions and future research

The assessment framework and fidelity indicators were specifically developed for the assessment of co-production processes within the development and implementation of the Community REACH intervention. The current research assessed a multi-layered co-production process occurring at the individual, group and organisational level. The current framework would benefit from further refinement and definition of the multi-layers at which co-production occurs to connect these layers more explicitly to outcomes to aid understanding. For example, applying Pfadenhauer and colleagues notion of context at the micro

(level of direct action such as community members, stakeholders, groups), meso (level of community, organisation or institution), and macro (policy level - regional, national or international) levels (Pfadenhauer et al., 2017).

The current research was unable to comprehensively assess impact on community members participating in the co-production process. Conducting follow-up interviews with community members on completion of the intervention would have allowed for further exploration of impact. In addition, conducting interviews with participants who dropped out of participating in the intervention would have illuminated reasons for this and helped understand motivation for engagement, how to improve recruitment and retention methods and the effectiveness of the intervention. This would help to determine who and who does not benefit from co-production and which aspects of the projects are most important for building capacities.

More research is needed to assess the processes and impact of a co-produced intervention over a longer timeframe. This research suggests that the Community REACH intervention had created a valuable community resource in the Community REACH volunteers but it is unclear whether a longer period of implementation would have elicited a greater impact of those involved in implementing the intervention. This thesis is being completed before the end of the trial and is unable to assess the effectiveness of the intervention on primary outcomes i.e. increasing the proportion of women attending early for ANC. It would be of interest to review the outcomes of the trial to assess whether a co-produced intervention led to the desired outcomes. There is currently very little assessment of the sustainability of co-produced interventions (Clarke et al., 2017). Future research should assess the sustainability of any impact and whether using co-production as an approach to reduce health inequalities can lead to sustained improvements over time.

7.11 Conclusion

This thesis provides evidence of the potential for co-produced health interventions to reduce health inequalities. This is evidenced in findings from the qualitative study, fidelity assessment and the supporting literature.

Across this study reciprocity was found to underpin relational processes and to be the facilitator of other key co-production elements including collaboration and partnership, social capital, added value and releasing capacity and developing capabilities of people and communities. Collaborative practices were found to be characterised by power imbalances connected to differences in disciplinary practices and insufficient attention dedicated to relationship-building. This points to the need for a deliberate focus on relational practices to underpin more reciprocal relations and inclusive environments. Without these it was difficult for the actors to establish a shared understanding about the nature of the collaboration, effectively negotiate roles, encourage social interactions among participants, and ensure a consistent high-fidelity co-production approach.

My empirical research focuses on an intervention designed to reduce inequality in access to antenatal care. Through their participation in a co-production process the Community REACH volunteers became a valuable community resource with knowledge to help change values and norms in relation to ANC.

Co-production involves active participation of individuals and communities in designing, developing and implementing interventions, services or initiatives through equal and reciprocal relationships. There is a lack of empirical evidence concerning the process and impact of co-production, specifically in translating theory into practice and identifying factors that influence implementation and impact.

This thesis used a mixed methods approach involving observations and interviews to identify factors that supported or hindered the use of co-production in a community intervention. The study developed fidelity indicators to assess adherence to co-production principles and practices. This study developed fidelity indicators to enable assessment of the extent to which co-production principles and practices are adhered to in the development and implementation of a co-produced intervention. Fidelity assessments have been recommended for strengthening process evaluations of co-produced interventions (Fox et al., 2018).

The study found that co-production can produce community capabilities and added value. Participating in a co-production process enabled volunteers to

strengthen their social networks, develop their capabilities and confidence to access new opportunities, becoming valuable community resources.

Fidelity indicators developed in this study identify critical factors in the co-production process, what sort of factors they are and potential solutions to avoid or address them, offering a systematic framework that leaves room for creativity in co-production.

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APPENDIX 1: OVERVIEW OF COMMUNITY REACH TRIAL STUDY

The Community REACH trial study is a pragmatic cluster randomised controlled trial (RCT) of a community-centred intervention to increase early uptake of antenatal care across North and East London, and Essex. It is one component of a wider programme of research, the 'REACH' Pregnancy Programme. This is a five-year National Institute of Health Research (NIHR) funded programme focused on improving access to, and experience of, antenatal care (ANC) for pregnant women living in areas with high levels of poverty and high ethnic diversity.

The origins of Community REACH lie in earlier epidemiological and qualitative exploratory research conducted by the study team, looking at the predictors and barriers for late initiation of antenatal care (Cresswell et al., 2013; Hatherall et al., 2016). The research was funded by a UK National Institute for Health Research (NIHR) Programme Development Grant funding with the aim of developing of a new intervention to improve early initiation of antenatal care in diverse and disadvantaged urban areas. The research was conducted in an area of East London with a high proportion of births to mothers who were not born in the UK. In addition, local stakeholders were brought together a public engagement workshop to discuss the findings and ideas for a possible intervention. Participants felt any intervention should focus on empowering local women's networks in a collaborative process.

Community REACH emerged from this preparatory work. The study assesses the effectiveness of a community-centred intervention at the electoral ward level which aims to a) raise awareness in local communities of the value of antenatal care and its early uptake, and b) support women in how and when to access care.

The main mechanism for achieving this is through a co-production process that engages local communities within the intervention wards to customise the content and communication of intervention messages, through local networks using peer delivery. The intended primary outcome measure for Community REACH is:

- the proportion of pregnant women in each ward who have attended their antenatal booking appointment by the end of the 12th completed week of their pregnancy.

- Secondary outcome measures will be antenatal admissions, emergency caesarean rates, pre-term birth and low birth weight.

Community REACH trial study design

Community REACH uses a pragmatic cluster randomised controlled trial design, with integral process and economic evaluations. This type of design is increasingly recommended for complex community-centred public health intervention because they allow for interventions to take account of and be responsive to local contextual factors while still providing rigorous and meaningful evaluation (Phillips et al., 2014). Figure 1 shows the Community REACH study design.

Six NHS trusts (eight hospitals providing NHS maternity care in total) across north and east London and Essex agreed to participate in Community REACH. To allow for randomisation and intervention delivery electoral wards in these areas were selected as the unit (cluster) of analysis. The research team identified 20 electoral wards with high delayed rates of initiation of antenatal care, distributed across the geographical areas served by the selected participating hospitals Ten wards were randomised to intervention and 10 to control ensuring that no wards neighboured one another to minimise intervention/control site contamination.

The outcomes of the trial are being measured using anonymised routinely collected maternity data from women in the selected electoral wards who give birth at a hospital enrolled in the study over a 12-month period. Data will be collected at three different time points baseline (T1), six months (T2) and 12 months (T3) post intervention depending when the intervention was delivered.

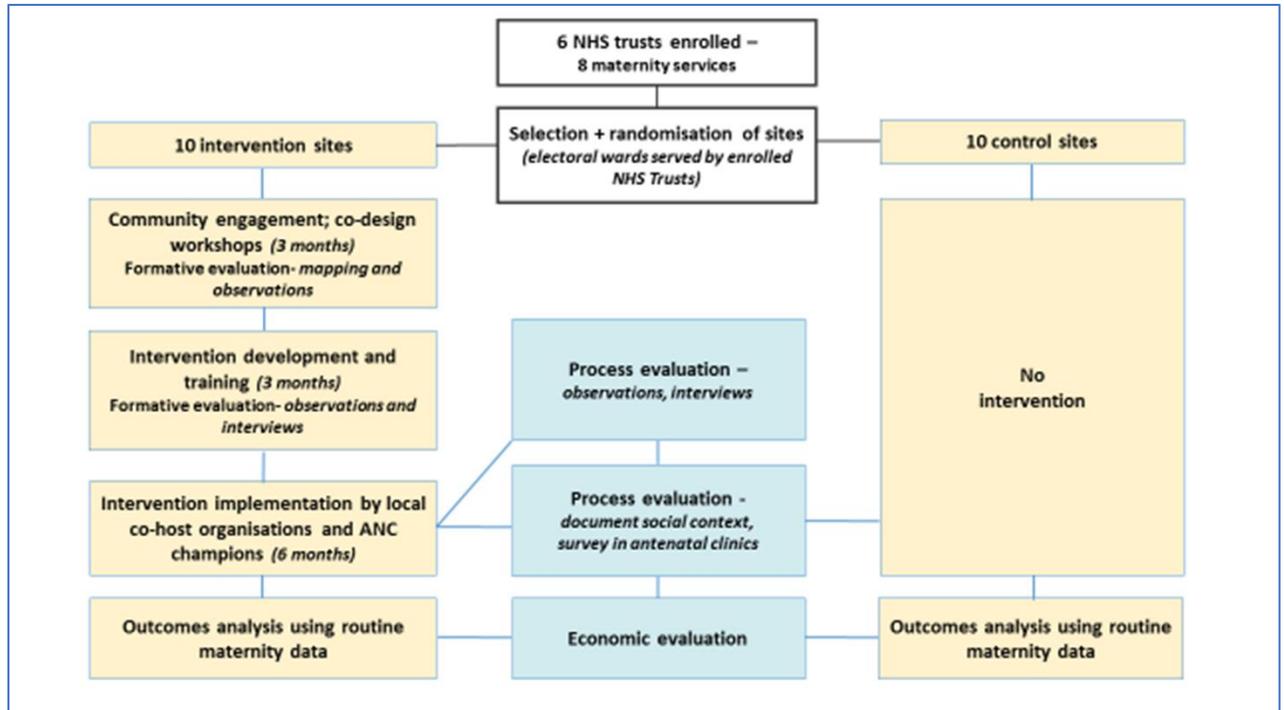
Development and delivery of the intervention

The intention of the Community REACH intervention was that it would be delivered/co-produced across each of the 10 intervention sites (electoral wards), with each component of the intervention tailored to the local community thereby addressing cultural beliefs and motivational barriers.

To take account of and understand the complexity of the intervention the research team took a theory of driven approach, developing a theory of change framework to guide the development and implementation of the intervention and articulate

the potential change process and events linking intervention activities to their desired outcomes.

Figure 1 Community REACH study design



The framework is underpinned by concepts of community engagement and health literacy Figure 2 below illustrates the theory of change framework for Community REACH.

To identify how to deliver the intervention (change mechanism) a social design agency with experience of collaborative NHS health projects involving community engagement, was contracted to work with the research team to engage with local communities to co-design and deliver the intervention. The design agency proposed to spend 2-3 days engaging with local people in each intervention site, for example at local community facilities, marketplaces, and other areas of local footfall. The purpose of this was to:

- gain an understanding about appropriate messaging, channels and opportunities
- check existing insight and communication mechanisms with target groups
- recruit local people to take part in a later co-design activity

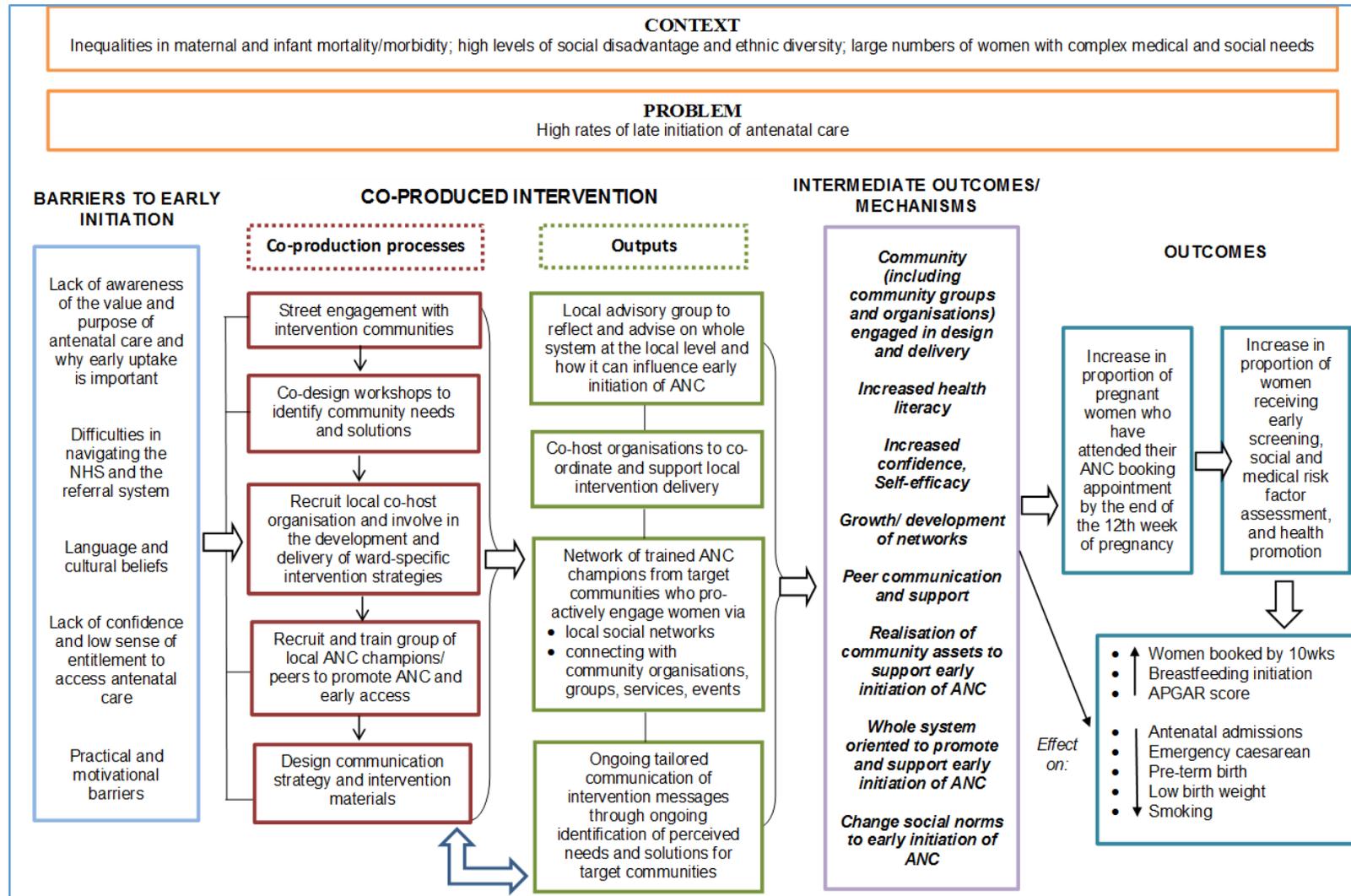
To facilitate this process the research team prepared relevant information on current referral pathways to antenatal care, demographic information and community assets and organisations to create an area/ward profile for each intervention site. Community midwives in each intervention site provided further information on local knowledge on barriers to accessing services. In addition, the agency team were supported in carrying out engagement activities by members of the of the University's community engagement team. This combined engagement team carried out engagement activities sequentially across the 10 intervention sites, speaking to local women and other family members about their experiences of antenatal care, perceived importance of antenatal care, and their thoughts and opinions on the local area; and inviting them to participate in a later co-design workshop. Those people expressing an interest in participating in the forthcoming co-design workshop were asked to give their contact details and were given a printed takeaway with project contact details.

Once engagement activities had been completed across all intervention sites the agency began consolidating the information to develop the format for the forthcoming workshop in each intervention site. This period also required that the agency keep in contact with those people who had expressed an interest in participating in the co-design workshops to keep them 'warm' and the momentum going in the wait before the co-design workshop.

After a period of about six weeks a co-design workshop was held in each intervention site. The agency managed the facilitation and organisation of each of the workshops – booking venues, inviting women, representatives from local community organisations and community midwives, organising refreshments, expenses, crèche facilities, workshop materials and activities.

During these workshops members of the agency team led participants through in a series of creative activities designed to get them to work together to generate ideas for key messages, materials and events to improve early uptake of antenatal care in the local area. The main ideas coming from these workshops concerned improving the communication and signposting of antenatal care services – what services are available, how to access them and the purpose and benefits of antenatal care.

Figure 2 Theory of Change Logic model for the Community REACH intervention



Sawtell M, Sweeney L, Wiggins M, Salisbury C, Eldridge S, Greenberg L, Hunter R, Kaur I, McCourt C, Hatherall B, Findlay G, Morris J, Reading S, Renton A, Adekoya R, Green B, Harvey B, Latham S, Patel K, Vanlessen L, Harden A (2018) Evaluation of community-level interventions to increase early initiation of antenatal care in pregnancy: protocol for the Community REACH study, a cluster randomised controlled trial with integrated process and economic evaluations. *Trials* 19:163.

Workshop participants felt this should be done at a local level through local connections, peer networks and community groups. Participants also felt some of the information about ANC should be communicated to men as they are often the first source of support and women wanted to involve their partners more or 'educate' men more about ANC in order for them to better support them and feel more included. At the end of each workshop participants were asked to indicate if they would like to remain involved in the project.

Co-design workshops took place over a three-week period, after which the agency began what they referred to as a 'pause and reflect' process, analysing outputs of the co-design process in preparation for discussion on how they may be taken forward for implementation. Potential intervention designs based on workshop outputs were discussed between the agency and research team with consultation from Community REACH's Public Patient Involvement representative. As described earlier the collective core themes emerging from the co-design workshops concerned communication – methods and channels. These core themes were used to inform the development of a community-centred intervention, which would be co-produced and draw on the concepts of health literacy, involving the communication of information about ANC through local peer networks.

Community REACH - set up and implementation

The process of refining the components of the intervention model and planning for set-up and implementation was quite complex and beyond the scope of the agency. Thus, subsequent stages of intervention development and implementation were brought in house. However, the agency continued to work with the research team to develop the communications strategy and a package of visual communication materials containing key intervention, based on the outputs from the co-design workshops to support intervention delivery. A focus group was held with women from Eastgate Park to include them in the decision-making about whether and how the intervention messages ought to be tailored for each site.

The research team worked on several iterations of the intervention model to ensure it reflected the formative research, theory of change model and the

outputs from the co-design workshops. The intervention model that developed involved recruiting a local community organisation in each intervention ward to co-ordinate and support intervention delivery on the ground. Community organisations were selected on the basis they met certain criteria, for example: experience of managing, supporting and developing outreach teams; demonstrable experience of working with vulnerable groups including black and ethnic minority communities: strong links to local and statutory health services. Selected community organisations were then contracted to meet a number of specific project deliverables and milestones as outlined in Box 1, within a three-month set up period. This period included two days of tailored Community REACH training delivered by a qualified midwife and trainer for community co-ordinators and volunteers in each intervention area. Training sessions covered aspects of the antenatal care system (referral pathways, the purpose and benefits of antenatal care), adult and children safe-guarding and communication skills involving role play activities.

Community organisations in each intervention ward began delivering the intervention in their area once each community organisation they had completed their Community REACH training.

Evaluating Community REACH - process and cost effectiveness evaluations

Alongside the impact evaluation Community REACH is being evaluated through a formative process and cost effectiveness evaluation (Evans et al., 2015a). The components of the process evaluation are:

- i. Documentation and analysis of the local social contexts in intervention and control sites
- ii. Documentation and analysis of intervention activities
- iii. Interviews with Community REACH volunteers, co-host representatives and other stakeholders involved in the trial
- iv. Survey to assess exposure to the intervention and its influence

Box 1 Community REACH Co-host deliverables and milestones

- Recruit a Community REACH Project Coordinator
- Draw up collective and individual local outreach plans.
- Create a project plan that outlines key activities and information on timelines.
- Recruit at least 10 volunteers onto the project from the target ward and recruit additional volunteers as needed.
- Hold a launch event to introduce the project to and get buy-in from local ward-level organisations and communities and to inform the assets for the outreach plan.
- Support each volunteer to carry out at least 50 conversations per month over the life of the project and where possible complete a conversation form detailing whether the person lives in the ward, their gender, language of the conversation, ethnicity, age, and where the conversations took place.
- Create local profiles and mapping of community assets to inform local outreach strategy created.
- Set up and convene 3 Local Advisory and Action Group meetings within the 9-month intervention set-up and delivery period.
- Complete a monthly report and a final project report, outlining ANC outreach activities, participants reached, targets met, number of hours volunteers have spent on the project each month and subsequent learning, issues and developments within the project.
- Attend a pan-REACH project events to feedback and share learning.

The process evaluation covers all stages of Community REACH from intervention development through to post intervention. The data from these evaluations gathers insight into the implementation of the intervention across all intervention sites, from the perspective of all involved and captures the information needed to assess and address issues of implementation, acceptability, feasibility and effectiveness.

Information relating to the development and implementation costs of the intervention for each ward collected during the process evaluation is being used to evaluate the cost effectiveness of the Community REACH intervention compared to current practice.

**APPENDIX 2:
OBSERVATION TOPIC GUIDE AND TEMPLATE**

Community REACH - OBSERVATION PROMPT SHEET

Participants:	Who is attending - community participants; UEL, Community Midwives; Community Stakeholders, health advocates, interpreters, friends and numbers in each group
Participants characteristics:	Ethnicities, clothing, age, physical appearance; languages spoken and how this has been managed – translator, health advocate, relative or friend, none
Facilitation of workshop activities	Welcome & introductions, housekeeping, overview of event & activities, closing remarks, next steps, management of expectations, focused on ANC, area specific
Format/ structure of the workshops/ co-design events:	What type of activities; timings of activities
Time management	Timings of activities and different stages, pace, adequate breaks
Materials & resources	What sort of materials and resources are being used - visual aids, worksheets. Ideas sheets
Outcomes of the workshops/ co-design events	What are the outcomes of the co-design, what are plans for intervention development and implementation, who is involved?
Mood of workshop	What was the mood of the workshop – positive, negative, tense, conflict, motivated, enthusiastic, confused, fun, energetic
Verbal behaviour and interactions	Who speaks to whom, who initiates interaction, tone etc.
Physical behaviour and gestures	Who does what, who interacts with whom, who does not interact, personal space etc.
People who stand out	Who are the people that stand out – dominant characters, who spoke most, who spoke less,

Follow up conversations:	Where there any follow up conversations – who with, why, what was discussed
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Community REACH - OBSERVATION SHEET

Event

File name:	
Ward:	
Researcher:	
Location/Site:	
Date/Time:	
Host organisation:	
Venue and setting:	
Weather conditions:	
Facilities: (toilets, crèche, refreshments, disabled access etc.)	

Attendees

Design Agency team members:	
Other facilitators: (if any)	
Participants: (Who? Community participants; UEL, Community Midwives; Community Stakeholders)	

<p>Participants characteristics: (ethnicity, clothing, age, physical appearance)</p>	
<p>Languages/ interpreters:</p>	
<p>Workshops/ co-design events</p>	
<p>Facilitation of workshop activities (welcome & introductions, housekeeping, overview of event & activities, closing remarks, next steps):</p>	
<p>Format/ structure of the workshops/ co-design events: (type of activities; timings of activities)</p>	
<p>Time management (timings, pace, adequate breaks):</p>	
<p>Materials & resources (visual aids, worksheets. Ideas sheets)</p>	
<p>Outcomes of the workshops/ co-design events (plans for intervention development and implementation)</p>	
<p>Summary impressions & conclusions</p>	

Key strengths & weaknesses	
People	
Verbal behaviour and interactions (who speaks to whom, who initiates interaction, tone etc.)	
Physical behaviour and gestures (who does what, who interacts with whom, who does not interact, personal space etc.)	
People who stand out	
Follow up conversations:	

Free text

Observation topic guide

Prompt sheet - volunteer training

Venue/setting:	Location; room set up; facilities; refreshments; crèche
Attendees:	Who is attending? Facilitators; volunteers; UEL researchers; others
Characteristics of volunteers:	Ethnicities, clothing, age, physical appearance; languages spoken (how this has been managed translator/friend/another volunteer); existing relationships
Facilitation of training activities:	Greeting on arrival; welcome & introductions; housekeeping; overview of training & activities; explanation of research; explanation of role; explanation of ANC; level/balance of facilitation; closing remarks; next steps; management of expectations; type of activities; timings/pace of activities; breaks
Materials & resources:	What sort of materials and resources are being used during the training; what is volunteers response to REACH communication materials
Verbal & physical behaviour and interactions:	Who speaks to whom, who initiates interaction, tone; who does not interact, personal space; who are the people that stand out – dominant characters, who spoke most, who spoke less, etc.
Group cohesion:	Shared experiences; participation in tasks; working together; social interactions; group pride/motivation;
Preparedness for role	Understanding of task/role; identifying local assets; targets groups; understanding of ward boundary, opening approaches; talking about ANC

Observation topic guide - Implementation – outreach activities

File name:	
Ward:	
Researcher:	
Location/Site:	
Date/Time:	
Co-host organisation:	
Weather conditions:	

Intervention team

Intervention team: Who is participating? Facilitators; volunteers; UEL researchers; others	
Volunteers -characteristics: Ethnicity, clothing, age, physical appearance; languages spoken; relationship with other volunteers; confidence/apprehension/enthusiasm	

Engagement process

Engagement process: Briefing/de-briefing; format/structure of the engagement process/activities; where engagement takes place; recording conversations	
Materials & resources: What REACH communication materials and resources are used during the intervention; what is the response from the community to the materials	

<p>People – conversations/ interactions; verbal & physical behaviour: Conversations – who does the intervention team speak to; how do they get people to stop/ methods of approach; use of conversation template; reaction from community; what do people say/talk about; people that stand out; interactions between intervention team</p>	
<p>Strengths/ challenges: Things that worked well/didn't work well</p>	

Free text – *any other notable observations/comments*



APPENDIX 3: PARTICIPANT INFORMATION SHEET

REACH Pregnancy Programme

Community interventions for early antenatal care

[Invitation to participate in a research project](#)

You are being invited to take part in a research study. This information sheet explains what it is about. Whether or not you do take part is entirely your choice. Please ask any questions that you want to about the research (contact details for the researcher are provided at the end of this sheet). If you would like to have this information sheet in another language, please either asks the interviewer to give you a translated version, or call the study team on the number provided below. Take time to decide whether or not you wish to take part.

1. Purpose of the study

You are involved as a co-host in co-ordinating and supporting an intervention to raise awareness of antenatal care in local communities in North and East London, and Essex and to encourage women to access antenatal care early in their pregnancy. To do this, you are working together with people from your local community, healthcare professionals, local organisations and researchers to implement the delivery of the intervention in your local community.

We would now like to find out your views and experiences with being involved in this intervention. We are interested in your opinions on the events that you took part in and your thoughts on the intervention that was developed and is being implemented. Gathering this information will help us to understand how we can improve future projects that work together with local communities to improve health.

2. What will you have to do if you take part?

If you would like to take part, you will be invited to be interviewed by a researcher. The interview will last for approximately one hour and can be held at a date and time that suits you best. The interview can take place in your home, or at a room in your local community centre/library or at your place of work. In the interview you will be asked to share your experiences with taking part in delivering the intervention. Before the interview begins you will be asked to sign your consent to be interviewed.

You will be interviewed by one researcher, and if you have difficulty communicating in English a researcher who speaks your language will also be present.

Do I have to take part?

No, you are completely free to decide whether you want to take part in the study. If you decide to take part you will be asked to sign a consent form. You are free to change your mind and stop at any time, even during the interview, without giving a reason. You can choose not to answer any question that you do not wish to answer.

3. What are the possible advantages of taking part?

You will help us to better understand how we can work with local communities to design interventions to support health. By sharing your opinions and experiences of being involved in designing the community intervention you can help us to see how future similar projects could be improved.

4. What are the possible disadvantages or risks of taking part?

Apart from giving up your time, we do not expect that there will be any disadvantages, risks or costs by taking part in this study. You will not be asked personal questions about your own health or that of your family in the interview. You will only be asked questions about your opinions and experiences with being involved in designing the community intervention.

5. What will happen to the information?

If you agree, your interview will be recorded on tape. This is to ensure that we accurately record the content of what you say during the interview. The researcher will then use the tape to type up the content from the interview, and will remove all names and identifying information in the typed interview content. The tape will be destroyed at the end of the study. In the notes and write-up from the interviews it will not be possible to identify which person has made any particular comment.

The findings from the study will be presented in a report and may also be presented in an academic paper and a PhD thesis. These reports and papers will be available to you on request.

6. Who to contact about this study?

If you have any concerns or would like further information about the study, please contact the researcher who is responsible for conducting this study,
Cathy Salisbury: c.salisbury@uel.ac.uk, 07957 668444

Alternatively, you can contact the lead investigator for the REACH Pregnancy Programme, **Professor Angela Harden:** a.harden@uel.ac.uk, 0208 223 2167

REACH Pregnancy Programme



Community interventions for early antenatal care

Invitation to participate in a research project

You are being invited to take part in a research study. This information sheet explains what it is about. Whether or not you do take part is entirely your choice. Please ask any questions that you want to about the research (contact details for the researcher are provided at the end of this sheet). If you would like to have this information sheet in another language, please either asks the interviewer to give you a translated version, or call the study team on the number provided below. Take time to decide whether or not you wish to take part.

7. Purpose of the study

You have been involved as a volunteer in an intervention to raise awareness of antenatal care in local communities in North and East London, and Essex and to encourage women to access antenatal care early in their pregnancy. To do this, you worked together with people from your local community, healthcare professionals, local organisations and researchers to deliver the intervention in your local community.

We would now like to find out your views and experiences with being involved in this intervention. We are interested in your opinions on the events that you took part in and your thoughts on the intervention that was delivered in your local community. Gathering this information will help us to understand how we can improve future projects that work together with local communities to improve health.

8. What will you have to do if you take part?

If you would like to take part, you will be invited to be interviewed by a researcher. The interview will last for approximately one hour and can be held at a date and time that suits you best. The interview can take place in your home, or at a room in your local community centre/library or at your place of work. In the interview you will be asked to share your experiences with taking part in delivering the intervention. Before the interview begins you will be asked to sign your consent to be interviewed.

You will be interviewed by one researcher, and if you have difficulty communicating in English a researcher who speaks your language will also be present.

Do I have to take part?

No, you are completely free to decide whether you want to take part in the study. If you decide to take part you will be asked to sign a consent form. You are free to



change your mind and stop at any time, even during the interview, without giving a reason. You can choose not to answer any question that you do not wish to answer.

9. What are the possible advantages of taking part?

You will help us to better understand how we can work with local communities to design interventions to support health. By sharing your opinions and experiences of being involved in designing the community intervention you can help us to see how future similar projects could be improved.

You will receive a £10 voucher for your participation in the interview.

10. What are the possible disadvantages or risks of taking part?

Apart from giving up your time, we do not expect that there will be any disadvantages, risks or costs by taking part in this study. You will not be asked personal questions about your own health or that of your family in the interview. You will only be asked questions about your opinions and experiences with being involved in designing the community intervention.

11. What will happen to the information?

If you agree, your interview will be recorded on tape. This is to ensure that we accurately record the content of what you say during the interview. The researcher will then use the tape to type up the content from the interview, and will remove all names and identifying information in the typed interview content. The tape will be destroyed at the end of the study. In the notes and write-up from the interviews it will not be possible to identify which person has made any particular comment.

The findings from the study will be presented in a report and may also be presented in an academic paper and a PhD thesis. These reports and papers will be available to you on request.

12. Who to contact about this study?

If you have any concerns or would like further information about the study, please contact the researcher who is responsible for conducting this study,
Cathy Salisbury: c.salisbury@uel.ac.uk, 07957 668444

Alternatively, you can contact the lead investigator for the REACH Pregnancy Programme, **Professor Angela Harden:** a.harden@uel.ac.uk, 0208 223 2167



APPENDIX 4: PARTICIPANT CONSENT FORM

REACH Pregnancy Programme

Community interventions for early antenatal care

PARTICIPANT CONSENT FORM FOR RESEARCH INTERVIEWS

This study has been reviewed and approved by the NHS National Research Ethics Service.

Participant’s statement

I (NAME IN BLOCK CAPITALS), agree that (please tick)

- This study has been explained to me through the information sheet and/or verbally.
- I have had the opportunity to ask questions about the study.
- I understand that my participation in the research is voluntary and I am free to leave at any time
- I understand that the research will be tape-recorded to assist with preparing research reports.
- I understand that my participation in the study will be confidential and that names will not be used in any write-up of the discussion.

Participant’s Signature:

Date:

Interviewer’s Signature:

Interviewer’s Name (BLOCK CAPITALS):

Date:

APPENDIX 5: INTERVIEW SCHEDULES FOR QUALITATIVE INTERVIEWS

Interview Schedule

REACH Community Volunteers - intervention training and delivery

Age:	Place of birth:
Ethnicity:	How long have you been a REACH Community volunteer?
Number of children:	What is your level of education? /When did you leave education?
Languages Spoken:	

Can you tell me a little bit about yourself?

PROMPTS

How long have you lived in [name of intervention site]?

What's it like to live in [name of intervention site]?

What's it like as a community?

Who would you rely on in your community if you needed help?

How active are you in your community? What sort of activities are you involved in?

Do you have another role aside from being an REACH Community volunteer? What were you doing before you became an REACH Community volunteer?

Were you involved with the co-design event at _____ in January this year? /Were you approached on the street about the project?

How did you hear about the REACH Community volunteer role?

What made you interested in becoming an REACH Community volunteer?

Would you say it was easy or difficult to get involved as an REACH Community volunteer?

Did you have any concerns in taking on this role?

What do you expect it will be like?

What do you think makes a good REACH Community volunteer?



What do you think is important about ANC?

Can you tell me as much as you can about the training you received for your role as an REACH Community volunteer?

PROMPTS

Do you feel the training you received **prepared** you for your role as an REACH Community volunteer?

Do you feel the training has given you the **confidence** to be able to talk to people in your community about ANC?

Have you learned any **new skills**?

Has the training improved your **knowledge** of ANC? In what way?

Would you have liked **more training**? If yes, what sort of training?

What sort of **guidance and support** have you used (face-to-face meetings, telephone briefings or online meetings)? How often have you asked for support? Are you happy with the **support** you're receiving from [co-host]

Did your **co-ordinator** tell you **any particular types of people** to talk to in this ward?

Have you been asked/given **feedback** to [co-host]? How did you do this?

Can you tell me about your experience of being an REACH Community volunteer?

PROMPTS

What **factors have helped** you in your role as an REACH Community volunteer?

Have you found it **easy to talk to people in your community** about ANC?

Who have you been talking to/what types of people/target group?

What things did you find to have **worked well**? What tips would you give other REACH Community volunteers about how to approach/talk to people about ANC?

Have you had to deal with any potentially **sensitive subjects** or experiences when talking to people in your community about the campaign?

Have you experienced any **practical difficulties/issues**? What were they? How did you overcome them?



Have you experienced any **personal difficulties** – such as interfering with your own personal time/family life; personal costs; any others?

Have you had to **signpost** any women to maternity services, community midwives or local GPs for further information about health, pregnancy and healthcare?

Do you feel you have had **control**/been able to manage how you delivered the campaign in your community?

What would you like to **change/do differently**?

Do you think that being an REACH Community volunteer has brought any benefits or disadvantages for you?

PROMPTS

What are the benefits?

Has being a REACH Community volunteer made any difference to your **confidence** in talking about health with people?

What new **skills** do you feel you have you learned as an REACH Community volunteer?

Has being an REACH Community volunteer led to any **changes in your own life** – new job opportunities; further education; increased personal skills etc.?

Has it made any difference to whether you feel involved in your community? Have you made any **new friends/contacts**?

Have you **worked with anyone else** in delivering the campaign; for example a healthcare professional?

What have you **enjoyed most** about being an REACH Community volunteer?

Do you think that being an REACH Community volunteer has had any **disadvantages** or negative outcomes for you?

Do you think this campaign is having an impact/benefits for your community?

PROMPTS

In what way?

Do you think the campaign has been **well received in the community**? Are there any examples of when you feel the campaign was poorly received? Have you had any **feedback** from any of the woman you have spoken to?



Who have you talked to about the project? What **sorts of people** have you been speaking to and how have they **responded**?

What do you think are some of the **factors that prevent/stop** women from attending ANC in your community?

What factors do you think might be **challenging** in delivering this intervention in your community? What factors do you think might be **helpful**?

What factors do you think would **encourage** more women to attend?

How do you think you will be able to **make a difference**?

Who do people in the area tend to go to **for information on healthcare**?/Who do you go to?

What parts of the campaign do you feel have been **most successful**?

Do you think any parts of the campaign could be **improved**? In what way?

What, do you think, are the **qualities needed** to be an REACH Community volunteer?

Has your **perception/view of the campaign changed** since you first got involved? In what way?

Would you like to **continue** as an REACH Community volunteer?

Is there anything else you would like to add about your experience of being an REACH Community volunteer?

APPENDIX 6: LETTERS OF ETHICAL APPROVAL



Health Research Authority

NRES Committee North East - York

Jarrow Business Centre
Viking Business Park
Rolling Mill Road
Jarrow, Tyne & Wear
NE32 3DT

Telephone: 0191 428 3545

17 March 2015

Mr Martin Longstaff

University of East London

Research and Development Support (ReDS), University of East London, Docklands
Campus University Way, London, E16 2RD

E16 2RD

Dear Mr Longstaff

Study title: **A pragmatic cluster population-level randomised controlled trial of a community-level intervention to increase early uptake of antenatal care (REACH Pregnancy Programme, Work Package 1)**

REC reference: **15/NE/0106**

IRAS project ID: **167821**

The Proportionate Review Sub-committee of the NRES Committee North East - York reviewed the above application via correspondence.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact the REC Manager, Hayley Henderson, nrescommittee.northeast-york@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Ethical opinion: Favourable Opinion with Conditions

On behalf of the Committee, the sub-committee gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

The PRS Sub-Committee gave a favourable opinion of the application with additional conditions:

- The committee agreed that the consent form should be amended to ask for participant initials and not to use tick boxes.
- The Participant Information Sheet to be used with the interviews should state that travel expenses will be paid.

You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which can be made available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publicly accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from NRES. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see “Conditions of the favourable opinion”).

Approved documents

The documents reviewed and approved were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering letter on headed paper [Cover letter]	1	03 March 2015
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Evidence of UEL insurance]		
Interview schedules or topic guides for participants	1	02 March 2015
Interview schedules or topic guides for participants	1	02 March 2015

IRAS Checklist XML [Checklist_09032015]		09 March 2015
Letter from funder	1	19 May 2014
Letter from sponsor	1	23 February 2015
Letter from statistician	1	17 February 2015
Non-validated questionnaire	1	02 March 2015
Other [Logic model for community intervention]	1	03 March 2015
Other [Uscreates fieldwork safety guidelines]	1	03 March 2015
Other [UEL Clinical Trials Policy]		
Other [UEL Combined Policy]		
Participant consent form	1	02 March 2015
Participant consent form	1	02 March 2015
Participant information sheet (PIS)	1	02 March 2015
Participant information sheet (PIS) [Information sheet for research interviews]	1	02 March 2015
REC Application Form [REC_Form_09032015]		09 March 2015
Research protocol or project proposal	1	02 March 2015
Summary CV for Chief Investigator (CI)		
Summary CV for student		

Membership of the Proportionate Review Sub-Committee

The members of the Sub-Committee who took part in the review are listed on the attached sheet.

There were no declarations of interest.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document “After ethical review – guidance for researchers” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators

- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: <http://www.hra.nhs.uk/about-the-hra/governance/quality><http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/assurance/>

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at <http://www.hra.nhs.uk/hra-training/>

With the Committee’s best wishes for the success of this project.

15/NE/0106

Please quote this number on all correspondence

You
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~

Professor Peter Heasman Chair

Email: nrescommittee.northeast-york@nhs.net

Enclosures: List of names and professions of members who took part in the review

“After ethical review – guidance for researchers” [SL-AR2]

Copy to: *Professor Neville Punchard*
Ms Sally Burtles, Barts Health NHS Trust Joint Research Management
Office
NRES Committee North East - York

**Attendance at PRS Sub-Committee of the REC meeting on 18 March 2015 via
correspondence**

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Mr Steve Chandler	Retired Consultant Medical Physicist	Yes	
Professor Peter Heasman	Professor of Periodontology	Yes	
Mrs Fan Hutchison	Principal Teacher	Yes	

Also in attendance:

<i>Name</i>	<i>Position (or reason for attending)</i>
Mr Neil McCaffery	Deputy Regional Manager



Health Research Authority
North East - York Research Ethics Committee

Jarrow Business Centre
Viking Business Park
Rolling Mill Road
Jarrow, Tyne & Wear
NE32 3DT

Tel:

0207 104 8079 11 March 2016

Ms Cathryn Salisbury
Institute for Health and Human Development
UH250 Stratford Campus
University of East London
Water Lane
London
E15 4LZ

Dear Ms Salisbury

Study title: A pragmatic cluster population-level randomised controlled trial of a community-level intervention to increase early uptake of antenatal care (REACH Pregnancy Programme, Work Package 1)
REC reference: 15/NE/0106
Amendment number: Minor Amendment – Update to Interview Topic Guide Phase 1
Amendment date: 22 January 2016
IRAS project ID: 167821

Thank you for your letter of 22 January 2016, notifying the Committee of the above amendment.

The amendment has been considered by the Chair and the Committee does not consider this to be a “substantial amendment” as defined in the Standard Operating Procedures for Research Ethics Committees. The amendment does not therefore require an ethical opinion from the Committee and may be implemented immediately, provided that it does not affect the approval for the research given by the R&D office for the relevant NHS care organisation.

Documents received

The documents received were as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Interview schedules or topic guides for participants [Interview Topic Guide Phase 1]	5	19 January 2016
Notice of Minor Amendment [Email Correspondence]	Minor Amendment – Update to Interview Topic Guide Phase 1	22 January 2016

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for

A Research Ethics Committee established by the Health Research Authority

Research Ethics Committees in the UK.

15/NE/0106:	Please quote this number on all correspondence
--------------------	---

Yours sincerely



Donna Bennett REC Assistant

Email: nrescommittee.northeast-york@nhs.net

Copy to: Ms Sally Burtles, Barts Health NHS Trust Joint Research Management Office

Mr Martin Longstaff, University of East London

Professor Neville Punchard, University of East London

Welcome to the Integrated Research Application System

IRAS Project Filter

The integrated dataset required for your project will be created from the answers you give to the following questions. The system will generate only those questions and sections which (a) apply to your study type and (b) are required by the bodies reviewing your study. Please ensure you answer all the questions before proceeding with your applications.

Please enter a short title for this project
(maximum 70 characters) Community
intervention to increase early uptake of antenatal
care

1. Is your project research?

Yes No

2. Select one category from the list below:

- Clinical trial of an investigational medicinal product
- Clinical investigation or other study of a medical device
- Combined trial of an investigational medicinal product and an investigational medical device
- Other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice
- Basic science study involving procedures with human participants
- Study administering questionnaires/interviews for quantitative analysis, or using mixed quantitative/qualitative methodology
- Study involving qualitative methods only
- Study limited to working with human tissue samples (or other human biological samples) and data (specific project only)
- Study limited to working with data (specific project only)
- Research tissue bank
- Research database

If your work does not fit any of these categories, select the option below:

Other study

2a. Will the study involve the use of any medical device without a CE Mark, or a CE marked device which has been modified or will be used outside its intended purposes?

Yes No

2b. Please answer the following question(s):

- a) Does the study involve the use of any ionising radiation? Yes No
- b) Will you be taking new human tissue samples (or other human biological samples)? Yes No
- c) Will you be using existing human tissue samples (or other human biological samples)? Yes No

3. In which countries of the UK will the research sites be located?(Tick all that apply)

England

NHS REC Form

Reference:

IRAS Version 3.5

15/NE/0106

- Scotland
 Wales
 Northern Ireland

3a. In which country of the UK will the lead NHS R&D office be located:

- England
 Scotland
 Wales
 Northern Ireland
 This study does not involve the NHS

4. Which review bodies are you applying to?

- NHS/HSC Research and Development offices
 Social Care Research Ethics Committee
 Research Ethics Committee
 National Information Governance Board for Health and Social Care (NIGB)
 National Offender Management Service (NOMS) (Prisons & Probation)

For NHS/HSC R&D offices, the CI must create Site-Specific Information Forms for each site, in addition to study-wide forms, and transfer them to the PIs or local collaborators.

5. Will any research sites in this study be NHS organisations?

- Yes No

5a. Are all the research costs and infrastructure costs for this study provided by an NIHR Biomedical Research Centre, NIHR Biomedical Research Unit, NIHR Collaboration for Leadership in Health Research and Care (CLAHRC) or NIHR Research Centre for Patient Safety & Service Quality in all study sites?

- Yes No

If yes, NHS permission for your study will be processed through the NIHR Coordinated System for gaining NHS Permission (NIHR CSP).

5b. Do you wish to make an application for the study to be considered for NIHR Clinical Research Network (CRN) support and inclusion in the NIHR Clinical Research Network (CRN) Portfolio?
Please see information button for further details. Yes No

Yes No

If yes, NHS permission for your study will be processed through the NIHR Coordinated System for gaining NHS Permission (NIHR CSP) and you must complete a NIHR Clinical Research Network (CRN) Portfolio Application Form immediately after completing this project filter and before completing and submitting other applications.

6. Do you plan to include any participants who are children?

Yes No

7. Do you plan at any stage of the project to undertake intrusive research involving adults lacking capacity to consent for themselves?

Yes No

Answer Yes if you plan to recruit living participants aged 16 or over who lack capacity, or to retain them in the study following loss of capacity. Intrusive research means any research with the living requiring consent in law. This includes use of identifiable tissue samples or personal information, except where application is being made to the NIGB Ethics and Confidentiality Committee to set aside the common law duty of confidentiality in England and Wales. Please consult the Confidentiality Committee to set aside the common law duty of confidentiality in England and Wales. Please consult the guidance notes for further information on the legal frameworks for research involving adults lacking capacity in the UK.

8. Do you plan to include any participants who are prisoners or young offenders in the custody of HM Prison Service or who are offenders supervised by the probation service in England or Wales?

Yes No

9. Is the study or any part of it being undertaken as an educational project?

Yes No

Please describe briefly the involvement of the student(s):
Part of the study will contribute to the PhD on the same topic of a member of the research team (Cathryn Salisbury).
Prof Angela Harden is both the Chief Investigator and the supervisor for Cathryn.

9a. Is the project being undertaken in part fulfilment of a PhD or other doctorate?

Yes No

10. Will this research be financially supported by the United States Department of Health and Human Services or any of its divisions, agencies or programs?

Yes No

11. Will identifiable patient data be accessed outside the care team without prior consent at any stage of the project (including identification of potential participants)?

Yes No

NHS REC Form

Reference:

IRAS Version 3.5

15/NE/0106

**Integrated Research Application System
Application Form for Other research**



Application to NHS/HSC Research Ethics Committee

The Chief Investigator should complete this form. Guidance on the questions is available wherever you see this symbol displayed. We recommend reading the guidance first. The complete guidance and a glossary are available by selecting [Help](#).

Please define any terms or acronyms that might not be familiar to lay reviewers of the application.

Short title and version number: (maximum 70 characters - this will be inserted as header on all forms) Community intervention to increase early uptake of antenatal care

Please complete these details after you have booked the REC application for review.

REC Name:
NRES Committee Northeast York

REC Reference Number:

15/NE/0106

Submission date:

09/03/2015

PART A: Core study information

1. ADMINISTRATIVE DETAILS

A1. Full title of the research:

A pragmatic cluster population level randomised controlled trial of a community level intervention to increase early uptake of antenatal care (REACH Pregnancy Programme, Work Package 1)

A2-1. Educational projects

Name and contact details of student(s):

Student 1

Title Forename/Initials Surname
Ms Cathryn Jane Salisbury

Address Institute for Health and Human Development
UH250 Stratford Campus,
University of East London, Water Lane, London E15 4LZ

Post Code E15 4LZ

E-mail C.Salisbury@uel.ac.uk

Telephone

Fax

Give details of the educational course or degree for which this research is being undertaken:
Give details of the educational course or degree for which this research is being undertaken:

Name and level of course/ degree:
PhD

Name of educational establishment:
University of East London

Name and contact details of academic supervisor(s):

Academic supervisor 1

	Title	Forename/Initials Surname
	Professor Angela	Harden
Address	University of East London UH250 Stratford Campus Water Lane, London E15 4LZ	
Post Code	E15 4LZ	
E-mail	a.harden@uel.ac.uk	
Telephone	0208 223 2167	
Fax		

Please state which academic supervisor(s) has responsibility for which student(s):
Please click "Save now" before completing this table. This will ensure that all of the student and academic supervisor details are shown correctly.

Student(s)**Academic supervisor(s)**

Student 1 Ms Cathryn
Jane
Salisbury

Professor Angela Harden

A copy of a current CV for the student and the academic supervisor (maximum 2 pages of A4) must be submitted with the application.

A2-2. Who will act as Chief Investigator for this study?

- Student
 Academic supervisor
 Other

A3-1. Chief Investigator:

	Title	Forename/Initials Surname
		Professor Angela Harden
Post		Professor of Community and Family Health
Qualifications		BSc, MSc, PhD
Employer		University of East London
Work Address		IHHD, UH250 Stratford Campus University of East London Water Lane, London E15 4LZ
Post Code		E15 4LZ
Work E-mail		a.harden@uel.ac.uk
* Personal E-mail		a.harden@uel.ac.uk

* Personal E-mail	a.harden@uel.ac.uk
Work Telephone	0208 223 2167
* Personal Telephone/Mobile	0208 223 2167
Fax	

** This information is optional. It will not be placed in the public domain or disclosed to any other third party without prior consent.
A copy of a current CV (maximum 2 pages of A4) for the Chief Investigator must be submitted with the application.*

A4. Who is the contact on behalf of the sponsor for all correspondence relating to applications for this project? This contact will receive copies of all correspondence from REC and R&D reviewers that is sent to the CI.

	Title	Forename/Initials Surname
		Professor Neville Punchard
Address		School of Health, Sport and Bioscience University of East London, Stratford Campus London, E15 4LZ
Post Code		E15 4LZ
E-mail		n.punchard@uel.ac.uk
Telephone		+44 (0)20 8223 4477
Fax		

A5-1. Research reference numbers. Please give any relevant references for your study:

Applicant's/organisation's own reference number,
e.g. R & D (if available):

Sponsor's/protocol number:

Protocol Version:

1

Protocol Date:

02/03/2015

Funder's reference number:

RP-PG-1211-20015

Project website:

Registry reference number(s):

The Department of Health's Research Governance Framework for Health and Social Care and the research governance frameworks for Wales, Scotland and Northern Ireland set out the requirement for registration of trials. Furthermore: Article 19 of the World Medical Association Declaration of Helsinki adopted in 2008 states that "every clinical trial must be registered on a publicly accessible database before recruitment of the first subject"; and the International Committee of Medical Journal Editors (ICMJE) will consider a clinical trial for publication only if it has been registered in an appropriate registry. Please see guidance for more information.

International Standard Randomised Controlled Trial Number
(ISRCTN): ClinicalTrials.gov Identifier (NCT number):

Additional reference number(s):

Renumber Description	Reference Number
----------------------	------------------

A5-2. Is this application linked to a previous study or another current application?

Yes No

Please give brief details and reference numbers.

This study extends a one year pilot study, funded by an NIHR Programme Development Grant and completed in July 2011, which examined barriers to early uptake of antenatal care in Newham, London (NHS REC ref. no. 10/H0701/88).

We have used the findings from the pilot study to develop a new intervention tailored to community settings with high levels of social disadvantage and ethnic diversity. The intervention will aim to raise awareness of the value of antenatal care and the benefits of early initiation of antenatal care, and support women in how and when to access care.

17th April 2019

Dear Cathryn,

Project Title:	Using co-production in interventions to reduce health inequalities: a qualitative study of process and impact
Researcher:	Cathryn Salisbury
Principal Investigator	Professor Angela Harden
Amendment reference number:	AMD 1819 31
NHS reference no of original approved application:	IRAS project ID: 167821 REC Reference number: 15/NE/0106

I am writing to confirm that the application for an amendment to the aforementioned research study has now received ethical approval on behalf of Research, Research Degrees and Ethics Sub-Committee (RRDE).

Should you wish to make any further changes in connection with your research project, this must be reported immediately to (RRDE). A Notification of Amendment form should be submitted for approval, accompanied by any additional or amended documents:

<https://uelac.sharepoint.com/ResearchInnovationandEnterprise/Pages/Ethics.aspx>

Approved Research Site

I am pleased to confirm that the approval of the proposed research applies to the following research site:

Research Site	Principal Investigator / Local Collaborator
NHS Site. BARTS AND THE LONDON NHS TRUST	Professor Angela Harden

Summary of Amendments

Change of original project title from 'Promoting a healthy start: Engaging communities to co-design pre and post-natal interventions,' to the new title: 'Using co-production in interventions to reduce health inequalities: a qualitative study of process and impact'.

The PhD study, which was funded by the University of East London's Excellence Studentships, was part of a wider programme of research the REACH Pregnancy Programme. One component of the wider programme was the Community REACH trial pragmatic study, in which the PhD was embedded. Ethical approval for the PhD was included in the overall IRAS application for the Community REACH trial study. Cathryn Salisbury was named in the IRAS application form, which also contained details of her study. However, the title of the PhD was not detailed in the IRAS application form or requested as part of the application.

Ethical approval for any changes to the conduct of the study e.g. changes to wording of Participant Information Forms was sought via the relevant NRES Committee.

REC Ref: 15/NE/0106

IRAS Project ID 167821

Ethical approval for the original study was granted on 17th March 2015.

Approval is given on the understanding that the University's Code of Practice for Research and Code of Practice for Research Ethics is adhered to:

<https://uelac.sharepoint.com/ResearchInnovationandEnterprise/Pages/Ethics.aspx>

With the Committee's best wishes for the success of this project.

Please ensure you retain this letter, as in the future you may be asked to provide evidence of ethical approval for the changes made to your study.

Yours sincerely,



Catherine Hitchens
Research Integrity and Ethics Manager
For and on behalf of
Research, Research Degrees and Ethics Sub-Committee (RRDE)
Email: researchethics@uel.ac.uk

APPENDIX 7: WORKED EXAMPLE OF FIDELITY SCORING

The following table shows a worked example of how the fidelity scores were arrived at from source data e.g. observations, field notes, participant interviews, feedback reports and other communications relating to the development and implementation of the intervention.

The first column describes the critical elements of the fidelity framework by which adherence was being assessed.

For example, '**Begin to identify and engage with a wide range of community members about the intervention**' represents an overarching co-production component, which has then been broken down into the practical elements of:

- *links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities; and*
- *relevant community assets are identified and mobilised prior to engagement activities*

Adherence to the critical elements was assessed using the response scale described in the key, using a three-point ordinal scale: *high* (3 solid green squares); *medium* (2 solid green squares) and *low* fidelity (1 solid green square) to capture variation in development and delivery of the intervention across intervention sites

Two additional indicators of *no adherence* (unfilled green square) and *insufficient data to score* (red triangle) were used to identify where no activity was carried out and where data was too limited to produce a comparative score, respectively.

Example: In intervention site Forest End adherence to '*links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities*' was scored as *no adherence* as the engagement activity did not take place, the data source was a team meeting where this was reported. In contrast, in intervention site East Parkham adherence to the same fidelity component was scored as *medium* adherence because the engagement team had begun to initiate contact with some local groups and made connected with the local children's centre, the data source was from observation fieldnotes and team meetings where the engagement activity was discussed.

	Forest End	Evidence	Old Church	Evidence
Begin to identify and engage with a wide range of community members about the intervention. Extent to which:				
<i>links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities;</i>	□	Source: Team meeting No engagement work carried out by Agency engagement lead = no adherence	△	Source: Observation fieldnotes & team meetings: not described in fieldnotes = limited data
<i>relevant community assets are identified and mobilised prior to engagement activities;</i>	□	Source: Team meeting: identified in ward profiles but engagement work not carried out = no adherence	■	Source: Observation fieldnotes & team meetings: identified in ward profiles but not fully mobilised
Engagement team works collaboratively in delivering engagement activities. Extent to which:				
<i>engagement team understands the intervention, the purpose of engagement activities and their role;</i>	■	Source: Team meeting Engagement conducted by UEL community engagement co-ordinator & 1 volunteer	■	Source: Observation fieldnotes needed briefing on intervention messages
<i>the engagement team has the capacity, support and resources to deliver engagement activities effectively;</i>	■	Source: Team meeting poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator	■	Source: Observation fieldnotes poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator
<i>the engagement team are committed, actively participate and add value to the development of the intervention;</i>	■	Source: Team meeting poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator	■	Source: Observation fieldnotes poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator
Engage with a wide range of community members about the intervention. Extent to which:				
<i>the engagement team was able to engage with a wide range of different groups within the intervention site;</i>	■	Source: Team meeting Feedback from UEL engagement team staff member - 20 recruited 3 from outside ward boundary	■	Source: Observation fieldnotes not many people on streets, suburban area, wide geographical spread, limited public transport,
<i>engagement team was able to engage with specified target groups within the intervention site;</i>	■	Source: Team meeting Recruitment numbers low but some engagement with target groups	■ ■	Source: Observation fieldnotes some recruitment from target groups
<i>community members responded positively to information about the intervention and engagement team;</i>	△	No observation data in this site	■ ■	Source: Observation fieldnotes good response from community
<i>quality of engagement – embedding intervention message through reciprocal interactions;</i>	△	No observation data in this site	■ ■	Source: Observation fieldnotes long conversations
<i>response from community members add value to intervention/leads to innovation;</i>	△	No observation data in this site	■ ■	Source: Observation fieldnotes info gathered on local area and experiences
Community engagement activities build on existing knowledge about intervention sites. Extent to which:				
<i>further insight was gathered on relevant community assets – formal/informal community organisations and networks;</i>	□	Source: Team meeting Agency engagement lead - engagement work not carried out = no adherence	■	Source: Observation fieldnotes limited insight gathered on assets and networks
<i>potential community influencers, target groups and key stakeholders were identified and engaged to support intervention development;</i>	□	Source: Team meeting Agency engagement lead - engagement work not carried out = no adherence	■	Source: Observation fieldnotes limited engagement
<i>additional insight gathered on demographic characteristics, local languages, how to reach target groups, potential challenges/facilitators specific to intervention site</i>	□	Source: Team meeting Agency engagement lead - engagement work not carried out = no adherence	■ ■	Source: Observation fieldnotes some good insight on local characteristics
Information about the intervention and how to participate was communicated clearly and inclusively to community members. Extent to which:				
<i>language was identified as a barrier to engagement; (High fidelity = language was reported; Low fidelity = language not reported)</i>	△	No observation data in this site	■	Source: Observation fieldnotes not described
<i>the purpose of the intervention and how to participate was understood by community members;</i>	△	No observation data in this site	■	Source: Observation fieldnotes message a bit more focused on ANC, still invited to workshop to talk about experiences
<i>there was commitment to maintain dialogue and provide information to people who gave their contact details and expressed an interest in participating in co-design workshops;</i>	■	Source: Team meeting & Activity reporting: limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants	■	Source: Team meeting & Activity reporting: limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants
<i>there was commitment to reciprocity and mutual benefits towards people expressing an interest in participating in co-design workshops;</i>	□	Source: Team meeting & Activity reporting: little focus on experience for participants	□	Source: Team meeting & Activity reporting: little focus on experience for participants
Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended. ■■■■ = High fidelity; ■■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence (activity not carried out); △ insufficient data to assess fidelity (data too limited to score comparatively)	△		20	

	Derlestone	Evidence	East Parkham	Evidence
Begin to identify and engage with a wide range of community members about the intervention. Extent to which:				
<i>links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities;</i>	■	Source: Observation fieldnotes & team meetings some contact made with local groups	■ ■	Source: Observation fieldnotes & team meetings some contact made with local groups and connection to childrens centre
<i>relevant community assets are identified and mobilised prior to engagement activities;</i>	■	Source: Observation fieldnotes & team meetings identified in ward profiles but not fully mobilised	■	Source: Observation fieldnotes & team meetings identified in ward profiles but not fully mobilised
Engagement team works collaboratively in delivering engagement activities. Extent to which:				
<i>engagement team understands the intervention, the purpose of engagement activities and their role;</i>	■	Source: Observation fieldnotes some confusion over intervention message	■	Source: Observation fieldnotes mixed - some volunteers hadn't participated in intervention training, some only rec'd short briefing
<i>the engagement team has the capacity, support and resources to deliver engagement activities effectively;</i>	■	Source: Observation fieldnotes poor volunteer turnout	■ ■	Source: Observation fieldnotes small number of volunteers
<i>the engagement team are committed, actively participate and add value to the development of the intervention;</i>	■ ■	Source: Observation fieldnotes Low volunteer turnout but works well with UEL community engagement co-ordinator	■ ■	Source: Observation fieldnotes small number of volunteers, but with previous community engagement experience
Engage with a wide range of community members about the intervention. Extent to which:				
<i>the engagement team was able to engage with a wide range of different groups within the intervention site;</i>	■ ■ ■ ■	Source: Observation fieldnotes vibrant area, friendly, lots of people, local market	■ ■ ■ ■	Source: Observation fieldnotes vibrant area, friendly, lots of people, local market
<i>engagement team was able to engage with specified target groups within the intervention site;</i>	■ ■ ■ ■	Source: Observation fieldnotes good numbers recruited from target groups	■ ■	Source: Observation fieldnotes some recruitment from target groups
<i>community members responded positively to information about the intervention and engagement team;</i>	■ ■	Source: Observation fieldnotes residents gave a mixed response to engagement team and intervention	△	Source: Observation fieldnotes not described
<i>quality of engagement – embedding intervention message through reciprocal interactions;</i>	■ ■	Source: Observation fieldnotes some good quality conversations, information sharing	△	Source: Observation fieldnotes not described
<i>response from community members add value to intervention/leads to innovation;</i>	■ ■	Source: Observation fieldnotes some info gathered on local area and experiences	■	Source: Observation fieldnotes some info gathered on experiences
Community engagement activities build on existing knowledge about intervention sites. Extent to which:				
<i>further insight was gathered on relevant community assets – formal/informal community organisations and networks;</i>	■ ■	Source: Observation fieldnotes some insight gathered on assets and networks, Turkish community	■	Source: Observation fieldnotes limited insight gathered on assets and networks
<i>potential community influencers, target groups and key stakeholders were identified and engaged to support intervention development;</i>	■	Source: Observation fieldnotes limited engagement undertaken by agency engagement lead	■	Source: Observation fieldnotes limited engagement undertaken by agency engagement lead
<i>additional insight gathered on demographic characteristics, local languages, how to reach target groups, potential challenges/facilitators specific to intervention site</i>	■ ■	Source: Observation fieldnotes some good insight on local characteristics	■ ■	Source: Observation fieldnotes some good insight on local characteristics
Information about the intervention and how to participate was communicated clearly and inclusively to community members. Extent to which:				
<i>language was identified as a barrier to engagement; (High fidelity = language was reported; Low fidelity = language not reported)</i>	■	Source: Observation fieldnotes not described	■ ■	Source: Observation fieldnotes language identified as an issue for engagement
<i>the purpose of the intervention and how to participate was understood by community members;</i>	□	Source: Observation fieldnotes message focused on pregnancy not ANC, invited to workshop to talk about experiences	■	Source: Observation fieldnotes message a bit more focused on ANC, still invited to workshop to talk about experiences
<i>there was commitment to maintain dialogue and provide information to people who gave their contact details and expressed an interest in participating in co-design workshops;</i>	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants
<i>there was commitment to reciprocity and mutual benefits towards people expressing an interest in participating in co-design workshops;</i>	□	Source: Team meeting & Activity reporting little focus on experience for participants	□	Source: Team meeting & Activity reporting little focus on experience for participants
Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended. ■ ■ ■ ■ = High fidelity; ■ ■ ■ = Medium fidelity; ■ = Low fidelity; □ = no adherence (activity not carried out); △ insufficient data to assess fidelity (data too limited to score comparatively)	25		22	

	Northams	Evidence	Woodstead East	Evidence
Begin to identify and engage with a wide range of community members about the intervention. Extent to which:				
<i>links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities;</i>	■	Source: Observation fieldnotes & team meetings limited contact, difficult area, suburban	■ ■ ■	Source: Observation fieldnotes & team meetings contact made with some stakeholders, polish shops
<i>relevant community assets are identified and mobilised prior to engagement activities;</i>	■	Source: Observation fieldnotes & team meetings identified in ward profiles but not fully mobilised	■ ■ ■	Source: Observation fieldnotes identified in ward profiles; local Children's centre & community centre helped support engagement activities
Engagement team works collaboratively in delivering engagement activities. Extent to which:				
<i>engagement team understands the intervention, the purpose of engagement activities and their role;</i>	■	Source: Observation fieldnotes volunteer hadn't participated in intervention training	■	Source: Observation fieldnotes some confusion over intervention message
<i>the engagement team has the capacity, support and resources to deliver engagement activities effectively;</i>	■	Source: Observation fieldnotes poor volunteer turnout	■ ■ ■ ■	Source: Observation fieldnotes good turnout of volunteers
<i>the engagement team are committed, actively participate and add value to the development of the intervention;</i>	■ ■	Source: Observation fieldnotes volunteer adds value - language skills	■ ■ ■ ■	Source: Observation fieldnotes committed and enthusiastic
Engage with a wide range of community members about the intervention. Extent to which:				
<i>the engagement team was able to engage with a wide range of different groups within the intervention site;</i>	■	Source: Observation fieldnotes difficult - not many people on streets - suburban	■ ■ ■ ■	Source: Observation fieldnotes vibrant area, friendly, lots of people, different ethnicities
<i>engagement team was able to engage with specified target groups within the intervention site;</i>	■ ■ ■ ■	Source: Observation fieldnotes good numbers recruited from target groups	■ ■ ■ ■	Source: Observation fieldnotes good numbers recruited from target groups
<i>community members responded positively to information about the intervention and engagement team;</i>	■ ■	Source: Observation fieldnotes not many people on streets suburban but friendly and many show interest in intervention	■ ■ ■ ■	Source: Observation fieldnotes majority of residents gave a positive response & interest in intervention
<i>quality of engagement – embedding intervention message through reciprocal interactions;</i>	■ ■	Source: Observation fieldnotes some good quality conversations, information sharing	■ ■ ■ ■	Source: Observation fieldnotes many good conversations, high quality, information sharing
<i>response from community members add value to intervention/leads to innovation;</i>	■ ■	Source: Observation fieldnotes some info gathered on local area and experiences	■ ■ ■ ■	Source: Observation fieldnotes lots of info gathered on local area and experiences
Community engagement activities build on existing knowledge about intervention sites. Extent to which:				
<i>further insight was gathered on relevant community assets – formal/informal community organisations and networks;</i>	■	Source: Observation fieldnotes limited insight gathered on assets and networks - few assets/local groups	■ ■	Source: Observation fieldnotes some insight gathered on assets and networks e.g. accessing Polish community
<i>potential community influencers, target groups and key stakeholders were identified and engaged to support intervention development;</i>	■	Source: Observation fieldnotes limited engagement undertaken by agency engagement lead	■ ■	Source: Observation fieldnotes some engagement undertaken by agency engagement lead
<i>additional insight gathered on demographic characteristics, local languages, how to reach target groups, potential challenges/facilitators specific to intervention site</i>	■ ■	Source: Observation fieldnotes good insight gathered on local characteristics, population & local networks	■ ■	Source: Observation fieldnotes good insight gathered on local characteristics, population & local networks
Information about the intervention and how to participate was communicated clearly and inclusively to community members. Extent to which:				
<i>language was identified as a barrier to engagement; (High fidelity = language was reported; Low fidelity = language not reported)</i>	■ ■	Source: Observation fieldnotes language identified as an issue for engagement	■ ■	Source: Observation fieldnotes language identified as an issue for engagement
<i>the purpose of the intervention and how to participate was understood by community members;</i>	□	Source: Observation fieldnotes messaging confusing - focused on pregnancy not ANC, invited to workshop to talk about experiences	□	Source: Observation fieldnotes messaging confusing - focused on pregnancy not ANC, invited to workshop to talk about experiences
<i>there was commitment to maintain dialogue and provide information to people who gave their contact details and expressed an interest in participating in co-design workshops;</i>	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants
<i>there was commitment to reciprocity and mutual benefits towards people expressing an interest in participating in co-design workshops;</i>	□	Source: Team meeting & Activity reporting little focus on experience for participants	□	Source: Team meeting & Activity reporting little focus on experience for participants
Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended. ■ ■ ■ ■ = High fidelity; ■ ■ ■ = Medium fidelity; ■ = Low fidelity; □ = no adherence (activity not carried out); △ insufficient data to assess fidelity (data too limited to score comparatively)	23		36	

	Redwell	Evidence	Eastgate Park	Evidence
Begin to identify and engage with a wide range of community members about the intervention. Extent to which:				
<i>links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities;</i>	■	Source: Observation fieldnotes limited contact, few local assets, ward is very suburban	■ ■ ■	Source: Team meeting & Activity reports Some contact with community organisations & Children's Centre
<i>relevant community assets are identified and mobilised prior to engagement activities;</i>	■	Source: Observation fieldnotes & team meetings identified in ward profiles but not fully mobilised	■	Source: Team meeting & Activity reports identified in ward profiles but not fully mobilised
Engagement team works collaboratively in delivering engagement activities. Extent to which:				
<i>engagement team understands the intervention, the purpose of engagement activities and their role;</i>	■	Source: Observation fieldnotes some confusion over intervention message	□	Source: Team meetings engagement team go to control ward = no adherence
<i>the engagement team has the capacity, support and resources to deliver engagement activities effectively;</i>	■ ■	Source: Observation fieldnotes small number of volunteers	□	Source: Team meetings engagement team go to control ward = no adherence
<i>the engagement team are committed, actively participate and add value to the development of the intervention;</i>	■ ■	Source: Observation fieldnotes committed even in difficult area - language skills	□	Source: Team meetings engagement team go to control ward = no adherence
Engage with a wide range of community members about the intervention. Extent to which:				
<i>the engagement team was able to engage with a wide range of different groups within the intervention site;</i>	■	Source: Observation fieldnotes difficult area to recruit - few people on streets	△	No observation data in this site
<i>engagement team was able to engage with specified target groups within the intervention site;</i>	■ ■	Source: Observation fieldnotes some recruitment from target groups	△	No observation data in this site
<i>community members responded positively to information about the intervention and engagement team;</i>	■	Source: Observation fieldnotes poor response - difficult to engage local population	△	No observation data in this site
<i>quality of engagement – embedding intervention message through reciprocal interactions;</i>	■	Source: Observation fieldnotes limited - difficult to engage local population	△	No observation data in this site
<i>response from community members add value to intervention/leads to innovation;</i>	■	Source: Observation fieldnotes limited - difficult to engage local population	△	No observation data in this site
Community engagement activities build on existing knowledge about intervention sites. Extent to which:				
<i>further insight was gathered on relevant community assets – formal/informal community organisations and networks;</i>	■	Source: Observation fieldnotes limited insight gathered on assets and networks - few local assets	△	No observation data in this site
<i>potential community influencers, target groups and key stakeholders were identified and engaged to support intervention development;</i>	■	Source: Observation fieldnotes limited engagement undertaken by agency engagement lead	△	No observation data in this site
<i>additional insight gathered on demographic characteristics, local languages, how to reach target groups, potential challenges/facilitators specific to intervention site</i>	■ ■	Source: Observation fieldnotes some good insight on local characteristics - difficult area, large geographic spread	△	No observation data in this site
Information about the intervention and how to participate was communicated clearly and inclusively to community members. Extent to which:				
<i>language was identified as a barrier to engagement; (High fidelity = language was reported; Low fidelity = language not reported)</i>	■ ■	Source: Observation fieldnotes language identified as an issue for engagement	△	No observation data in this site
<i>the purpose of the intervention and how to participate was understood by community members;</i>	□	Source: Observation fieldnotes messaging confusing - focused on pregnancy not ANC, invited to workshop to talk about experiences	△	No observation data in this site
<i>there was commitment to maintain dialogue and provide information to people who gave their contact details and expressed an interest in participating in co-design workshops;</i>	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants
<i>there was commitment to reciprocity and mutual benefits towards people expressing an interest in participating in co-design workshops;</i>	□	Source: Team meeting & Activity reporting little focus on experience for participants	□	Source: Team meeting & Activity reporting little focus on experience for participants
Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended. ■ ■ ■ = High fidelity; ■ ■ = Medium fidelity; ■ = Low fidelity; □ = no adherence (activity not carried out); △ insufficient data to assess fidelity (data too limited to score comparatively)	21		△	

	Moselle Park	Evidence	MidCross	Evidence
Begin to identify and engage with a wide range of community members about the intervention. Extent to which:				
<i>links and relationships are initiated with key stakeholders, target groups, community influencers prior to engagement activities;</i>	△	Source: Team meeting & Activity reports Not reported = limited data	■ ■	Source: Observation fieldnotes & team meetings Some engagement with stakeholders & local groups
<i>relevant community assets are identified and mobilised prior to engagement activities;</i>	■	Source: Team meeting & Activity reports identified in ward profiles; mobilising assets not reported	■ ■	Source: Observation fieldnotes identified in ward profiles; local community centre helped support engagement activities
Engagement team works collaboratively in delivering engagement activities. Extent to which:				
<i>engagement team understands the intervention, the purpose of engagement activities and their role;</i>	△	No observation at this site = limited data	■	Source: Observation fieldnotes poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator
<i>the engagement team has the capacity, support and resources to deliver engagement activities effectively;</i>	△	No observation at this site = limited data	■	Source: Observation fieldnotes poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator
<i>the engagement team are committed, actively participate and add value to the development of the intervention;</i>	△	No observation at this site = limited data	■	Source: Observation fieldnotes poor volunteer turnout; engagement conducted mainly by UEL community engagement co-ordinator
Engage with a wide range of community members about the intervention. Extent to which:				
<i>the engagement team was able to engage with a wide range of different groups within the intervention site;</i>	△	No observation data in this site	■ ■	Source: Observation fieldnotes mixed - poor weather = not many people on streets, small Friday market
<i>engagement team was able to engage with specified target groups within the intervention site;</i>	△	No observation data in this site	■ ■	Source: Observation fieldnotes good recruitment from target groups
<i>community members responded positively to information about the intervention and engagement team;</i>	△	No observation data in this site	■	Observation fieldnotes: mixed response - poor weather = not many people on streets, inner city residents not as approachable
<i>quality of engagement – embedding intervention message through reciprocal interactions;</i>	△	No observation data in this site	■	Source: Observation fieldnotes difficult - poor weather = not many people on streets, inner city residents not as approachable
<i>response from community members add value to intervention/leads to innovation;</i>	△	No observation data in this site	■ ■ ■	Source: Observation fieldnotes good info gathered on local area from community & stakeholders
Community engagement activities build on existing knowledge about intervention sites. Extent to which:				
<i>further insight was gathered on relevant community assets – formal/informal community organisations and networks;</i>	△	No observation data in this site	■ ■	Observation fieldnotes: some good insights gathered on assets and networks
<i>potential community influencers, target groups and key stakeholders were identified and engaged to support intervention development;</i>	△	No observation data in this site	■	Source: Observation fieldnotes identified but limited engagement
<i>additional insight gathered on demographic characteristics, local languages, how to reach target groups, potential challenges/facilitators specific to intervention site</i>	△	No observation data in this site	■ ■	Source: Observation fieldnotes some good insight on local characteristics, large bangladeshi population but not out on streets - access could be a challenge
Information about the intervention and how to participate was communicated clearly and inclusively to community members. Extent to which:				
<i>language was identified as a barrier to engagement; (High fidelity = language was reported; Low fidelity = language not reported)</i>	△	No observation data in this site	■	Source: Observation fieldnotes large Bangladeshi population - language potential barrier
<i>the purpose of the intervention and how to participate was understood by community members;</i>	△	No observation data in this site	■	Source: Observation fieldnotes message a bit more focused on ANC, still invited to workshop to talk about experiences
<i>there was commitment to maintain dialogue and provide information to people who gave their contact details and expressed an interest in participating in co-design workshops;</i>	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants	■	Source: Team meeting & Activity reporting limited commitment - agency has insufficient capacity to maintain consistent dialogue with potential participants
<i>there was commitment to reciprocity and mutual benefits towards people expressing an interest in participating in co-design workshops;</i>	□	Source: Team meeting & Activity reporting little focus on experience for participants	□	Source: Team meeting & Activity reporting little focus on experience for participants
Key: ■ Green square/s indicates extent to which process/es reflected co-production components as intended. ■■■■ = High fidelity; ■■■ = Medium fidelity; ■ = Low fidelity; □ = no adherence (activity not carried out); △ insufficient data to assess fidelity (data too limited to score comparatively)	△		24	

APPENDIX 8. CO-DESIGN ACTIVITY – PERSONAS

Personas



Amanda

Age 25
Number of children/
pregnancies 1st pregnancy
Ethnicity Sri Lankan

"We've just moved here and don't know our way around. I'm not sure what I'm entitled to, and I don't know who to ask."

- Recently arrived
- No support network
- Doesn't understand the system



Merjem

Age 22
Number of children/
pregnancies 1st pregnancy
Ethnicity Turkish

"There isn't very much useful information online. I thought I just had to go to my GP, and midwives only got involved later on in the pregnancy."

- First time mum
- Doesn't understand why antenatal care is important
- Doesn't know what booking appointment is for



Yasmine

Age 32
Number of children/
pregnancies 2 children
Ethnicity Algerian

"What will be, will be. They can't do anything about it so I'd rather wait until I know it's going to be a healthy pregnancy."

- Has had multiple miscarriages
- Doesn't want to go until she knows the pregnancy is secure



Jacinta

Age 40
Number of children/
pregnancies 3 children
Ethnicity Jamaican

"My Mum had 8 children and never had any antenatal care and we're all fine. Anyway I can't afford childcare so it's difficult to find the time to go."

- An older mum with several children
- Confident she can manage her pregnancy
- Busy with work and childcare



Ayesha

Age 36
Number of children/
pregnancies 1 child
Ethnicity Pakistani

"I'm working all the time and I can't take the time off. I'm worried about my health and the health of my baby though."

- Low-paid job, working long hours
- Can't take time off
- Can't get to appointment easily



Caroline

Age 37
Number of children/
pregnancies 2 children
Ethnicity White British

"I've got too much going on at the moment. I always think the GP looks down her nose at me."

- Turbulent home life
- Kids in trouble
- No reliable partner



Natasha

Age 24
Number of children/
pregnancies 1st pregnancy
Ethnicity Ghanaian

"I didn't realise I was pregnant for ages. Mum always said you get a black line on your belly and I didn't have that."

- Misread signs of pregnancy
- Didn't realise she was pregnant until late
- Miscommunication between services meant her first appointment was delayed



Mirela

Age 28
Number of children/
pregnancies 1st pregnancy
Ethnicity Albanian

"Someone told me it could cost me £5000 to have antenatal care. Anyway I don't know how long I'm going to be staying here."

- Seeking asylum
- Worried about the costs of going
- Fears being sent back home



Amaal

Age 32
Number of children/
pregnancies 2 children
Ethnicity Somali

"I had antenatal care for my first child, but not for my other one as I think they invade privacy."

- Bad previous experience of antenatal care
- Thinks they invade privacy
- Believes pregnancy is a medical issue



Ellie

Age 16
Number of children/
pregnancies 1st pregnancy
Ethnicity White British

"I haven't been to the doctor yet as I have to go to college every day - and I don't know if I should keep it or not."

- Teenage pregnancy
- In full time education
- Doesn't know if she wants to keep it



Sadia

Age 28
Number of children/
pregnancies 1 child
Ethnicity Bangladeshi

"I'm really happy about being pregnant. It's a gift from God. But I still think it's important to get checked so they can spot any problems."

- Traditional family set-up
- Prefers female healthcare professionals
- Needs a male chaperone for appointments



Patrycja

Age 32
Number of children/
pregnancies 1 child
Ethnicity Polish

"I was very happy with my doctor in Poland. There's a lack of consistency here: you see different people each time. I trust that they know what they're doing on with me."

- Different experience of care based on location
- In home care
- Thinks GP of call
- Doesn't trust

APPENDIX 9: FINDINGS - MISSED OPPORTUNITY TO ACCESS MEN'S VIEWS

Gaining a balanced gender perspective and accessing men's views on ANC and pregnancy was a feature of many participants accounts. Achieving a greater male representation in the intervention was perhaps a missed opportunity to gain new insights on increasing men's involvement in ANC and contribution to better health outcomes for their partners and their children.

Although, Community REACH sought to be inclusive by attempting to engage with both women and men during community engagement and outreach activities, the focus of engagement was primarily on accessing women from target groups identified as accessing ANC late. In addition, as highlighted in chapter 5 engaging men, both as participants and as community members in the intervention was particularly challenging. Many men were reluctant to engage on the issue of ANC, because they perceived it as not being relevant to them. Thus, women formed the majority of participants and engagees in the Community REACH intervention.

Attendance at the co-design workshops was exclusively female. In Derlestone, a Turkish participant arrived with her husband but he left when he saw there were no other men attending. In this workshop, there were a number of discussions concerning the reluctance of Turkish women to access health services, unless a Turkish community group involved and Turkish men's lack of interest in ANC classes. These discussions identify a potential need to engage men in understanding the benefits of accessing ANC as important influencers and support to their partners accessing ANC early.

In a number of the workshop's women expressed different opinions about whether involving men would have been beneficial or not. Some women felt involving men would have provided them with a better understanding and appreciation of the issues of ANC and pregnancy, enabling them to better support to their partners. It was highlighted at one workshop that many women attend appointments with their partners and therefore the intervention should aim for a more inclusive approach:

Jade asks how many women go to ANC with their partners – most of the women put their hands up - she thinks this would be interesting to find out more about because she feels

ANC should be more focused and inclusive of family. [from observation field notes 21/01/2016]

Other participants felt that ANC concerned 'women's issues' and therefore it would have been difficult to talk about these issues openly with men present.

In contrast, Alisa and Gazala both expressed the view that involving men in some capacity would have been beneficial:

...I don't know if there were any male figures in there [represented as a 'persona' in the creative activities] or even had a workshop so that it was from a male perspective point of view....so that we can understand from their perspective how they think the ANC system works and doesn't work. Because they might have a different perspective altogether from what we think. (Alisa, co-design participant at Moselle Park)

... because then if I ask my husband maybe he will think more about me, about my experience... (Gazala, co-design participant at Woodstead East)

Both Alisa's and Gazala's comments highlight that some participants felt men perspectives were not being represented and that ultimately women were missing out by not getting a better understanding of men's views on ANC and not enabling men to know how to better support them.

There were few male volunteers recruited to deliver the intervention, four men were recruited in total across all ten intervention sites. Michael, was one of the few male Community REACH volunteers. He was one of the three staff members at Discovery in Northarms who had been asked by the manager to participate in the Community REACH intervention. In his interview Michael explained how, despite his previous experience of community outreach projects, he had initially been hesitant about engaging with the community about ANC. He described feeling concerned that the nature of the topic would require him to have more in-depth knowledge. However, he felt more comfortable once the role had been framed as being similar to his previous outreach experience i.e. focusing on awareness raising rather than giving specific advice, and his concerns were further allayed once he had attended the volunteer training, where the role was explained in more detail:

Not that I wasn't interested but it was just... the moment she [Cynthia] said ANC I thought, babies, pregnancies, women so I'm thinking...with all the other outreaches I've done... how does it fit... I thought I'd have to go, go for some, not midwife training but deep...deep sort of thing. But Cynthia thought I'd be quite instrumental in terms of... getting the project done and carried out successfully...she just said you've done a lot of outreach in the community you've done it and it would be quite good to get you involved (Michael, Community REACH volunteer, Northarms)

I came to the training...it wasn't what I expected to be honest. So from the minute she [the trainer] started talking, like oh all you have to do, you don't have to answer all the questions...you're just there to...give them information...which kind of made me feel at ease....so to be able to pass that sort of information on [the importance of ANC] was quite good and it's quite similar to a lot of the things I'd done before (Michael, Community REACH volunteer, Northarms)

Michael's explanation highlighted his concerns about having the knowledge to be able to connect on a deeper level about the topic. However, having participated in the volunteer training he understood the limits of the role and how to manage the conversations with community members.

Some participants felt having a greater male representation in the volunteer teams would have benefited the engagement process, as this would have helped to engage with more men during outreach activities. Many participants reported that men were reluctant to engage on the issue of ANC as they often perceived the issue as being not relevant to them:

...male volunteers would be good because...sometimes it's difficult to approach males... so if men can talk to men...they kind of think that it's not for them for the pregnancy care (Nasreen, Community REACH Volunteer, Eastgate Park)

Some of the volunteers said they were shy or apprehensive about approaching men to speak about ANC, or it was outside of their socio-cultural norm to approach men outside of their own family members. These volunteers tended to focus on engaging with women or relied on the co-ordinator to have the conversation:

'...initially my problem was talking to a man, especially our own people because they ignore women they don't know... and when they hear about the pregnancy thing, they think it's not our thing, it's only a woman thing...' (Sameea, Community REACH Volunteer, MidCross)

Michael described his strategy for getting men at a local gym to engage with the intervention messages:

'...I start off talking about what did you work on today, some are going to say chest...my legs...my back...oh I did that yesterday and I'm doing that today sort of thing, well listen can I just have two minutes of your time I won't be longer than that....Just a few questions on antenatal care...they're like what's that... healthy pregnancy basically...then they're like but I'm not a woman...I'm like I know...but you might have a girlfriend...a wife...a mum...a sister anyone and, you might come I handy for them and then that's it, so just start from there'. (Michael, Community REACH Volunteer, Northarms)

Michael demonstrated that by creating common ground using a shared experience in topic of interest, he was able to develop a rapport with the person before engaging with them about the intervention messages.

The findings highlighted the dilemma and challenges of involving men in ANC, described in the literature (Hunter et al., 2018; WHO, 2007; Davis et al., 2016). Women's perspectives suggested that some women may have felt less able to speak openly and freely about their experiences, whereas other women saw the value in exploring men's views to improve the support they received from their partners. Overall, the response from men to the intervention messages was mixed, with many perceiving ANC as not being relevant to them. Where men represented on the volunteer team engagement of men with the intervention messages was improved. Studies show that improving men's knowledge, understanding and involvement in reproductive health can contribute directly to better maternal and child health, through supporting greater access to services (WHO, 2007; Davis et al., 2016). Strategies for improving involvement include increased opportunities to participate, culturally sensitive messages, involving men at a younger age and engaging men in community settings (Davis et al., 2016). A clear strategy for involving men in the co-production process may have supported greater engagement but require careful planning to balance concerns.