

**A Constructivist Grounded
Theory of Communication
during a Child's X-ray
Procedure: 'Playing a Part in
the Performance'**

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Declaration

This thesis is entirely my own work and has not been submitted, in full, or in part, for the award of a higher degree at any other educational institution. Sections of this thesis have been presented at conferences or workshops; details are presented below:

2020 Saron, H., Bray, L., Carter, B., & Wilkinson, C: 'Playing a Part in the Performance' of a Child's X-ray Procedure' Poster Presentation (UKIO) UK Imaging and Oncology Congress: Pathways and Communication at presented virtually online due to COVID-19.

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2017 Saron, H., Bray, L., Carter, B., Wilkinson, C & Ford, K: *Children's Assent and Dissent in Radiology Procedures*. Poster presented at Public Health PGR Symposium, University of Liverpool.

2017 Saron, H., Bray, L., Carter, B., Wilkinson, C & Ford, K: *Children's Assent and Dissent in Radiology Procedures*. Poster presented at Edge Hill University's Cutting Edge Postgraduate Research Conference.

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2017 Saron, H., Bray, L., Carter, B., Wilkinson, C & Ford, K: *Children's Assent and Dissent in Radiology Procedures*. Poster presented at Postgraduate Research Symposium, Edge Hill University. **Winner of 'Best PhD Poster' (Panel Reviewed).**

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I could not have done this without any of you, thank you!

Dedication

**This thesis is dedicated to my parents, Paul and Julie Saron who always believe in me and support me.
Thank you for helping me build a life I love.**

I lost my Nan a few months into starting this PhD and I have held on to it for as long as I possibly could through fear that when this is done, my life as she knew it is too. This was the last big milestone she saw me face and I'm beyond heartbroken that she doesn't get to see me finish it or begin my next adventure, and so this is also...

for my Nan, Maureen 'Mo' Harper, who was "simply the best!"

Abstract

Background

There is increasing evidence relating to children's engagement in, and experiences of, health care procedures. However, little is known about children's experiences of undergoing minor or routine procedures such as X-ray procedures, or the communication that occurs during an X-ray procedure.

Research aim

To explore the communication that occurs during a child's non-urgent, plain X-ray procedure and how children and their parents experience the procedure.

Methods

The study used a qualitative design informed by Constructivist Grounded Theory. Data were generated through non-participant observations of children aged 4-11 years old undergoing non-urgent X-ray procedures. Children and their parents were invited after the procedure to take part in a semi-structured interview. The interviews with children were supported with the use of an activity booklet.

Findings

Forty-five X-ray procedures were observed and 17 children and 9 parents were interviewed. Children, parents and radiographers adopted and played specific roles (parts) during the X-ray procedures and these influenced the communication that occurred. Three different, not hierarchical, categories of communication with children were identified. The first category was 'communication where a child was involved', where children's voices and opinions were sought with the expectation that they could change or influence what happened during the procedure. The second category was 'communication where a child was interrupted', where children's voices were overshadowed, or replaced in a supportive way, by the louder voices and bigger roles of the adults present. The third category was 'communication where a child was ignored', where children's voices and opinions were overlooked, silenced or not sought by adults. Children in the third category had a small role and very little power to change or influence what happened during their X-ray,

but some children preferred that. The findings have been explored using a dramaturgical lens identifying the different roles, scripts and frontstage and backstage performances that unified the three categories. This led to the development of an imaginative understanding about 'playing a part in the performance' of a child's X-ray procedure.

Conclusion

Children value being engaged in meaningful communication during their X-ray procedure. They also prefer it when they have a choice in how they communicate. They have shown that they are able to communicate during the procedure and about the procedure. This study used a Constructivist Grounded Theory approach, and I sought to include children using participatory methods to co-construct meaning with them and their parents during data collection. Working in this way, led by children's experiences and voices and remaining grounded in the data, led to the use of dramaturgy and dramaturgical metaphors in the 'imaginative understanding' and final discussion. Dramaturgical metaphors have been used to highlight the complexity of social interactions that occur during a procedure and how parents and radiographers communication can constrain or enable children's opportunity and ability to play their chosen part in their procedure.

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Abbreviations and key terms

Computerised tomography scan (CT or CAT Scan): An X-ray image made using a form of tomography in which a computer controls the motion of the X-ray source and detectors, processes the data, and produces the image.

EOS X-ray: EOS imaging is a low-dose, weight-bearing X-ray technology. It can simultaneously take full-body, frontal and lateral (side view) images of the skeletal system of a patient in a standing or sitting position, using significantly less radiation than traditional X-rays or CT scans.

Magnetic resonance imaging (MRI): Magnetic resonance imaging (MRI) is a type of scan that uses strong magnetic fields and radio waves to produce detailed images of the inside of the body. An MRI scanner is a large tube that contains powerful magnets.

Plain X-ray: Plain X-rays are the simplest medical images created through X-radiation. They are the most commonly used form of diagnostic imaging. Small amounts of radiation are passed through a selected part of the body to produce a diagnostic image. It is usually used to evaluate the chest and musculoskeletal system.

Radiographer: A radiographer (or medical imaging technologist) is a university-trained health professional that works with cutting edge technology to produce X-rays, CT (computed tomography) scans, MRI (magnetic resonance imaging) scans and other medical images to assist clinical radiologists and other doctors diagnose, monitor or treat a patient's injury or illness.

Chapter 1- Introduction

Children's Communication during X-ray Procedures

1.1 Preface

“The point at which you end your journey emerges from where you start, where you go and with whom you interact, what you see and hear, and how you learn and think” Charmaz (2006, pxii)

Throughout this thesis, my learning and thoughts are interwoven with those of the children and parents with whom I ‘interacted’ whilst undertaking this PhD and progressing on this journey. So, although it is not my intention to draw attention away from the important voices of the children and parents, I will begin this thesis by including some personal information to acknowledge my own role and voice in this research. It is important to note that this preface is by no means an extensive personal note, as elements of my positionality, my beliefs, my understandings and how I worked with children to co-construct meaning with them are drawn on in the following chapters of this thesis.

I conducted this study and compiled this PhD thesis when I was in my mid-twenties and at the start of my career, with no professional working experience and a diverse academic background. As an undergraduate I studied geography and was taught by such passionate human geographers and especially children's geographers. This led me to want to further my knowledge and understanding in these areas. I conducted a small research study for my undergraduate dissertation that utilised activity booklets with children to explore their health in areas of affluence and deprivation. Conducting this work opened my eyes to the inequality children can face and the impacts this can have, both in terms of their health but also in their position in wider society. This led to me applying for and studying Demography and Health at Masters level to expand my knowledge and to focus my attention on people, including children, and their experiences of the social world around them. My prior studies ignited a passion for attending to children's voices, and this has developed throughout my time in academia. I applied for this PhD opportunity as I felt it was a study that could foreground children's voices. The advertised post appealed to me as it was an

opportunity for me to develop my knowledge gained in geography and demography in a different way, this time with a focus on health and in a new setting, a children's hospital. The decision to focus on the specifics of the study in terms of the setting (the X-Ray department) and the procedure (minor, non-urgent X-rays) grew as I began exploring and developing the study, identifying areas where children's voices have not previously been heard. It is important that I explain here, at the very start of this thesis, that despite this PhD study being conducted in a clinical setting, I am not a Radiographer or a Radiologist and I do not have a clinical background. Instead, throughout this study, I have tried to be 'fresh eyes' to the radiological encounter, drawing on my outsider perspective. I believe my 'outsider perspective' to clinical practice helped me to see beyond the everyday routine of imaging children within an X-ray department and bring a different and fresh disciplinary lens to the communications that take place. Having immersed myself and spent time in the Radiology department, I understand that the technical/ technological aspects of an X-ray procedure are incredibly important and require high levels of knowledge, skills and training. However, as I will discuss throughout this thesis, the communication that occurs during these procedures can be equally important.

As part of this study, I provided children with an activity booklet and room to draw a picture of them 'in a mirror' to help them get used to drawing and thinking about themselves. I engaged with the children on this task multiple times and in Figure 1 is a self-portrait; it sums up how I have felt (for most of the time, at least) while doing this study and especially how I felt working with the children. I played a part in this research and this preface has reflected on where I began.

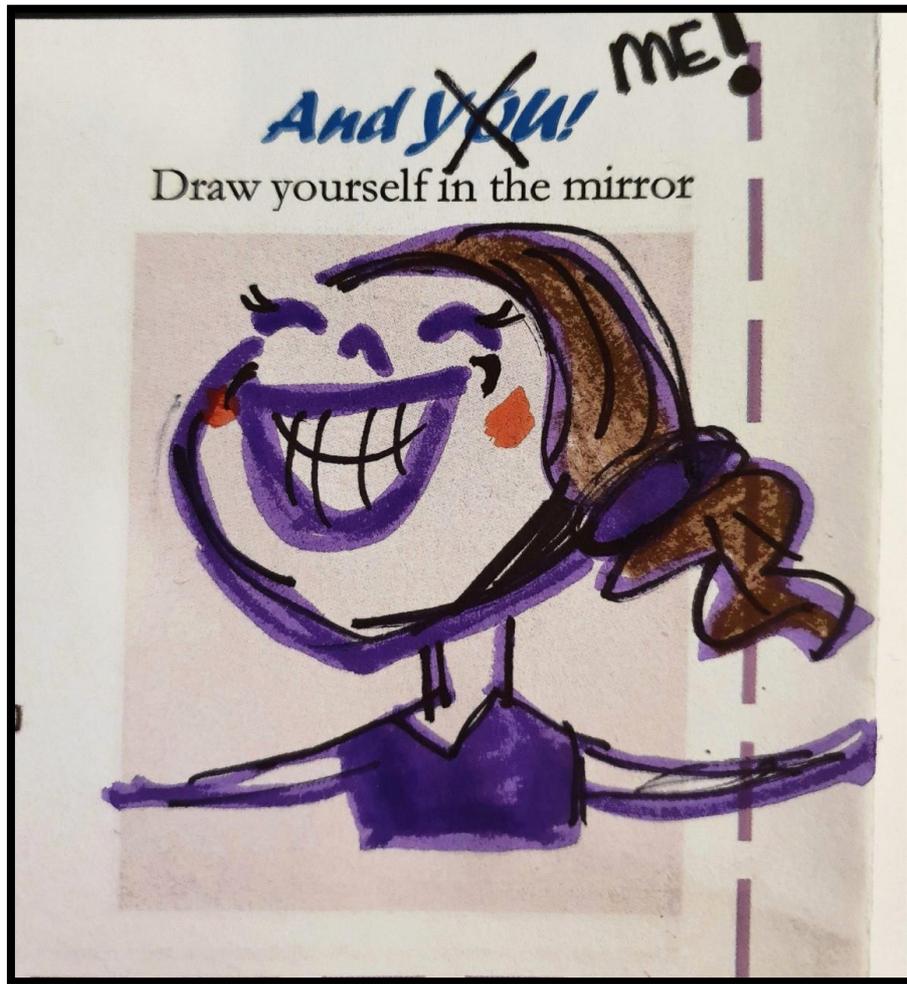


Figure 1 A self-portrait

1.2 Introduction to the study

This is a study about communication during children's X-ray procedures and how children and their parents experience the procedures. The NHS (2018) defines an X-ray procedure as 'a quick and painless procedure commonly used to produce images of inside of the body and is an effective way of looking at the bones'. Despite an X-ray procedure being described by the NHS as quick and painless, previous research shows that many children find undergoing a radiological procedure scary and they can feel anxious (Bray et al., 2018). Despite a growing body of literature about children's experiences (Coyne, 2006, 2008; Livesley and Long, 2013) and perceptions of coming *to* hospital (Bray et al., 2019; Bray et al., 2020) and being *in* hospital (Lambert et al., 2014; Clarke, 2019), there is little known about children's experiences or the communication that occurs during a minor, routine procedure such as a non-urgent, plain X-ray procedure.

In this PhD study, my aim was *to explore the communication that occurs during a child's non-urgent, plain X-ray procedure and how children and their parents experience the procedure*. I observed how children communicate and are communicated with and how they express their thoughts and feelings during an X-ray procedure. I focused on communication to, from and between children, parents and radiographers. Interviews were utilised to incorporate children's voices and co-construct meaning with them and their parents about undergoing an X-ray procedure. Radiographers were not interviewed in this study, as it was the child's voice that was most important to this research. Activity-based booklets augmented the interviews with children and supported them in providing their accounts.

Throughout this thesis, I use terms associated with drama, theatre and performance. I use these terms intentionally as a subtle nod towards the discussion chapter (Chapter 7), whereby I introduce a core category that aligns to Charmaz's (2006) ideas about developing an interpretive Constructivist Grounded Theory through presenting an 'imaginative understanding' (Charmaz, 2006, p127) of a child's X-ray procedure as a performance with

different roles, lines and stages, that all contribute and shape the main plot and performance of the procedure.

1.3 Thesis structure

This thesis is structured in eight chapters, which are detailed below:

Chapter 1: Introduction: Children's Communication during X-ray Procedures

In this chapter, I provide a preface that introduces who I am and some of my context, as well as introducing the topic and the structure of the thesis.

Chapter 2: Background: Children's Communication and Experiences in X-ray Procedures

In this chapter, I briefly outline children's positioning within society and in health care contexts. I consider children's experiences of hospital and their existing accounts of healthcare and procedures, including literature broadly related to the radiology setting.

Chapter 3: A Scoping Review of the Literature: Children's Communication and Experiences of X-ray Procedures

In the third chapter, I have compiled a scoping review of the literature specifically relating to children's X-ray procedures, their communication during the procedure and their experiences of them. This chapter details the methodological framework for scoping reviews, as advocated by Arksey and O'Malley (2005). I demonstrate, in the review, how there is a lack of insight into what and how children communicate during their X-ray procedure and a lack of understanding about their experiences of X-ray procedures.

Chapter 4: Methodology: Utilising a Constructivist Grounded Theory Approach

In the fourth chapter, I discuss the methodological underpinnings of this study. I briefly discuss the broad remit of Grounded Theory and go behind the scenes in the decisions that were made to utilise a Constructivist Grounded Theory approach (Charmaz, 2006) to examine children's communication during X-ray procedures and how they and their parents experience the procedure.

Chapter 5: Research Methods: Watching the Performance and Going Backstage: Observing X-ray Procedures and Interviewing Children and their Parents

In this chapter, I outline the methods that have been utilised in this study. In line with a Constructivist Grounded Theory methodology, I adopted a 'palette of methods' (Wilkinson and Wilkinson, 2018) to gain a frontstage view by observing the communication that occurred during a child's X-ray procedure whilst also exploring the backstage experiences of children and their parents through interviews. I discuss the important ethical considerations that underpinned the study and the ethical clearances that were obtained before conducting this research. In this chapter, I detail the analysis processes, whereby I combined observation and interview data on A3 'datasheets' and discuss theory development in a Constructivist Grounded Theory study.

Chapter 6: Research Findings: Communication where a child is involved interrupted or ignored

In the sixth chapter, I draw on the analysis of the observations and the accounts of children and their parents to discuss and conceptualise the main findings from the study. I elucidate the different ways children communicate and how parents and radiographers can open up or close down communication to involve or exclude children from communication during their X-ray procedure. I have discussed three non-hierarchical categories that demonstrate children's communication in X-ray procedures; 'communication where a child is involved', 'communication where a child is interrupted' and 'communication where a child is ignored'. In this chapter, I have detailed the complex ways children communicate with parents and radiographers during their procedure and how this contributes and shapes what happens and their experiences. This chapter is grounded in children's experiences and I use their accounts to illuminate the main findings.

Chapter 7: Discussion: 'Playing a Part in the Performance'- An Imaginative Understanding (The Core Category)

In this chapter, I explore the findings through a dramaturgical lens to discuss the imaginative understanding and core category that I have entitled, 'Playing

a Part in the Performance'. I draw on work by Goffman (1969) and the field of drama and performance to examine the different roles, lines and stages that occur during a procedure and how they shape the plot and performance of the procedure. I demonstrate how this core category and "imaginative understanding" (Charmaz, 2006, p127) contributes a new in depth conceptual understanding that aligns with Charmaz's (2006) ideas about interpretive theorising.

Chapter 8: Conclusion: Strengths, Limitations, Recommendations and Original Contributions

In this final chapter, I conclude this thesis by addressing how I have met the research aim stated earlier in this introduction chapter. I evaluate the strengths and consider the limitations to this study, as well as providing suggestions for future avenues for research. I demonstrate how this research contributes to the growing body of research about children's experiences of hospital procedures and describe the original contributions it has made before ending the thesis with a 'final bow' from the children who have been part of this study using their words to summarise the key messages.

Chapter 2 - Background

Children's Societal Position and Communication and Experiences within Health Care Contexts

2.1 Introduction

In order to situate this study, it is important to consider the wider context and the rights and positioning of children in both society and health care environments. I have utilised this chapter to reflect on the evolving (Ford et al., 2018) and differing constructions of children and childhood within Western societies. This is because the wider societal context often plays an important part in shaping and influencing rules and practices within hospitals and health care.

I have structured this chapter in two sections. In the first section, I focus on briefly exploring the traditional dominant Western conceptualisations of childhood and how these have altered and changed, leading to the present day re-conceptualisation of childhood. I then discuss how the views in Western societies and the social constructions of childhood have filtered through into research and into health care and how this influences what is known about children's experiences of hospital and procedures.

Although in this chapter I draw on children's rights and positions in Western society, I acknowledge that this varies in different countries, cultures and societies. Throughout this chapter the term children is used, however I acknowledge that children are not a homogenous group and that within this there are ranges of experience, developmental differences and cognitive differences.

2.2 Western conceptualisations of children and childhood

Children's communication and experiences during an X-ray procedure within a hospital setting is the main focus of this PhD study. As a result, it is important to briefly consider the position of children and their voices and rights in society. Throughout this PhD, the term 'voice' is used in multiple ways. On occasions, such as in the findings chapter, I use this term in a literal sense meaning what children actually said and the things they communicated during their X-ray

procedure. However, in this chapter, the term 'voice' is used in a different way to refer to the commonly used term to describe the involvement of children and the expression of their views (Coyne, 2014; Holloway, 2014). This section of the chapter is not intended as an extensive or chronological overview of constructions of childhood, but hopes to provide some context to frame this study.

How children have been and are contextualised is complex and is constantly evolving and being challenged (Ford et al., 2018). Historically, it was argued that our 'contemporary' notion of childhood did not emerge until the 16th and 17th centuries and prior to this childhood was not a distinct time in life (Aries, 1962). Instead, Aries (1962) suggested that children were little adults who took part in the same work and other activities that adults did and they were often seen as an economic asset to a family. This was until the 19th Century when children were excluded from working in mines and factories in order to protect them from being injured or killed. Sorin and Torzillo (2015) emphasise the multiple ways that adults have conceptualised children in their paper examining ten constructs of childhood. Some of the constructs include the early conceptualisation of the child as evil, the child as innocent and in need of protection, the child as a miniature adult, the child as adult in training, the commodified child, to the present day agentic and autonomous child (Sorin & Torzillo 2015). The multiple ways the authors refer to children, and the stage of childhood, demonstrates how children's positioning within society has been ever changing and has altered frequently throughout time. Such changes have been influenced not only by historical shifts and institutional variables that shape human experience (Ebbeck and Waniganayake, 2017), but also by culture, class and gender (Morrow, 2011).

Historically, children have been positioned and characterised by things they cannot do and do not understand, they have been seen as in need of control by more responsible adults (Valentine, 2017). Children are written about as in a stage of transition on the pathway to adulthood and competence, often referred to in literature as the difference between 'being' and 'becoming' (Sorin and Torzillo, 2015). This implies that the purpose of childhood is to become an

adult and childhood is merely a predetermined trajectory (James and Prout, 2015).

A key turning point in how children were conceptualised came in 1989, when children were given greater protection than general human rights, as outlined in the United Nations Convention on the Rights of the Child (UNCRC) (United Nations General Assembly, 1989). This international agreement set out the rights that children have and was seminal in influencing and shaping the altered views on children and childhood. Of particular relevance to this PhD, are the articles that outline that children have the right to be listened to and be taken seriously (Article 12) and the right to a freedom of expression (Article 13) (UNCRC, 1989). These articles highlight that children are capable of making their own choices, having a say in matters that concern them and suggest that adults should respect these views rather than overlook or overpower them (Lundy, 2007). However, despite such an international and legally binding agreement, children have not and are not always considered as competent to speak for themselves. In many contexts, dominant adultist perspectives persist and children's views continue to be largely missing, overlooked or muted (James and James, 2012).

The influence of children's rights and social constructionism began a change in how children were and are viewed; a shift in thinking that highlighted children as more than adults in waiting (Skelton, 2007). What it means to be a child become more fluid and subject to change based on a child's circumstances and is contingent on place, space, time and culture. This recognises that children should not be considered as a homogenous category and their diversity and individuality should be recognised (Carter, 2009). The new conceptualisation increased recognition of the importance of children having their own voice; different and of equal value to adults (Punch, 2002), and this included foregrounding children and their interests in health care (Carter and Ford, 2013). Positioning children in this way called for them to be seen and recognised as active agentic beings and social actors (Ford et al., 2014) to be seen as active in the construction and determination of their own social lives with experiences, understandings and ideas of their own (Jørgensen, 2019)

rather than just passive subjects of social structures and processes (James and Prout, 1990).

2.3 Children in health research

Children have traditionally been denied the rights of participation in research, lacking visibility and their voices have gone unheard (Darbyshire et al., 2005). Instead, reports have been provided by adults 'close to children', such as parents and health professionals who have provided proxy accounts of what they think are children's thoughts and experiences (Alderson, 1999; Scott, 2008). Similarly, children's experiences of having a health condition, their health interactions and views of undergoing procedures were not heard and children were often positioned as incompetent and lacking in capability (Punch 2002; Carter, 2009). Instead, research was dominated by the positivist paradigm and emphasis was on research about children's physical growth and measurement or quantifiable information. This means that much less was known about children's thoughts, wishes, understandings and experiences. Adult researchers upheld and maintained this positioning of children, as inadequate and unreliable, and used adult-centred research designs, aims and methods (Hill, 2005). The traditional approach to researching children and their health care experiences has been based *on* or *about* them and their lack of agency meant they were seen as objects rather than active participants (Ford et al., 2017). Furthermore, there were conflicts and tensions between children's rights to participate in research and adult perceptions around their vulnerability (Carter, 2009). Children being considered as vulnerable and in need of protection minimised their opportunities to be involved in research (Jones and Welch, 2018), which subsequently resulted in children's views remaining excluded (Powell and Smith, 2009). Often resulting in children's interests being marginalised.

However, contemporary perspectives about children's increased autonomy and voice within society have, more recently, filtered through to health research. There has since been shift in the way research is conducted with children, from focussed on being *about them* to working *with them* in a more participatory manner (Coad, 2007; Gibson et al., 2010). Consequently, it has been argued that they should be consulted on matters of importance to them and, within

research, this has been reflected in the growing participation and involvement of children in health and social care research (Coad, 2007; Lambert et al., 2014; Bray et al., 2019; Carter and Ford, 2013).

Child-centred research steps away from traditional approaches that could be seen to objectify children and seeks to understand the ways children control and shape their own worlds in different ways to adults (Punch, 2002; Yoon and Templeton, 2019) and navigate adult control. This being said, it is important to understand that the constructions of children and childhood and the 'participatory' methods often stem from adult worlds and are often shaped and dictated by adult agendas and there is still much more work to be done.

2.4 Children's experiences and accounts of hospital

In this section, I refer to what is known about children experiences of hospital. I reference literature and provide a background to children's experiences of coming to and being in hospital. This section links to the previous section as it shows how the shift within society that promotes children's agency and seeks to hear them and empower them, has to some extent been acknowledged and mirrored within health settings and as a result much more is known about their experiences of hospital and health care.

Most children experience some kind of health care interaction during their childhood (Blount et al., 2006; Vincent and Creteur, 2017), whether this is a visit to their local doctor's surgery or Accident and Emergency Department or having to undergo a clinical procedure such as administration of medicines, blood tests or X-rays to help investigate or treat injury or illness. Clinical procedures are to diagnose, monitor or treat a patient's illness (Bonewit-West, 2015) and whilst some procedures such as the administration of medicine can be straightforward, other procedures can be painful and/or invasive (Carter et al., 2014) and the majority are unexpected.

Despite research lacking children's accounts for some time, there are a number of papers that consider what it is like for children in hospital (Lambert et al., 2014), what they would like hospital to be like (Coad and Coad, 2008) and their experiences of undergoing procedures (Coad, 2007; Bray et al., 2019). It is evident that children are able to report and discuss their experiences

(Kortessuoma and Nikkonen, 2006; Lindeke and Johnson, 2006). They are also able to identify their own needs for information about procedures (Smith and Callery, 2005; Bray et al., 2019). Children, when asked, can specify what it is they dislike about being in hospital, including missing friends and family (Gibson et al., 2005; Horstman and Bradding, 2002), and how they develop positive relationships with staff (Lindeke and Johnson, 2006) and expect nice, kind, fun and smiling nurses (Pelander and Leino-Kilpi, 2004; Horstman and Brading, 2002). Yet there is still work to be done in order to develop a greater understanding of their experiences and it is crucial that children are included in the research process to ground research in their own perspectives.

Unfortunately, children continue to experience unnecessary pain, fear and anxiety during and after health care interactions and undergoing procedures (Nicholson and Clarke, 2007). Previous studies show that children's experiences and accounts of hospital can be negative and for many children, attending hospital and undergoing clinical procedures can be scary and they can feel anxious and unprepared (Bray et al., 2018; Ersig et al., 2013). Having a procedure can expose children to unfamiliar sights, sounds and people. It can be difficult for children to understand what is happening (Bray et al., 2019) and the conversations that are taking place around them (Coyne and Kirwan, 2012). This can mean that it is difficult for children to have a voice that is heard and listened to during their time in hospital (Bray et al., 2019; Bloom et al., 2020) and can result in negative experiences that can have significant physical and emotional impacts.

Communication within health care settings is very often triadic, between a child, their parent and a health professional and can be complex and laced with individual agendas and misunderstandings (Cahill and Papageorgiu, 2007; Tates and Meeuwesen, 2001). Despite there being a greater consensus that children have a right to participate in health matters that affect them (Coyne, 2014), evidence shows that children continue to find it difficult to join in health care interactions or have their views heard (Bray et al., 2019; Lambert, 2008; Lambert and Glacken, 2011) and meaningfully engage in decision-making (Noyes, 2000). Children's voices and expressions can sometimes go unacknowledged by their parents and health professionals present (Callery and

Milnes, 2012; Lambert, 2008) and this can impact on children's experiences of their procedure (Bray et al., 2018).

Overshadowing or ignoring what children have to say, including their protests, during a procedure can sometimes mean that things happen against their wishes and their rights and choices are not fully respected (Bray et al., 2014; Brenner, 2013). Empirical evidence demonstrates that children, particularly younger children, are frequently held (Bray, Snodin and Carter, 2015), also referred to as clinically held or restrained (Nielson et al., 2020) for a range of clinical procedures, in order for a procedure to be completed. This can be upsetting for health professionals (Ives and Melrose, 2010), parents (Svendsen et al., 2018) and especially the children (Bray, Snodin and Carter, 2015). Evidence suggests that such negative experiences can significantly impact children physically, emotionally and psychosocially and can impact the procedure and future procedures (Lerwick, 2016).

During a procedure, children's dependence on others is increased, they are often in unfamiliar environments, and have little control (Koukourikos et al., 2015) or are allowed little control in the events happening to them (Bricher, 2000). Most children do not want the sole responsibility of making decisions and prefer to share the decision-making with parents and be included in conversations (Koller, 2017). Coyne and Gallagher (2011) discuss how although children having procedures wish to be included in decisions about them, they tend to trust their parents with big decisions such as the best treatment options, whilst feeling comfortable with the small decisions such as those that focus on the way the nursing care, procedures and tests are done to them.

Essential to how children are heard, listened to, included in decisions and prepared for procedures is the communication that occurs during interactions with health professionals (Waiters and Coad, 2006). Communication during a child's procedure is often complex. Communication, as a term, is also complex with multiple strands to its meaning. Drawing on dictionary definitions, a broad definition of communication could be "the imparting or exchanging of information by speaking, writing, or using some other medium" as well as "social

contact” and “the conveying or sharing of ideas and feelings” (Oxford Dictionary, 1989). It became apparent in much of the literature that despite many studies focussing on communication within paediatric practice (e.g. Lambert et al., 2008; Lambert et al., 2011; Savage and Callery, 2007), there was a lack of direct focus on what was communicated, how it was meant or what it felt like from the child’s own perspective.

The literature that discusses communication within health interactions commonly focuses on ‘doctor to adult patient communication’ (Hesse and Rauscher, 2019). There is less research that focuses on doctor-child communication (Levetown, 2008; Tates and Meeuwesen, 2000; Tates and Meeuwesen, 2001) and even less that attends to child-health professional communication such as nurses (Callery and Milnes, 2012) and allied health professionals (Björkman et al., 2013; Bray et al., 2014).

Tates and Meeuwesen (2001, 2002) compiled seminal literature that is linked to how we understand children’s communication within health interactions. The authors study shows how communication can be enabled or constrained by health professionals and parents (Tates and Meeuwesen, 2002) who allow or prevent children from taking their turn to join in the consultation. Changing constructions of childhood have influenced health interactions, as they note that children’s active participation in consultations has increased in their longitudinal data collected over a 20-year period. However, children’s control in all of the interactions remained limited (Tates and Meeuwesen, 2000), instead remaining to prioritise parent and health professional accounts and not the child’s.

2.5 Children’s experiences in Radiology

I will focus specifically on children’s communication and experiences in X-ray procedures in the following scoping review chapter (Chapter 3). However, this section is intended to provide a brief background to the research relating to children undergoing radiological procedures. X-rays (Plain Radiography), Diagnostic Ultrasonography, Computerised Axial Tomography (CT) and Magnetic Resonance Imaging (MRI) are essential aspects of modern medicine for the purposes of diagnosis and monitoring of many conditions. X-ray procedures are common procedures and most children will undergo an X-ray

procedure at some point during their childhood (Drendel et al., 2006). They are often one of the first clinical interactions a child will have in a hospital setting and can be an important experience that shapes a child's future health service interactions. However, there is a lack of published literature that details how these procedures are experienced by children and what shapes these interactions, including how they communicate and interact during the procedure.

Literature in the field of radiology has long focussed on the technical aspects of imaging, such as radiation dosage or specific health concerns and diagnosis. Most research has been quantitative in nature and stemming from positivist paradigms that restrict the data and limit it to be analysed mathematically and statistically (Freudenberg, Muller and Boskich, 2009; Reeves, 2008). Radiology research has been less concerned with the patient's experiences of a procedure or the communication or actions that happen during the procedure (Munn and Jordan, 2011). There is a dearth of published literature that discusses experience, communication and interactions that take place during radiological procedures and specifically the more 'minor' or routine procedures such as non-urgent, plain X-rays, and this is especially limited when the patients or participants are children. Instead, research tends to focus on more invasive procedures or on what are termed 'high technology medical imaging procedures' such as MRI procedures (Munn and Jordan, 2011). Kada et al., (2019) is one of the limited pieces of qualitative radiography research with children. This paper is out with the inclusion criteria of the scoping review (Chapter 3) as they focussed on children undergoing MRI scans, however detail is provided into the authors findings. The paper has important findings and the authors highlight how children value being involved in communication and having their individual agency respected during their radiological (MRI) procedure. The authors stress the importance of radiographers understanding a child's communication, being able to read their needs and having skills to prepare and distract children during the procedure. The paper, that uses semi-structured interviews with twenty-two children between eight and sixteen years old, discusses the primary concern of how children had coped with the discomfort of their first MRI procedure, one that was unfamiliar to them. Using

the precepts of Grounded Theory, and triangulation of child and parent data, the authors suggest that children's ability to cope was managed through a process they termed 'participation development' that they presented in three phases. The first phase, *preparative participation*, describes the way the children that were interviewed prepared themselves before the MRI procedure, and ahead of their visit to the hospital. The second phase, *enabling participation*, looks more closely at the happenings of the procedure and the input from parents and radiographers and how children endeavoured to understand what would happen during the procedure and the techniques used to distract them from the procedure. Lastly, *sustaining participation*, describes the children's responses during their interviews of actualising their preparations during the procedure. The findings suggest that children undergoing MRI procedures are not as passive as other previous work may suggest. The paper highlights how children value being treated as active agents in their own procedures. The authors suggest that anxiety can be reduced during a child's MRI procedure if children are carefully prepared and this preparation involves relevant others, including parents. Findings suggest that through the process of participation, at varying points in their experience, children can be active and work *with* and be supported by parents and radiographers during the procedure and this can have a positive impact on the procedure. Despite the focus of research shifting in line with shifts in practice, from technology-focused and technology driven to patient-centred and patient-focussed (Ng and White, 2005) and the role of qualitative research, that questions experience, meanings and understanding being identified as important, there is still a significant dearth of evidence.

2.6 Conclusion

In this chapter, I have provided a brief overview of children's position within Western society and suggested how this can influence how they are consulted and heard both in research and within health care. I have provided a brief overview of how children's rights to express their wishes and be heard are increasingly recognised within society and within health care interactions. However, tensions persist between children's rights, their perceived vulnerability and how they are interacted with during health procedures.

I have also presented an overview of a broad body of work to highlight how children's voices can still be overlooked or unheard during procedures and how this can result in actions such as holding (restraint). I have highlighted the dearth of qualitative literature that relates to radiological procedures. In the following chapter (Chapter 3) I have explored and critically considered children's experiences of X-ray procedures in a scoping review.

Chapter 3: Scoping Review

Literature related to Children's Experiences of X-ray Procedures

3.1 Introduction

In the previous chapter, I emphasised how there has been an absence of children's accounts of health care procedures. I described the growing recognition of the importance of children's inclusion in health care procedures and in research examining these procedures. I have shown that there has been little qualitative research in the field of radiology that explores children's communication especially during specific non-invasive, non-painful, routine and more minor procedures such as plain X-ray procedures. The lack of attention on children's communication during procedures such as plain X-rays is surprising as these are the most common diagnostic radiological modality used in hospitals (NHS, 2018) and previous research has pointed out how more qualitative research is needed to explore the experiences and perceptions in radiology (Munn and Jordan, 2011).

I have focussed this scoping review on children's experiences of plain X-ray procedures. As outlined in the introduction chapter (Chapter 1) of this thesis, this is a Constructivist Grounded Theory study and, as such, literature is treated in a different way to other qualitative methodologies (Creswell, 2012). In line with a Constructivist Grounded Theory methodology, this scoping review was compiled following completion of analysis and conceptual development (Ramalho et al., 2015; McCann and Polacsek, 2020). In this chapter, I detail the place of a literature review in a Constructivist Grounded Theory study and document the design and findings of the scoping review that explored what is already known about children's experiences of X-ray procedures and the communication that occurs within these procedures.

3.2 Rationale and the place of the literature review in this Constructivist Grounded Theory study

In this section, I briefly outline the context and place of the literature review within this Constructivist Grounded Theory study. A review of the literature is most commonly one of the first and earliest stages of a PhD, conducted in order to provide a clear rationale and a robust justification of the originality of the thesis by identifying gaps in knowledge (McGhee et al., 2007). However, such in depth knowledge and awareness of existing literature and concepts in the early stages of research is contested by some Grounded Theorists (Glaser and Strauss, 1967; Dunne, 2011). The originators of Grounded Theory advocated researchers should “literally ignore the literature of theory and fact on the area under study, in order to assure that the emergence of categories will not be contaminated” (Glaser and Strauss, 1967, p45) and to encourage a fresh outlook on the data. Constructivist Grounded Theory similarly advocates that conceptual work arises inductively from the data and from co-construction with study participants and should not be overly influenced by preconceived ideas drawn from the literature (Charmaz, 2006).

Typically, in a Grounded Theory study, a comprehensive review of literature is delayed until after data collection and analysis. However, as I have found during this PhD study, delaying engagement with the literature entirely until data collection and analysis is complete is difficult, problematic and is not entirely feasible. This is because ethics committees and PhD examination processes require a reasonable understanding of existing literature (Ramhalo, 2015) and the field of study. Therefore, at the beginning of my PhD, I conducted an initial search and consideration of the literature in order to enable me to ascertain gaps in the literature whilst avoiding an overly in-depth engagement with it. At this point the search was broad and focussed on communication, assent, dissent, experience and the whole of radiology rather than X-rays as a specific procedure. This ensured, as advocated by Glaser & Holton (2007), that I remained distanced enough from existing theory throughout data collection and analysis to prevent pre-conceived ideas clouding the process and imposing on the conceptual development.

3.3 Scoping Review Approach

I chose to conduct a scoping review to explore the literature of relevance to this study. This approach is advocated where the purpose is to review and examine the extent, range and nature of a field of research and to identify gaps in the existing literature (Arksey and O'Malley, 2005). A scoping review is ideal to determine the scope and volume of literature as well as an overview of its focus (Pham et al., 2014; Munn et al., 2018). I decided that a systematic review was not appropriate because it was not my intention to conduct a highly structured review to create reliable findings and directly inform practice or policy (Munn et al., 2018). Instead, the purpose was to determine the scope of the body of literature. I purposefully designed this review to scope the literature on children's communication during and experiences of non-urgent, plain X-ray procedure.

I was guided in conducting and completing this review by two main pieces of work. The main framework I adhered to was the five-stage framework for conducting a scoping review outlined by Arksey and O'Malley (2005). The five stages they define are identifying a research question, identifying relevant studies, study selection, charting and collating the data and summarising and reporting findings. An optional sixth stage, consultation with stakeholders (Arksey and O'Malley, 2005), was not used in this scoping review due to time constraints. The second piece of work I referred to in conducting this review was the guidance in the PRISMA extension for scoping reviews (PRISMA-ScR) (Tricco et al., 2018). This was not used prescriptively as I chose to focus on the framework set out by Arksey and O'Malley (2002), but it helped me build a greater understanding of key terminology, core concepts and key items in a scoping review report as well as demonstrating the nuances between different frameworks, guidance and approaches to conducting scoping reviews.

3.4 Identifying the research question

The first stage of a scoping review, as advocated by Arksey and O'Malley (2005) involves identifying a research question. This scoping review focused on children's experiences of and their communication during a plain X-ray procedure. This review aimed to address the following question:

What communication occurs during a plain X-ray procedure and how do children experience these procedures?

To help shape the scoping review the following specific objectives were created:

How do children experience a plain X-ray procedure?

How and what do children communicate during a plain X-ray procedure?

How does communication influence children's experiences of their plain X-ray procedure?

3.5 Identifying relevant studies

3.5.1 Search Strategy

The search strategy was structured according to the Population, Concept, Context (PCC) model (The Joanna Briggs Institute, 2015) in accordance with the advice in the PRISMA-ScR checklist who advise using a recognised model (Tricco et al., 2018). Using this model helped to ensure that the search was comprehensive, identified relevant studies and focussed on the key concepts in the review question. Utilising the PCC model helped define the terminology and incorporate different ways of characterising the *population* (children undergoing plain X-ray procedures), as well as the *concepts* of 'experience' and 'communication', and the *context* to reflect the multitude of different terms for an 'X-ray' procedure.

To identify potentially relevant literature and in accordance with scoping review methodology (Levac et al., 2010), searches occurred within electronic databases (CINAHL, PubMed, PsychInfo, Cochrane Library and Web of Science), as well as by hand searching reference lists and key journals. ETHOS was used to search for digital theses and Google Scholar was used to identify any other literature, as advised in the PRISMA-ScR (Tricco et al., 2018). Where available, thesaurus or MeSH terms were utilised and adding truncation using an asterisk (*) to encompass different spellings or word-endings included variants of search terms. Each word variant was linked with Boolean Operator

'OR', and key concepts with 'AND', this broadened the search to include synonyms, while simultaneously narrowing the searches by requiring a combination of all the searches. The search terms and key words used in the search for literature are identified in Table 3.1.

The search was conducted using relevant key words identified with the assistance of a librarian at the University and were checked with the team supervising this PhD study. The search terms were refined in light of early results that yielded a number of irrelevant studies.

Table 3.1 Search terms utilised in this scoping review based on Population, Concept and Context (PCC)

PCC	Terms
Population	Child* OR P?diatric OR Infant* OR Boy* OR Girl* OR Adolescen* OR Youth* OR Teen* OR "Young adult" OR "Young Person" OR Juvenile OR Mother* OR Father* OR Carer* OR Caregiver* OR Caretaker* OR Parent* OR Child-Parent OR Parent-Child OR Mother-Child OR Child-Mother OR Father-Child OR Child-Father OR Child OR Child-Radio* OR Patient-Radio* OR Physician-Patient OR Patient-Physician OR Family OR Families
Concept	<p>Communicat* OR "Non Verbal Communicat*" OR "Verbal Communicat*" OR Interact* OR Involvement* OR Co?operation OR Role* OR Behaviour OR Behavior OR relation*</p> <p>Experienc* OR "Patient Experienc*" OR Participat* OR Opinion* OR View OR Attitude* OR Percept* OR Belie* OR Feel* OR Know* OR Thought* OR Discomfort OR Cop* OR Anxi* OR Fear* OR Understand* OR Apprehen* OR Wish* OR Agency OR Autonomy OR Decision* OR Expect* OR Request* OR Competence OR Decision* OR Assent* OR Dissent* OR Voice* OR Consent*</p>
Context	X?ray OR Radiograph* OR Radiolog* OR "Plain Imag*" OR "Diagnostic Imag*" OR "Medical Imag*" OR Scan OR Procedure*

In accordance with the PRISMA-ScR checklist, Table 3.2 presents the details of the search strategy, including any limits used.

Table 3.2 Detailed search strategy

<p>1: All child related terms 2: All communication related terms 3: All experience related terms 4: All x-ray related terms 5: 2 OR 3 6: 5 AND 1 7: 6 AND 4</p> <p>Limits</p> <p>Academic journals Language: English Published between 1999-2020</p> <p>Searches conducted using the following databases</p> <p>CINAHL PubMed PsychInfo Cochrane Library Web of Science</p>

3.6 Study selection

3.6.1 Inclusion and exclusion criteria

Inclusion and exclusion criteria were set for this review (Table 3.3 and Table 3.4), to ensure that only relevant literature was located and included. Empirical studies using any design were eligible for inclusion in the review if they were published in English between 1999-2020.

Table 3.3 Inclusion Criteria

Inclusion Criteria
Primary research or literature review
Published 1999-2020
Published in English
All empirical studies that include qualitative methods, quantitative methods and mixed-methods
Sample including or restricted to children 4-17 years old
Studies reporting children's or children and parents communication or experiences of plain X-ray procedures

I made the decision to exclude any papers focussing on procedures that required the use of invasive techniques, the physical contact of machinery, an intervention in addition to the imaging or the use of prolonged imagery (Table 3.4). I therefore excluded studies that focussed mainly on radiological procedures such as CT scans, X-rays involving intravenous contrast, Magnetic Resonance Imaging (MRI) or Ultrasound. I am aware that there is literature that focuses on children’s experiences of these procedures (for example, see Kada et al., 2019). However, these procedures have been identified as different in nature to plain X-rays due to their invasiveness and the feelings they can evoke such as claustrophobia (Munn and Jordan, 2011). Papers were excluded if they *only* included the accounts of health professionals, or where studies included children and adults and the children’s data was not reported separately as the focus of this study was on children’s experiences, or where it was not easy to separate the data from X-ray procedures from other procedures.

Table 3.4 Exclusion Criteria

Exclusion Criteria
Participants with learning disabilities or who are unable to verbally communicate in English
Papers published in other languages
Papers that only included the accounts of health professionals
Papers that included children and parents but where children’s data was not reported separately
Children in the sample all under 4 years old or all over 17 years old
Papers that reported findings from other procedures and where data about X-ray procedures could not be separated
Papers that were about children’s experiences of other radiography procedures such as CT scans and MRI scans

3.6.2 Search Outcome

The following figure shows the outcomes from the search. It demonstrates there were 2,212 papers identified with the search terms in the abstract or title when hits from all databases were combined. I screened the titles and the abstracts of the search results against the inclusion and exclusion criteria. From screening these records, and following deletion of duplicates, which resulted in

1,642 papers, it became apparent that there were many papers that were not relevant to the review and a further 1,499 papers were excluded at this point. I then obtained the full text of the remaining 143 papers, as these appeared to represent a 'best fit' with the research question (Arksey and O'Malley, 2005, p15). The majority of these papers were excluded (n=135). My reasons for excluding the papers included, but were not limited to, the paper only reporting findings focussed on other radiological procedures, an example being Anastos, (2007), it did not include children's accounts, or it included X-ray as well as other procedures and it was difficult to separate the data, an example being Bray et al., (2019). I provide a summary of the key data from the eight papers that were included in this scoping review, which are drawn from five different studies in the next section of this chapter.

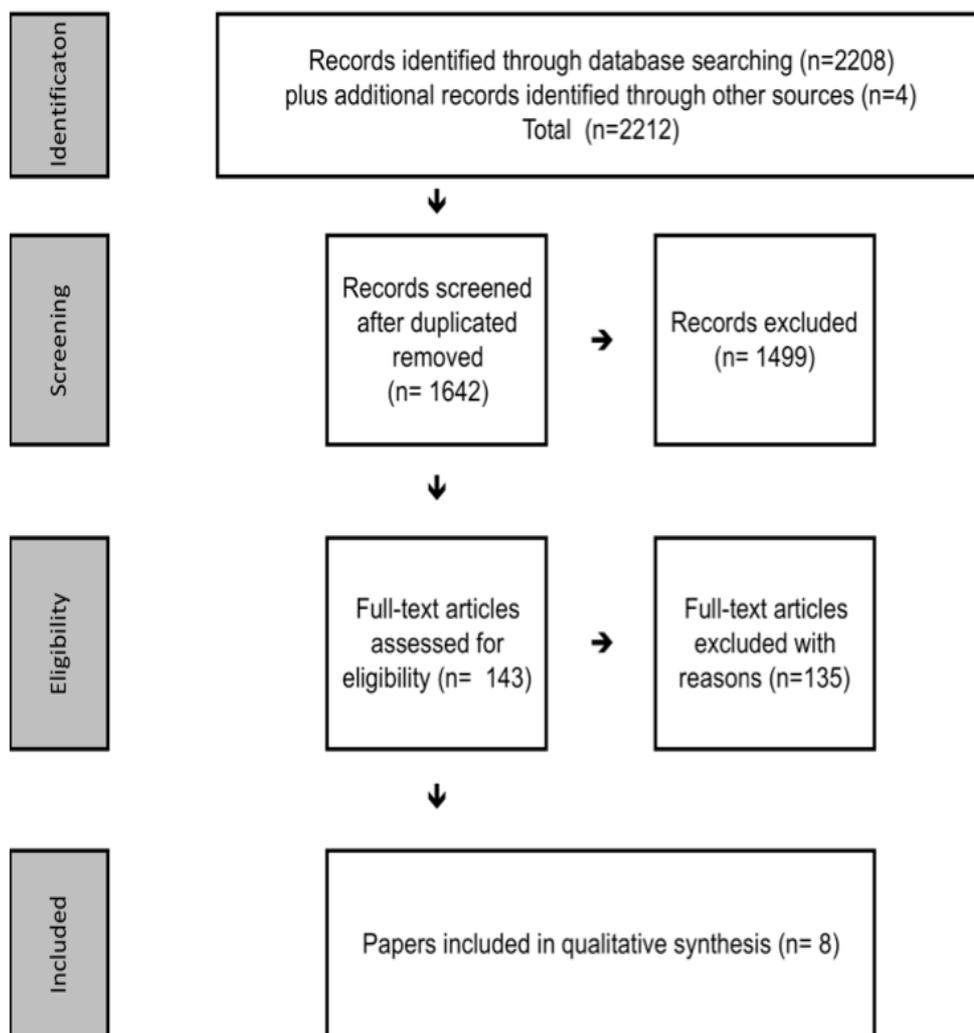


Figure 2 PRISMA flowchart

An assessment of the quality of included studies is not required within a scoping review (Levac et al., 2010). This is because a scoping study does not seek to assess quality of evidence (Arksey and O'Malley, 2005) but instead aims to map the extent and nature of the literature that exists (Coad and Shaw, 2008). As a result, no formal quality appraisal was conducted as part of this review and an audit of the discarded studies was not performed. The full articles of all empirical research that related to children's communication during and experiences of X-ray procedures were obtained and included in this review to provide a comprehensive account of the literature.

3.7 Charting the data

I reviewed and extracted key data from the studies included in this scoping review and charted the data within a table (Table 3.5). I have structured Table 3.5 according to the advice from Arksey and O'Malley (2005) to record general and specific information for each of the papers included in the review. I have reported key data such as the citation details (the author and year of publication), the study location, the study population, the aims of paper, the methodology or study design and a short summary of key findings or important results.

Table 3.5 Summary of data items from the eight papers (five studies)

Author/s and study location	Study population, number of participants, age of child participants	Aim(s) of the study	Study methodology, methods and analysis	Key findings/ important results
Björkman et al. 2012a.* Sweden	Children: (n=32) 3-15 years	To investigate children's experiences undergoing a radiographic examination for a suspected fracture. In particular, whether children experienced concerns when undergoing a radiographic examination for an acute condition.	Methodology: Qualitative. Methods: Procedures were videotaped and then children were interviewed afterwards while watching the videotape. Analysis: Qualitative content analysis was used to analyse the data.	Children had mixed feelings about their procedure. Two findings categories exemplified this; 'feeling uncomfortable' and 'feeling confident'. Children discussed their feelings about pain, their waiting time, and the future after the injury, confidence in their parents and in the radiography staff.
Björkman et al. 2012b.* Sweden	Children: (n=29) 5-15 years	To investigate pain and distress in children while undergoing a radiographic examination in an acute situation. In particular, how children evaluate the pain and distress experiences in conjunction with a radiographic examination after being physically injured and whether this correlates to the observed pain behaviour	Methodology: Quantitative. Methods: The Coloured Analogue Scale and Facial Affective Scale were used as self-reporting scales to measure children's pain and distress along with the FLACC as an observational tool. Analysis: Descriptive statistics.	Children reported pain and distress when undergoing the procedure and this was also observed. No significant differences were obtained concerning the pain level reported by the children who were diagnosed as having a fracture or dislocation of bones and those who did not have a fracture. Preparing children for painful experiences by giving them accurate and credible information at their level of understanding can help make the procedure less distressing.
Björkman et al. 2013.* Sweden	Children: (n=32) 3-15 years. Other: (n=20) female radiographers	To investigate the verbal interaction between the child, radiographer and parent during radiographic examinations	Methodology: Quantitative. Methods: Verbal interactions were video recorded. Analysis: Roter Interaction Analysis System.	80% of verbal interaction was dominated by radiographer, 17% (by child and 3% by parent. Of the radiographers' verbal interaction with the children 78% contained task focussed categories (e.g., 'gives instructions', including giving information and explanations to the

				child), other 22% was coded as socio emotional exchanges, including social conversation used to distract the child. Communication was mostly dyadic; radiographer giving information and either the parent or the child responding with agreement or understanding. Children actively engaged in communication by responding to instructions. Interactions with parents limited and reported as replacing or interfering with the interaction between children and radiographer.
Björkman et al. 2014. Sweden	Children: (n=110) 5-15 years	To investigate children's anxiety, pain and distress during an acute radiographic procedure to assess whether these factors can be related to the child's perception of care	Methodology: Mixed-methods. Methods: Self-reports and questionnaires. Analysis: Quantitative data analysed using descriptive statistics and qualitative data analysed using content analysis.	Anxiety, pain and distress were a concern to children, as well as the waiting time for their procedure. Despite the negative feelings associated to the procedure, children were satisfied with the care they received, as it was child-centred and supportive.
Björkman et al. 2016. Sweden	Children: (n=110) 5-15 years Other: Parents (n=110)	To investigate children's and their parents perceptions of care during the peri-radiographic process	Methodology: Quantitative. Methods: questionnaires and self-reports. Analysis: Descriptive statistics.	Overall, children were 'satisfied' with the care they were provided with and both children and their parents perceived the radiographer to be skilled and sensitive throughout X-ray procedure. The radiographers 'kindness and ability to help the child in a sufficient way' received the highest score and 'available time for the children to ask questions' and 'available time to meet the child's emotional needs' received the lowest scores.
Chesson, Good and Hart, 2002. United Kingdom	Children: (n=45) 7-14 years	To determine children's perceptions of X-ray examinations	Methodology: Qualitative. Methods: Two-part semi-structured interview, one prior to	Findings demonstrated the importance of recognising the anxieties and fears of the children

			<p>and one following the X-ray. Drawing methods to answer the question of 'what it felt like to have an X-ray'</p> <p>Analysis: An art therapist and a child psychiatrist reported on the children's drawings. Interview responses were read, categories generated and open-coded.</p>	<p>about the examination process. Children had at least a minimal level of knowledge of X-rays and gained information from friends, family and neighbours, school or television.</p>
<p>Harding and Davis, 2015. United Kingdom</p>	<p>Children: (n=79) 3 months-15 years Other: (n=13) Radiographers</p>	<p>To observe the interaction between the paediatric patient and the radiographer and to uncover techniques used by the radiographer to help alleviate any fear or stress that the child might have had</p>	<p>Methodology: Quantitative. Methods: A direct observational method was conducted using an observational checklist. Analysis: Manual coding of data inputted into an electronic spreadsheet.</p>	<p>Methods to help alleviate child's fear and anxiety when undergoing an X-ray procedure included use of child friendly equipment (e.g., colourful lead protection and posters on the wall), simple explanation of what the equipment is before moving it, offering rewards including verbal praise and showing the child their image after the examination. When time was short and workload was high, it was observed that radiographers were less likely to spend time calming the child and instead focused on completing the procedure as quickly as possible.</p>
<p>O'Shea and Davis, 2015. United Kingdom</p>	<p>Adolescents: (n=18) 15-17 years</p>	<p>To explore middle adolescents' perceptions of X-ray examinations</p>	<p>Methodology: Qualitative Methods: A self-completion questionnaire. Analysis: Thematic analysis.</p>	<p>Adolescents discussed pain, boredom, the wait for the procedure and nervousness. Adolescents had positive feelings of interest despite having little knowledge of the procedure. Many adolescents perceived radiographers to be friendly.</p>

*Participants from one study

3.8 Collating, summarising and reporting findings

3.8.1 Study characteristics

Arksey and O'Malley (2005) advocate providing a descriptive numerical summary to describe the characteristics of the studies included in a scoping review. All eight papers from five studies (Table 3.5) included aspects of children's communication during an X-ray procedure or their experiences of undergoing an X-ray procedure. The studies were published between 2002 and 2015. Five out of the eight papers included in this scoping review reported research from three studies conducted in Sweden. Four of the papers by Björkman were compiled in a dissertation at the School of Health Sciences, Jönköping University (Björkman et al., 2012a; Björkman et al., 2012b; Björkman et al., 2013; Björkman et al., 2014). The designs employed to investigate children's communication and/or experiences of X-ray procedures were varied. The majority of the papers (6 papers, 4 studies) focussed on examining children's first-hand accounts of their experiences whilst they were in the radiology department (Björkman et al., 2012a; Björkman et al., 2012b; Björkman et al., 2013; Björkman et al., 2014; Björkman et al., 2016; Harding and Davis, 2015), and one study collected longitudinal information at each time point before, during and after a child's X-ray procedure (Chesson, Good and Hart, 2002). One study recruited children with experience of X-ray procedures from secondary schools to investigate their recalled perceptions of their X-ray examination (O'Shea and Davis, 2015).

The studies used various methods for data collection and data analysis. Some studies consulted directly with children through using interviews with drawing methods (Chesson, Good and Hart, 2002), interviews (Björkman et al., 2012) and self-reports (Björkman et al., 2016). Other studies used qualitative methods such as direct observations (Harding and Davis, 2015) and video recordings with interviews (Björkman, 2013). Björkman et al., (2013) and Björkman et al., (2016) utilised quantitative descriptive design using the Roter Interaction Analysis System (RIAS) (Roter and Larson, 2002) in a systematic analysis of video observations or self-reports and questionnaires. One of the studies in this review also reported findings from parents (Björkman et al, 2016) and two reported findings from radiographers (Harding and Davis, 2015; Björkman, et al., 2013). I decided to include these studies in this

review, as, after screening, it was clear that despite adults' accounts being included, they were still focussed on children's first-hand reports of their experiences or communication. The first authors of all the papers had healthcare backgrounds and many of the first authors had radiology backgrounds.

The studies reported data from a wide range of participants. Those that used qualitative techniques tended to have a smaller number of participants, as few as 18 (range n=18-45), whereas the papers reporting quantitative research reported higher participant numbers e.g. 110 children (range n=29-110). This study focuses on children aged 4-17 years old undergoing X-ray procedures, however as the search returned limited results, I decided not to limit the review to this specific age range and instead extended the review to include any papers reporting data from children aged 4-17 years old within their age parameters. Papers were only excluded if all children recruited were younger than 4 years old or older than 17 years old. As a result, papers included in this scoping review include data from or about children aged between 3 months (Harding and Davis 2015) and 17 years (O'Shea and Davis, 2015)

The studies in this review indicate some common and contrasting characteristics relating to the communication that occurs during children's X-ray procedures and their experiences of X-ray procedures. In the following sections of this scoping review, I have provided a narrative account, structured thematically, according to the two parts of the review question: the communication that occurs during X-ray procedures and children's experiences of these procedures.

3.9 Communication that occurs during a child's X-ray procedure

All of the eight papers in this review made some reference to communication during the X-ray procedure, despite this not always being the overall focus or main aim of the study (see Table 3.5). Examples of 'communication' in the papers included, but were not limited to, the verbal interactions during the procedure between radiographers, children and parents (Björkman, 2012a) and analysis of how communication, or lack of communication, impacted the child's perception or experience and/or the procedure (Björkman, 2016; O'Shea and Davis, 2015; Harding and Davis, 2015).

3.9.1 Radiographers have a dominant voice in X-ray procedures

Findings in this review show that most of the communication, as much as 75% that occurs during a child's X-ray procedure, is performed by the radiographer (Björkman et al., 2013). Children's voices are reported as seldom heard within the communication that occurs during an X-ray procedure (Björkman et al., 2016). Björkman et al. (2013) used detailed observations of 32 children aged 3-15 years old (mean age 9.5 years old) undergoing procedures conducted by 20 female radiographers. Children's verbal interactions accounted for as little as 17% of communication and sometimes less (Björkman et al., 2013). Verbal interaction was noted as occurring between parents and radiographers but was described as being 'sparse' (Björkman et al., 2013:pp14). The interaction between the parent and the child was not coded by the authors but was reported as occurring in only 11 of the 21 procedures when parents were present with children, but this averaged less than a total 3.5% of the communication. This paper highlights the radiographer's role as the main communicator during a child's X-ray procedure and how they communicate significantly more with the child than with the child's parent, although the child's parent communicates more with the radiographer than with their child. The vast amount of communication to the child from the radiographer (75%) compared to the amount of communication from the child to the radiographer (17%) suggests that the communication that does occur is mostly 'at' the child rather than 'with' them and this closed down communication limits the opportunity for children to be involved.

Communication happened much less between radiographers and parents. However, 5% of communication was from radiographers to parents and 3% of communication from parents to radiographers (Björkman et al., 2013). The two percentages are much closer than the percentages of communication from radiographers to children and from children to radiographers and therefore could suggest more two-way communication or responsive talking-with and talking-to rather than talking-at. The paper discusses that much of the communication between parent and radiographer is conversational although it is still focussed on information and instructions given by the radiographer and parents responses (Björkman et al., 2013).

3.9.2 Instructional, closed communication does not provide children with the opportunity to join in

Björkman et al. (2013) not only investigated the quantity and delivery of verbal communication within a child's X-ray procedure but also described the nature of this communication. They found that most of the communication that occurred in 32 X-ray procedures, with 3-15 year olds, was task-focussed (78%) to predominantly "give instructions", an average of 29 times during an X-ray procedure (Björkman et al., 2013). Video-recordings of these 32 X-ray procedures showed that, 17 out of the 29 coded categories related to task focussed communication and far less orientated towards social emotional exchange (11 out of the 29 categories) (Björkman et al., 2013). However, Harding and Davis' (2015) suggested that from the 79 procedures they observed with 3 month-15 year olds, it was only when time was short and the workload was high, that radiographers were less likely to spend time supporting the child and focussed more on completing the procedure.

Björkman et al., (2013) explains that the observed communication during X-ray procedures was frequently closed (126 utterances), providing the example of "is it your left hand that is in pain?" (Björkman et al., 2013, pp13) or "can you pull your pants over your knee?" (Björkman et al., 2013, pp13). They noted fewer instances of open communication (53 utterances). Most of these were utterances were from a child to a radiographer, with the example of "what does this sign/mark mean?" (Björkman et al., 2013, pp13). Closed instructional communication evoked less opportunity to consider a child's thoughts, wishes or feelings (Björkman et al., 2013), comments such as "you have to sit over here" (p13) limited a lack of choice and decision making for a child during their X-ray procedure, even in the small decisions. Björkman et al. (2013) did not directly consult with children about how they communicate during their procedure and how different types of communication make them feel or how it shapes their experiences.

3.9.3 Exploring 'good' communication in a child's X-ray procedure

Contrary to the finding that closed communication limits a child's involvement, Harding and Davis (2015) discuss that task-focussed elements of the procedure do not necessarily have to be closed and constraining. The authors refer to the common task

of communicating a 3-point check (name, date of birth and home address) at the start of many, if not all X-ray procedures. Whilst this may involve closed questions, this communication can be a good initial approach to invite children to communicate in a responsive way. These findings are consistent with Björkman et al. (2013) who found from their video recorded observations that children actively engage in the communication process if they are invited by radiographers to respond to communication.

The importance of using language that children could understand and that was appropriate to their cognition was highlighted (Harding and Davis, 2015; Björkman et al., 2012b). In cases identified as indicative of good communication, radiographers adapted their communication to be suitable for children such as asking, “where is your home?” in the identification stages of the procedure or used simple phrases to explain the procedure such as “just like getting your picture taken” (Harding and Davis, 2015, p261). Björkman et al. (2014) considered the phrases radiographers used to give instructions, provide information and ask questions and children responded in their interviews that they were talked to in a way that they understand. Although Harding and Davis (2015) noted categories of communication which suggested that the radiographer is including the child in the verbal communication during the procedure, further reading of many of the examples of verbal communications reveals that they do not give children chance to respond or query an instruction. Typically, the categories used words like ‘have’ in phrases such as “you *have* to sit over here”, or set a certain negative tone through their directness such as “be still, you just moved” (Björkman, 2014, p13). Although this type of communication is directed towards the child, it does not create the opportunity for children to easily respond to the radiographer and instead the literature implies that radiographers should use open communication to seek out children’s voices during X-ray procedures.

3.9.5 The provision of information during an X-ray procedure

One form of verbal communication that is prominent within the papers is the communication of procedural information to children regarding the X-ray. Chesson, Good and Hart’s (2002) qualitative study with 45 children, between the ages of 7 and 14 years, highlighted that despite children wanting to know about their X-ray

procedure, they were often unprepared before they arrived at hospital and lacked meaningful information about what would happen during their procedure. Children often obtained their pre-procedural information from informal networks, specifically second-hand from parents or from TV programmes (Chesson, Good and Hart, 2002). This can result in children having misleading and/or inaccurate information prior to undergoing an X-ray procedure.

Children reported having basic knowledge that X-rays “take pictures of your bones” (Chesson, Good and Hart, 2002, p70) but they also reported some misconceptions such as there being “flashes of light” and physical contact with the machinery (Chesson, Good and Hart, 2002). Children often report feeling “scared”, “worried” or “terrified” of having an X-ray (O’Shea and Davis, 2005) and were fearful that they would be “put to sleep during the X-ray” and the “machines will be huge and the room will be dark” and were “scared I might have a needle” (Chesson, Good and Hart, 2002). The concerns children reported demonstrate the need for accurate and meaningful information to be provided and communicated to children before they undergo an X-ray procedure. A lack of information, as well as a non-response to children’s communication for information can lead to children experiencing a procedure with very little understanding of what is happening and why and what will happen next (Chesson, Good and Hart, 2002).

However, a commonality noted in the papers was the role of radiographers in providing children with information during a child’s X-ray procedure (Björkman et al., 2012b, Björkman et al., Harding and Davis, 2015). One paper reported that radiographers communicating procedural information lowered children’s anxiety levels because they knew what the procedure entailed (Björkman et al., 2012a). Out of the 16 adolescents interviewed in Harding and Davis’ (2015) study, 14 answered yes to the question “did the radiographer explain what the X-ray examination involved?” Although, the information that the radiographer provided to children was not reported in the paper. Contrasting this finding, only nine of the 110 children in Björkman et al., (2014) were reported as having been satisfied with the information they received from the radiographer during their X-ray procedure, despite the authors suggesting that regardless of age the children felt information was conveyed in a way that they could

understand. There were no other comments made about how the other children in the sample felt about the information they received from the radiographer.

The process of communicating information to children during an X-ray procedure is a focus of Björkman's work (2012a; 2012b; 2013). Research demonstrates how radiographers communicate information to children to help them understand the procedure by using instructions (Harding and Davis, 2015). This way of providing information via instructions addressed what is involved (O'Shea and Davis, 2015), as well as specifics such as verbal demonstrations about the positioning for the procedure (Harding and Davis, 2015). Björkman et al. (2013, p13) also identified some examples of where children were observed seeking information from the radiographer, for example, "am I supposed to sit like this?" and "can I have a look at the images?" It was not clear in the papers whether or how the radiographers responded to this communication as within Björkman et al.'s (2013) analysis, the action of response is not recorded or quantified. It is however noticeable that the authors report that the most frequently used category of communication by children was "showing agreement and understanding", comprising 31% of their communication. This demonstrates that some of the 32 3-15 year olds in the paper were aware of what was happening and did not require more information from the radiographer, or were not comfortable asking questions or querying information.

Chesson, Good and Hart (2002, p72) suggest that even where communication focussed on sharing information, the explanations by radiographers were often immediately prior to the procedure taking place. This is far from ideal, as this does not enable children, specifically older children, to process information about what will happen and ask questions. Closer and earlier liaison with radiology departments is needed to ensure children are prepared (Chesson, Good and Hart, 2002).

3.10 Children's experiences of undergoing an X-ray procedure

Overall, this review highlights that undergoing an X-ray procedure could elicit positive or negative feelings for a child. It also highlights that how children experience a procedure can be influenced by a number of different factors, including the communication that occurs, as discussed above. I will explore the different experiences evidenced in the papers in more detail in the following sections. I have

reported the positive and negative experiences separately for ease of understanding. However, it is important to note that two of the papers emphasised that children's expressed both positive and negative aspects of their experiences (O'Shea and Davis, 2015; Björkman et al., 2012a).

3.10.1 Children report positive experiences during their X-ray procedures

Findings from five of the papers in this scoping review suggest that children report mostly positive experiences of their X-ray procedure (Björkman et al., 2012a; Björkman et al., 2014; Björkman et al., 2016; Chesson, Good and Hart, 2002; O'Shea and Davis, 2015). Children report being satisfied because of the radiographer and the care they received from them (Björkman et al., 2012a; Chesson, Good and Hart, 2002). Their self-reports and interviews suggested positive experiences were often the result of the "confidence" they had in the radiographer carrying out their procedure (Björkman et al., 2012a). This confidence was also discussed in Björkman's later paper (2014) that suggested that confidence stemmed from the "caring approach" adopted by the radiographer.

During qualitative interviews children, aged 5-15 years old, reported that they perceived radiographers to be skilled and sensitive to their needs (Björkman 2014) and were capable and kind (Björkman et al., 2016) and children in O'Shea and Davis' (2015) study discussed radiographers' pleasantness, helpfulness, professionalism and caring attitude. Children, aged 3-15 years old, reported in interviews that how a radiographer did their job (their competence) was important to them and made them feel confident, their confidence in radiographic staff was much higher than their confidence in their parental presence (Björkman et al., 2012a). Children in Chesson, Good and Hart's (2002) study also described positive experiences of having an X-ray linked to when a radiographer was "chatty" and "friendly" (Björkman, 2014), "kind", "sensitive" and "careful" (Chesson, Good and Hart, 2002).

When 110 children, aged 5-15 years, completed a questionnaire with 12 likert scale questions about their perceptions of care after their X-ray, they reported being "satisfied" with the care they received (Björkman et al., 2016). The results showed that children reported they were satisfied in 10 of the 12 areas including, but not limited to, "the radiographers kindness and ability to help in a sufficient way", "the radiographers

ability to listen to the child's needs", "the radiographers ability to explain the examination in an understandable way" and "the radiographers sensibility to the child's emotional needs". In a separate study, with 35 children aged between 3-15 years old, in interviews children said they were taken good care of (Björkman et al., 2012a) and no matter the experience level of the radiographer, children in each age group (3-6 years, 7-11 years, 12-15 years) expressed satisfaction in the way they were treated. Björkman et al., (2016, p75) suggests from the observations that a child's satisfaction can be improved when radiographers care about the child's wellbeing "beyond the procedure", meaning they care about the child and not just what happens in the procedure.

Harding and Davis (2015) discussed how a child's inclusion in communication can help lower their anxiety, increase their co-operation from the early stages of a procedure and gives children some control in their own X-ray, ultimately leading to them having a positive experience. However, the link between children's inclusion in communication and increased control is a subjective conclusion as this was not directly apparent from children's own words or the observed procedures.

Parental presence was another factor that influenced children's positive experiences. Björkman et al. (2014) found in their observations, that communication between children and their parent/s or the radiographer and a parent was rare during an X-ray. In this study parents averaged less than 3.5% of all the communication that occurred during an X-ray procedure. However, in other studies (Chesson, Good and Hart, 2002; Björkman et al., 2013, Harding and Davis 2015) parents were identified during observations as providing support to their child during their X-ray procedure. The authors found that parents provided this support by being present, although it was not evident whether they were present yet quiet and therefore it may have been non-verbal actions that were supportive. Parents were reported as providing assurance (Björkman et al., 2013), and rewards and distraction (Harding and Davis, 2015). Chesson, Good and Hart (2002) discuss how all of the 45 children, aged 7-14 years, reported valuing support from their parents and it helped them to be able to look at their parents during an X-ray. Being able to see their parents was reported by children as helping them be distracted from the procedure and making them feel safe, although the paper does not

say how many of the children utilised these methods of looking at their parent and only states it was the 'majority'.

Older children (12-15 years old) often preferred to be without their parent during the procedure, yet children aged 3-6 years old and sometimes children in the 7-11 age range stated they preferred parental presence (Björkman et al., 2012a). However, as noted above, in contrast Chesson, Good and Hart (2002) report that all of the children (n=45) aged 7-14 years old in their study favoured parental presence during their procedures, most notably because it reduced their anxieties. This finding might reflect different contextual and cultural conditions operating within the study settings. In their reports in Chesson, Good and Hart (2002, p71), children spoke positively about their parents presence saying, "Dad made me feel brave" (7 year old boy), and "I wanted mum, it helped me feel more comfortable" (13 year old boy) (Chesson, Good and Hart, 2002, p71), although how their child's parents made them feel brave or comfortable was not referred to in the text.

Familiarity was a contributing factor to how children experienced the X-ray procedure. Familiarity was achieved through children being a visitor to the radiology department or as a patient or from obtaining some knowledge of X-rays prior to the procedure (Björkman et al., 2012a). Children who had experienced a similar procedure before reported more positive experiences of an X-ray (Björkman et al., 2012a) and reported reduced distress levels (Björkman et al., 2012b). This is an interesting finding especially when linked to Chesson, Good and Hart (2002) who showed that children aged 7-14 years old felt positive about future procedures, this highlights the importance of understanding children's experiences to help ensure they have positive memories as these can influence future procedures and children's expectations of them.

3.10.3 Children's report negative experiences during their X-ray procedures

Björkman (2014) identified that whilst some children report hospital as a place where they will be helped to recover from illness or injury, other children could fear the unknown and see hospital and undergoing an X-ray procedure as frightening as it can be painful (Björkman, 2014), uncomfortable (Björkman, 2012b) or threatening (Björkman et al., 2016) for a child. This review highlights that many children experience

pain, distress and anxiety during their X-ray procedures with Björkman et al. (2016) reporting that nearly half (42%) of the 110 children in their study self-reported that they experienced distress. Children's reports of the equipment and their fears about it were very common (Björkman et al., 2012a, Chesson Good and Hart; Harding and Davis, 2015). Some children were fearful thinking that the X-ray machine would touch them or hurt them (Björkman, 2014) and Chesson, Good and Hart (2002, p71) identified similar expectations from the children in their study who thought that the machine would "move down on top of them" or who were distrusting of the machines and fearful that they will crush them Chesson, Good and Hart (2002, p72). One child reported that they would not tell a friend about their experience because the machine and the noise scared them (Chesson, Good and Hart, 2002).

Many of these fears can be linked to children having a lack of information or understanding of the procedure before having an X-ray or before arriving at hospital (Chesson, Good and Hart 2005; Harding and Davis, 2015). This echoes findings in Björkman et al.'s (2016) paper that stated that children's lowest satisfaction scores were related to the radiographer's available time for them to ask questions as well as the radiographer's ability to meet the child's emotional needs. Children reported lacking information (Björkman et al., 2012a; O'Shea and Davis, 2015) and so their expectations were different to reality (Chesson, Good and Hart, 2002).

Despite X-rays being short and non-invasive procedures, children have described the unfamiliar and technical environment as evoking intensified emotions and experiences of fear, worry and anxiety (Björkman et al., 2012). An interesting finding highlighted the difference in anxiety between younger and older children. Björkman et al., (2012a) found that younger children in their study, of 3-15 year olds, were anxious about the procedure, whereas the older children expressed more anxiety for the future and what trouble a fracture could cause them. Similarly, approximately one-quarter of children (n=6) in Chesson, Good and Hart (2002) expressed anxiety about their injury.

In the papers, pain was reported as being expressed by children in their self-reports (Björkman et al., 2014) or in observations of their non-verbal communication, such as crying (Björkman et al., 2012b; Harding and Davis, 2015). Despite X-ray procedures being considered non-painful or non-invasive, this review shows pain as a contributing

factor to children having a negative experience of their X-ray procedure, and highlights a taken for granted generalisation that minor procedures such as an X-ray procedure are not scary or anxiety producing because they are not considered by adults as painful.

The events during the procedure also impacted negative emotions. One action such as positioning during the procedure was highlighted as causing negative experiences. One paper reported a radiographer “grabbing” a child’s arm during the procedure which startled the child and resulted in them crying and becoming distressed (Harding and Davis, 2015). Interestingly, in papers that focus on children’s experiences of a procedure and the communication and interactions that occur, this was the only instance of holding that was reported. However, children did report fewer positive experiences of their X-ray procedures when the radiographers were perceived to be “quite rough” with them (O’Shea and Davis, 2015: p148).

Children’s negative experiences of X-ray procedures can also be due to factors external to the X-ray procedure, such as the waiting time before the procedure. O’Shea and Davis (2015) report that 78% of adolescents (n=14) found the wait in the waiting room long and boring due to the lack of suitable recreational facilities to distract them. Children reported wanting to be distracted from the common feelings that they experienced in the waiting room such as being nervous or bored (Harding and Davis, 2015) or from pain that they were in (Björkman et al., 2014). This finding aligns with Björkman et al. (2014, p74) who found that it was the older children in their study of 11 participants aged 5-15 years old, who found the waiting time to be exhausting. Long waits for their procedure can result in children demonstrating heightened negative emotions and 9 out of 18 adolescents felt nervous, with 11 of the 18 children reporting feeling pain while in the waiting room (O’Shea and Davis, 2015). The findings from both Björkman (2014) and O’Shea and Davis (2015) suggest older children struggle more with the waiting time than the younger children. This could be due to the lack of resources for older children or, as O’Shea and Davis (2015) highlight, the lack of understanding for this age group within radiology settings. Björkman et al. (2014) found that negative experiences were reduced when 13 children were seen quickly and only had a short wait before the procedure and they were appreciative of this.

3.11 Parents experiences of their child's X-ray procedure

Parents have reported “satisfactory” experiences of their child’s X-ray procedure on a questionnaire administered to the parents of 110 children undergoing a X-ray (Bjorkman et al., 2016). This satisfaction was linked to “the radiographers’ kindness”, “the available time to help the child through the examination” and “the information during and before the examination”. Similar to the scores of their children on the questionnaire, the two areas that received the lowest mean satisfaction scores on the likert scale were the “available time to meet the child’s emotional needs” and the “available time to ask questions”. The only other paper in this review that included data from parents (Björkman et al., 2013) adopted a quantitative descriptive design to investigate the verbal interaction between children, radiographers and parents during a procedure and thus, did not elucidate how parents experienced the procedure. However, in their interviews two children discussed their parent’s experiences. They thought that their parent’s experiences were improved by being able to be with them (their child) because their parents were “worried” and “it helped” (Chesson, Good and Hart, 2002, p71).

3.12 Conclusion

The published evidence of children’s experiences of X-ray procedures remains sparse. In this focused scoping review I have used evidence from eight papers from five studies to explore communication during and children’s experiences of X-ray procedures. This review of the literature has identified the range of experiences children can have related to undergoing a procedure that is commonly referred to as brief, minor and not painful. These experiences are dependent on a range of factors that occur before, during and after the image is taken. However, I acknowledge how the papers included report the experiences, perceptions and involvement of children as a group, and do not discuss how the children who participated in the various studies may have had a range of differing characteristics, previous experiences and disabilities which would also be likely to shape their engagement with radiological services.

Radiographers being supportive and engaged and providing time to be both professional and sensitive to the needs of a child can facilitate positive experiences. Negative experiences can happen when a child is unfamiliar with the X-ray procedure

or when time constraints restrict the ability of radiographers to spend time with a child. Experiences can also be negative when a child experiences pain, discomfort or is overpowered or restrained in order for a procedure to be completed.

Radiographers are often the dominant voice in communication during a child's X-ray procedure and children's contributions can be limited. The evidence highlights the different purposes and types of communication that occur and how these do not always meet children's needs. A lack of communication and preparation before a procedure can result in a child not being adequately informed or meaningfully involved in their procedure, resulting in heightened negative emotions.

This review highlights that, despite the increased focus on patient experience and involving patients in their healthcare procedures, research in the field of radiology about experiences of and communication during plain X-rays is still lacking. There are few studies detailing children's experiences of X-ray procedures. This review has also found that there is a lack of published literature that focuses on how communication occurs during a child's X-ray procedure and thus supports the need for this PhD that aims to explore the communication that occurs during a child's non-urgent, plain X-ray procedure and how children and their parents experience the procedure.

Chapter 4 - Methodology

Utilising a Constructivist Grounded Theory approach

4.1 Introduction

This PhD study aimed to explore the communication that occurs during a child's non-urgent, plain X-ray procedure and how children and their parents experience the procedure. In this chapter, I will elucidate why a Constructivist Grounded Theory methodology was chosen and situate the approach within the wider Grounded Theory context. I will then outline and critically discuss the qualitative methods chosen to collect data for this study. I will firstly expand and provide detail of the underlying beliefs that support the chosen qualitative Constructivist Grounded Theory approach.

4.2 Ontology and Epistemology

My work lends itself to a relativist ontology and constructivist epistemology and resonates with a constructivist paradigm and the use of naturalistic methods (Denzin and Lincoln, 2011). It is important to explain and understand how my personal beliefs shaped this research and informed the chosen methodological framework.

A relativist ontology supports the investigation of the different perspectives of undergoing an X-ray procedure, as it acknowledges that there are multiple interpretations of a phenomenon and that reality is socially constructed (Pope and Mays, 2020). A relativist ontology does not accept that a single measurable reality, or one objective truth exists (Hughly and Sayward, 1987; Killam, 2013). In relation to this study, adopting a relativist ontology acknowledges that children and parents will have different experiences of similar procedures and will make sense of these experiences, and the factors contributing to the experience, in different ways.

I was drawn to use a constructivist-interpretivist paradigm as it fits with my understanding of how individuals develop meaning. In this study, it is the communication between children, parents and health professionals during an X-ray procedure that is of particular interest. I believe meaning is created through collaboration and interaction between participants and researcher. A constructivist epistemology, that begins with the experience and explores how people construct it,

has a good fit with the complexities of the focus of my study. A constructivist epistemology acknowledges my role as the researcher in the construction of knowledge (Mills et al., 2006; Subramani, 2019) and the involvement of myself in the study alongside the participants.

4.3 Qualitative Research

Within the existing literature, as discussed in the background chapter (Chapter 2), the perspective of children has been somewhat ignored, silenced or overshadowed by foregrounding the perspectives of health professionals or parents (Runeson et al., 2001; Coyne, 2006). Despite the perspectives of health professionals or parents being useful to inform practice, these studies do not adequately explain or encompass how it feels to be a child involved in a clinical procedure. Therefore, I employed a qualitative approach in this study to investigate the child's first-hand experiences of a radiological procedure as well as listening to the accounts of their parents.

A qualitative approach was chosen in recognition of the importance of exploring the individual perspectives and experiences of children and their parents in this study. Qualitative research is focussed on seeking answers to questions asking how individuals experience and give meaning to particular events and phenomena (Denzin and Lincoln, 2013). A qualitative research approach embraces the subjective and individual nature of how children and their parents experience a radiological procedure.

Qualitative methodology aims to understand an issue or concern from the perspective of those affected by it (MacDonald, 2001), to enable the researcher to seek out purpose, meaning and belief (Sutton and Austin, 2015). Such immersion in the phenomena reflects my personal values in supporting the autonomy, agency and interests of children and giving due weight to their perceptions and experiences. For this study, this meant focusing on understanding the feelings and meaning related to communication. It was also important to make sense of the impact of communication on the actions and experiences of those present during a radiological procedure. In trying to understand the experiences and actions of those involved in the procedure I acknowledge the role I have had in shaping what the children and parents shared with me and how I have interpreted the data.

In developing and shaping the research aim it was evident that there have been few academic contributions relating to how children communicate during radiological procedures, why they communicate in that way and how their communication impacts on the procedure and those present. The research aim, “to explore the communication that occurs during a child’s non-urgent, plain X-ray procedure and how children and their parents experience the procedure” did not fit easily to a positivist paradigm. The aim did not fit with a quantitative methodology that tests existing theories or attempts to verify existing hypotheses. Within this study, I explored and investigated children and their parents feelings and experiences of X-ray procedures. The design of the research is therefore qualitative in nature to explore the individual actions and interactions and the multiple perspectives of children and their parents.

Within the wide range of qualitative methodological approaches available Grounded Theory, with a focus on interactions and social processes, seemed the approach most aligned to this study. The following section provides an overview of Grounded Theory in order to situate my choice of a Constructivist Grounded Theory approach.

4.4 Grounded Theory

Sociologists Barney Glaser and Anselm Strauss first developed Grounded Theory in 1967 and it was initially devised from the domains of medical sociology and health research (Charmaz, 2006; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Grounded Theory is frequently used within social sciences and is cited as one of the most dominant research methodologies across disciplines (Mills et al., 2006,) including healthcare science (Strauss and Corbin, 1994) and sociology (Holloway and Galvin, 2016). Before the formulation of Grounded Theory there was an emphasis on quantitative evidence and studies with qualitative approaches were scarce and less valued (Chun Tie, Birks and Francis, 2019). Glaser and Strauss (1967) aimed for their research approach to produce more than descriptive case studies or data to prove, disprove, verify or re-explore an existing idea or theory (Glaser and Strauss, 1967). Instead, Grounded Theory was developed to create ‘new theory’ and identify emergent conceptual research areas (McCann and Clark, 2003) grounded in data. Grounded Theory aimed to close the gap between empirical social research and the generation of new theory by using systematic data collection and analytical processes (Glaser

and Strauss, 1967). Such explicit outlining of the process of research, along with their focus on generating theory, was central to Glaser and Strauss' (1967) work. The central tenets outlined in Grounded Theory include the use of comparative analysis, theoretical sensitivity and theoretical sampling each of which are explained in more detail in relation to Constructivist Grounded Theory later in this chapter.

Whilst the approach is considered appropriate to collect and systematically analyse various types of data, Grounded Theory has now become mostly aligned with qualitative data collection and analysis, focused on consequences, processes, patterns and systems (Glaser and Strauss, 1967; Creswell, 1994). Grounded Theory is consistent with symbolic interactionism (Blumer 1969), which locates the phenomenon of human experience within the world of social interaction and assumes that reality is negotiated between people and is constantly evolving (Chenitz and Swanson, 1986). As this study focuses on understanding what children and their parents experience during a radiological procedure and how interactions, inactions and actions occur and are perceived, then Grounded Theory was of relevance.

The original work has since been re-worked and re-focussed and despite some interpretations questioning the principles that underpin Grounded Theory, the notion of exploring data and trying to work out "what is going on" and "when and how does action take place" remains (Charmaz, 2006, p24). To date, no Grounded Theory studies have been identified that focus on "what is going on" during children's X-ray procedures, or "when and how" does communication, as an action, take place. Nor are there any Grounded Theory studies, to the best of my knowledge that explore children or parents experiences of an X-ray procedure. In this study I am interested in the 'what', 'how' and 'why' of the experiences, interactions and actions of children and parents during radiological procedures and the reasons and implications of certain communication and behaviours. In order to understand the multiplicity of interactions during the procedure that produce variation in a social process (Heath and Cowley, 2004) a Constructivist Grounded Theory approach was chosen as appropriate and will be considered in the following section.

4.5 Constructivist Grounded Theory

A Constructivist Grounded Theory approach was used to explore how children communicate during X-ray procedures and their experiences as well as their parent's experiences of these procedures.

4.5.1 Introduction

Glaser and Strauss (1967, p1) suggested that Grounded Theory was the “beginning venture in the development of improved methods”. One modification of Grounded Theory was the development of Constructivist Grounded Theory by Kathy Charmaz, a former student of Glaser and Strauss. Charmaz (2006) created a departure from earlier Grounded Theory thinking to evolve and develop theory characterised by a constructivist philosophy (Kenny and Fourie, 2015). The following section will discuss the choice to adopt this specific version of Grounded Theory as the most appropriate methodological approach for this study.

4.5.2 Philosophical Positions

Charmaz's (1995, 2006) approach is known as Constructivist Grounded Theory as it adheres to a constructivist philosophical approach, wherein both the researcher and participants mutually co-construct meaning during data collection and analysis. Constructivist Grounded Theorists recognise that mutuality exists within the research relationship and that the relationship is privileged where a connection exists between the researcher and the participant (Charmaz, 2006; Gardner et al., 2010; Higginbottom and Lauridsen, 2014). This section will discuss such relationships and the importance of them to this study.

A Constructivist Grounded Theory methodology aligns well with the focus of this study as it aims to examine and provide understanding of basic individual and collective social processes (Bryant and Charmaz, 2007) where meaning is created through social interactions and understanding is negotiated between people, fitting to the constructivist-interpretive research paradigm (Creswell, 2009). In this study, I was concerned with the social process (interactions and the actions) that occurs during an X-ray procedure and the complex interactions and negotiations that take place between children, their parents and radiographers.

This study required the implementation of a research methodology that focuses children as competent reporters of their lives whilst seeking additional perspectives from parents. This acknowledged that, as identified by Charmaz (2006), no single reality exists, and a research approach needs to allow for focus on the variations and complex differences experienced.

Using a constructivist approach to Grounded Theory enabled me to pay attention to the complex relationships and communications that can occur, the voices of participants and their different realities. One key principle within Constructivist Grounded Theory is that reality is co-constructed and that ultimately a theory is grounded in shared meanings and experiences (Charmaz, 2000; Mills et al., 2006). Collectively, we (the children, the parents and myself) would co-construct rather than discover meaning and this influences the nature of the resultant theory. Aligning with Charmaz (2006) the theory, grounded in the data collected, is not discovered as a separate objective entity but instead builds on inputs from and interactions with the participants. This methodological approach encouraged me to acknowledge my role and influence on the research process. Glaser (2002), as a main opponent of Constructivist Grounded Theory thinking, has criticised the active role of the researcher in the research process as it is in contrast to the notions of the more detached and conceptual researcher as seen in traditional Grounded Theory thinking. Glaser (2002) argues that Constructivist Grounded Theory is too focussed on descriptions with insufficient focus on conceptualising ideas.

Constructivist Grounded Theory understands the messy world of research as a non-linear process (Charmaz, 2006) and criticises objectivity (Charmaz et al., 2003) and researchers who stand outside their data. Instead, Constructivist Grounded Theory values the multiplicity of meaning (Mills et al., 2006) that different observers will find in different ways. As such, the theory and the meaning generated is not an exact picture, it is an interpretive account of what has been studied (Charmaz, 2006). As a non-clinical researcher with little prior experience in a radiological setting, but with a 'fresh pair of eyes' and an 'outsider perspective', I considered this reassuring as it acknowledged the interpretation that different researchers with different experiences can make. Together the children, parents and radiographers created the data during

the interactions. The result is a construction grounded on *both* the experience of the researcher (myself) and the experience of the participants (the children and their parents and the involvement of the radiographer).

The constructivist approach Charmaz (2003) places emphasis on a researcher working through the fundamental stages involved in Grounded Theory (collecting, coding, analysing and memo-writing) in a flexible way. Charmaz (2003) advocates an approach more focussed on flexibility and researcher creativity to *construct* meaning and a resultant theory rather than a theory being *created* (Straussian) or *discovered* (Classic).

The next sections provide an overview of the fundamental stages followed within a Constructivist Grounded Theory approach to collecting and analysing data in line with constant comparison, the processes of memo-writing, theoretical sampling and the recognition of theoretical sensitivity.

4.5.3 Coding and Constant Comparison

Coding is a method to “fracture data” (Holton, 2007, p266), and attach labels to segments to define what data are all about (Charmaz, 2006). Coding and the process of constant comparison is a central feature of all Grounded Theory data analysis, including Constructivist Grounded Theory (Charmaz, 2006).

Coding is described as the “pivotal link” between the collection of data and developing a theory to *explain* (Charmaz, 2006, p15), rather than *describe* the data. This is important as Grounded Theory aims to lift analysis beyond the description seen to exist in many other qualitative approaches to a more conceptual and explanatory level. The process of coding is used to define codes and categories to explore and explain what is happening in the data (Howitt, 2010) and constant comparison involves all pieces of data, codes and categories being compared and contrasted to each other in a systematic and explicit way. The developing analysis then focuses and directs subsequent data collection. Constant comparison is more than just a way to analyse data, it assists with conceptualisation (Jeon, 2004) and informs theoretical sampling (the focus of who/what is sampled as a study progresses to add to the developing

conceptualisation) and the focus of the questions asked of participants (developing interview schedules based on the categorisations of data).

Coding begins with what Charmaz (2006) terms “initial coding”, which involves coding data to label as many categories as possible emerging from the data and labelling them with a word or short phrase taken directly from the data (Fourie and Kenny, 2007). The first stage of initial coding provides a starting point in identifying any phenomena through conceptual labels (Holton, 2007). Constructivist Grounded Theory particularly focuses on the use of ‘in vivo’ codes (Kenny and Fourie, 2015), where codes remain rooted in the participant’s own language and ways of expression.

Each line is coded in a line-by-line format, using the in vivo method (coding labels being derived straight from the participant’s language), to produce a multitude of different codes named accordingly based on the data that is being presented (Charmaz, 2006; Charmaz and Belgrave, 2012). This process of coding highlights ideas and concepts important to the participant. During initial coding, Charmaz (2008) suggests employing two key questions to ask the data; the first, “what is the chief concern of participants?” and the second, “how do they resolve this concern?” Fitting with this study, this initial stage of coding looked to identify what is of concern to those present during a radiological procedure. It then meant looking closer at how they communicate and act on their concerns and how these influenced their experiences, seeking implication of meaning in the data. Analysing data in this way adds nuance through multiple level coding beyond description of a communication or action to an implication.

It is important to note the flexibility and fluidity of the process of coding data when using a Constructivist Grounded Theory methodology even though generally with each step the codes become more detailed and logical. Initial coding tends to lead to more defined coding processes labelled as focussed coding. Focused coding takes forward a set of central codes (Charmaz and Belgrave, 2012) that have been decided by the researcher to be the most important or dominant in the data and then to explore these ideas in more depth through a fluid and creative analysis process that compares codes and instances amongst the data.

The final stage of coding involves “theoretical coding” that aims to code the data on a more theoretical level, going beyond creating relationships between data to explore and analyse the relationships through conceptualising how categories interrelate (Charmaz, 2006). Such processing of codes in this way reduces categories down into developing a *core category* and is of vital importance in developing and constructing a theory which is discussed in more detail and specific to this Grounded Theory study, later in this methodology chapter (Chapter 4), then in the methods and discussion chapters (Chapter 5 and Chapter 7). The core category is of most importance during the final stages of data analysis and is central to the development of interpretive theory and “imaginative understanding” (Charmaz, 2005, p127).

4.5.4 Theoretical Sensitivity

A central principle to any Grounded Theory study is theoretical sensitivity (McCann and Clark 2003). It involves researchers having insight into the research concept, their attunement to the complex nature of participant’s words and actions and their ability to reconstruct meaning (Mills et al., 2006).

In Constructivist Grounded Theory, theoretical sensitivity is gained by “studying a phenomenon from multiple vantage points, making comparisons, following leads and building ideas and throughout this process seeing possibilities, establishing connections and asking questions” (Charmaz 2006, p135). Constructivist Grounded Theory differs to Classical Grounded Theory by outlining that a researcher can use literature and acknowledges their experience in all stages of the study (Charmaz, 2006), from the early conception stages to the concluding theory generating stages. This is in contrast to classic approaches that advocate a limited knowledge of published work before engaging in fieldwork and analysis (Glaser and Holton, 2004) to prevent a researcher being influenced by this evidence (Kenny and Fourie, 2005). However, Charmaz (2006) does advise that in order to be theoretically sensitive and to support and promote researcher creativity, a researcher should avoid becoming too immersed in the literature and that extensive or exhaustive reviews should be avoided until after data analysis.

Reflexivity of the researcher is central to the process of undertaking a qualitative study and is a significant part of conducting research and developing the research findings

(Palaganas et al., 2017). It is through being reflexive that I acknowledge how I have shaped the research and how the research has shaped me. Reflexivity requires that I am self-aware and acknowledge I am part of the social world that I study (Ackerly and True, 2010). My own assumptions and my influence on the data is an important part of the research process. Reflexivity is important in order for me to understand the generation of knowledge from co-construction with children and parents and how my own experiences, behaviour and epistemologies contributed to how I interpreted the phenomena and co-constructed meaning. Constructivist Grounded Theory allows me to acknowledge my own beliefs and constructivist worldviews and how these may influence the data collection and research process (Charmaz, 2006).

4.5.5 Memo-writing

Memos are written records of analysis and are an important part of forming and developing a theory from the data that are collected (Charmaz, 2008). Constructivist Grounded Theory promotes the use of memo-writing from the early stages of a study, throughout data collection and analysis, as important ideas emerge, and theoretical progress is made. As ideas and insights develop, memo-writing forces the researcher to stop and engage different categories (Charmaz, 2006), recording ideas and emerging propositions (Glaser and Strauss, 1967). They are not solely records of analysis, they instead force exploration and discovery of what has been collected or “seen, heard and coded” (Charmaz, 2006; p82). Memo-writing helps in the formation of a theory, as ideas, comparisons and the researcher’s theoretical thinking are recorded. The process of memo writing is also seen to promote the researcher to be theoretically sensitive and to reflect on the data (Chun Tie, Birks and Francis, 2019). Memos can also be used to record thinking about the codes and the meanings of them (see Appendix Q), to help assist in the comparison processes and to raise questions or queries between similarities and differences (Sbaraini et al., 2011), supporting category development (Charmaz, 2006). Researchers are not limited to using only words to document their ideas, thinking and workings within memos. The use of diagrams and drawings can be useful to visualise physical settings or theoretical ideas and to capture ideas that can in turn guide the researcher to ground abstract ideas in the reality and depth of their data (Holloway and Galvin, 2016).

4.5.6 Theoretical Sampling

Grounded Theory utilises non-probability sampling in order to reach data saturation. In the early stages of a Grounded Theory study, there is no set number of participants and a purposeful sampling approach is used to collect data (Boddy, 2016). The data from these initial encounters are iteratively compared and coded, using constant comparison as described earlier, to guide the selection of the next participants. This process is known as theoretical sampling (Glaser and Strauss, 1967; Carmichael and Cunningham, 2017). This theoretically guided sampling and data collection is targeted on trying to develop and contribute to the developing theory and concepts (Conlon et al., 2020). This is different to other qualitative research designs whereby data is often collected and then subsequently analysed (Creswell, 2013).

Theoretical sampling continues until there is nothing new about the concepts being demonstrated, discussed or suggested by participants, an idea related to theoretical 'saturation' (Saunders, 2018). Strauss & Corbin (1998) define theoretical sampling as continuing until no new "properties, dimensions or relationships emerge during analysis" (Strauss and Corbin, 1998; p143), although Charmaz (2006) argues that data saturation does not mean stopping data collection when repeated ideas or similar stories emerge, but should continue to the point of theoretical completeness when no new properties of the conceptual patterns emerge. The sample size and number of participants recruited for the study is therefore a function of the theoretical completeness, argued by Charmaz (2014) to depend upon the quality of the interviews and depth of the analysis.

4.6 Child-centred research

There is critical debate surrounding how an adult researcher can facilitate and truly access a 'child's world', see the world through their eyes and engage children in interpreting meaning (Fargas Malet, 2010; Arnott et al., 2020). Within this study I was particularly mindful of how I would co-construct meaning with young children. This co-construction and use of the Constructivist Grounded Theory approach required methods, which encouraged children's voice and participation and acknowledged their abilities and preferences. The importance of the methods in enabling co-construction during data collection was of most importance to this research, especially as

Constructivist Grounded Theory encourages creativity and methods to meaningfully engage with participants. Research informed by a participatory perspective incorporates a strength-based approach that acknowledges children's agency and capabilities (Coyne and Carter, 2018). Providing children with different activities alongside their dialogic interviews to help them share their perceptions and experiences facilitated the construction of meaning. The activity booklets (which will be discussed in more detail in the following chapter) used drawings and activity-based methods to attempt to go beyond surface meanings and look for "views and values as well as acts and facts" (Charmaz, 2000, p525), clarifying meaning with children rather than manipulating or challenging meaning.

Co-construction, during data collection, happened as a result of the children and I working together to understand, explore and assign meaning to the data. In order for this to happen it was important that I designed an investigation that enabled rapport to be developed to explicate any power imbalances with those taking part (Thomas and O'Kane, 1998; Harcourt, 2011). By utilising methods that tap in to a child's abilities and direct experiences (Clark, 2010) and that values and empowers them to participate, I was able to shift the power on to them and provide them with a platform. I listened to them and I showed them that their thoughts and meanings were important, thus putting children and their involvement at the centre of research.

In this study, children were recognised as autonomous social actors and were invited to use participatory research methods, such as sticker activities and drawing exercises (Alderson and Morrow, 2020), to help develop rapport and enable their engagement within the data collection phases (Bryan et al., 2019). Through employing a Constructivist Grounded Theory approach, data were created from the shared experiences and co-constructed meanings with the children and their parents. As a result, a Constructivist Grounded Theory approach helped support children to openly co-construct meaning and will be discussed further in the following section.

4.7 Situating Research Methods within Constructivist Grounded Theory

In this section, I will discuss the choice of data collection methods within this Constructivist Grounded Theory methodology study.

Research with children involves a multitude of ethical and practical considerations (Christensen and Prout, 2002; Bray, 2007). Changes in the social constructions of childhood have encouraged a view that children should be seen as capable and relatively autonomous beings (Holloway and Valentine, 2000). This reconsideration of children as key reporters of their own lives has led to an upsurge in the use of child-centred methods to engage meaningfully with children in research and ensure their increased involvement and participation (Hart, 2013). The methods employed in this study aimed to give due attention to the child's autonomy, capacity and role as an active participant with an important voice.

Data collection methods recommended for use in Constructivist Grounded Theory include methods such as interviews, observations and drawing activities (Chenitz and Swanson, 1986; Sutton and Austin, 2015). Constructivist Grounded Theory advocates using these methods to help gain insights and the use of multiple methods aligns with the idea of 'all is data' (Glaser, 2007). This research study has used observational and interview methods aided by an activity booklet for children. These methods provided me with an opportunity to directly observe what happens during a procedure whilst also exploring the reported experiences of those present during the X-ray. The combination of observations *and* interviews allowed me to fully examine the perspectives of participants (in this case children and parents) and their enacted social processes (their interactions, communications and reactions), rather than solely the accounts of their experiences.

4.8 Observations

Observations were an appropriate method to use, as this study aimed to gain an insight into "what is going on?" and "when and how does action take place?" (Charmaz, 2006, p24) during an X-ray procedure. Observations were important in this study as they helped examine the interactions and the social setting where the X-ray occurred as

the procedure occurred and enabled insight into what happens in practice (Kelleher and Andrews, 2008). Charmaz (2008, p133) details, “entering the phenomenon shrinks the distance between the viewer and the viewed”; observing the X-ray procedures enabled me to enter into the scene that was experienced by children.

Non-participant observations were used to collect rich descriptive data of an X-ray through recording the interactions, non-verbal actions and triadic conversations that occurred during a radiology procedure. The observational stage of the research was vital in exploring ‘normal practice’, aiming to gather open and unstructured data of how children, parents and radiology staff communicate and act in a free and normal way without altering their behaviour (Mulhall, 2003). However, my role as a researcher was overt to the children, parents and radiology staff present, which may have influenced behaviour during the procedure. However, I felt it was ethically important for everyone to know why I was there collecting data. Non-participant observation helped me to gain a greater understanding of the social processes at play during a procedure. In this study, the observations primed me to be a part of a child’s experience and exposed me to how they acted and reacted and how their reactions were responded to. This information allowed me to gain an understanding of what had happened during the procedure that could be explored together later in the interview stage of data collection.

In order to co-construct meaning and pay attention to the voices of participants, interviews were used to help make sense of the observational data. The interviews aimed to seek out rich descriptions (Burns and Grove, 2005) and multiple perspectives (Lincoln and Guba, 1985) aligning with constructivist qualitative research. The following methods chapter will detail how interviews were conducted and provide more information about the interview process.

4.9 Interviews with Children

4.9.1 Importance of Children’s Voices

This study was concerned with investigating the communication and interactions that occur during an X-ray procedure and examine ‘why’ by directly speaking to children about their experiences. It is reported that researchers often neglect ‘why’ in research with children (Kellett, 2005). Directly seeking children’s perceptions and opinions

acknowledges their role as competent reporters of their lives and helps ensure that adult interpretations do not dominate our understandings of what happens during an event.

The interviews sought to explore the communication that occurs during a child's X-ray procedure and explore how children and their parents experience these. In this study, children were asked questions in a semi-structured interview, based on the data collected during their observed radiological procedure. Conversing with children using prompts from their observed procedure aimed to support the co-construction of meaning and provide children with the opportunity to confirm or dispute my interpretation.

Interviewing children using arts-based exercises (stickers, drawings, mind-mapping), aimed to promote children's communication and participation (Bryan et al., 2018) and build rapport with them in a relatively short time (Coad, 2007) by using methods that they are familiar with and that are open-ended and non-threatening (Knighting et al., 2011). The methods I used aimed to encourage children to have a choice in how they communicated their perceptions and experiences of their procedure in a way that they were comfortable and confident with (Christensen and James, 2000; Ford and Carter, 2014). Using an engaging interview technique alongside observational data aimed to explore the data from a different perspective, taking what I had observed back to those I had observed and seeking meaning with them. As Ford and Carter (2014) discuss, such engaging methods can both liberate and facilitate data generation with children. Because of the short time frame of a child's procedure, the activity booklets helped children focus and frame their ideas and supported their engagement. Using a constant comparison method also allowed me to 'make sense' of the data when children did not provide their accounts and only observations took place. The methods chosen supported the different ways information can be gathered and meaning shared, appreciating and valuing children as unique and their voices important. The methods acknowledged that even children with the same age and cognitive ability could articulate and express themselves differently. However, there is discussion in the literature that highlights how the evidence base for the choice and value of using different methods with children is lacking (Haijes and van Thiel, 2016) and whilst the

aim of using activity booklets and similar arts-based methods is to engage the child, their use can still be laced with tensions. Ford and Carter (2014) discuss how such activities can be biased and whilst they are an established frame for the child to work within, they are methods that are ultimately often designed and set by adults and their agendas.

4.9.2 Participant Relationships with the Researcher

Relationships between the participants in this study and myself were important to the research, the findings and to me. The relationships and rapport I had with children in this study as well as their parents required careful consideration and I will now detail this below.

There are a multitude of considerations when researching with children and seeking out their perspectives and voices. There are known issues that require careful consideration such as power imbalances, gaining trust and building rapport (Hart, 1992; Gibson et al., 2018). These considerations were of particular importance in this study as Constructivist Grounded Theory methodology is heavily focused on the relationship between the participant and the researcher to co-construct knowledge. The use of a semi-structured qualitative interview supported my intention to allow the topics discussed to be guided by the participants from their agendas and perspectives, it provided participants with freedom to talk about whatever they felt important whilst staying focussed on the topic of the study. By avoiding a set structure, I tried to ensure I was attuned to the complexity of the actions and interactions at play to capture and explain processes, events and phenomena. This supported me to remain 'grounded' in the accounts and things of importance to my participants whilst the semi-structured approach allowed me to follow-up on ideas and explore the emerging concepts that constant comparisons of data were presenting.

Charmaz (2006) placed an importance on the utilisation of in-depth interviewing, so much so that she pro-actively detailed the stages of an interview as guidance for researchers using a Constructivist Grounded Theory approach. As a result, the parental interviews were conducted in line with Charmaz's (1994) instructions of setting the tone, information, feeling and reflection, searching for narrative and ending on a positive note. Interviewing parents aimed to intentionally yield an intimate

exploration of the meanings that participants held about their experiences (Hallberg, 2006). The semi-structured interviews (both telephone and face-to-face) conducted with parents were focussed on the research topic whilst also allowing space for parents to talk about things that mattered to them. In this study, a semi-structured schedule allowed the conversation to be led mostly by the parents in a free-flowing manner and conversation to be focused mostly on, and grounded in, their own personal and unique experiences of accompanying their child to an X-ray procedure as well as asking them about what I had observed. This open conversational interviewing technique was a dominant component in initial interviews. It was hoped that this would help contextualise children's experiences and further make sense of the experience through gaining a sense of the child's expressions in everyday life outside of the radiological procedure and clinical environment.

Theory Development

A central tenet of a Grounded Theory study focuses on developing a theory, and the emphasis on this is what separates Grounded Theory methodologies from other qualitative methodologies. The original Grounded Theory work (Glaser and Strauss, 1967) outlines two different forms of conceptual theory. A substantive theory, means a theory that is grounded in and has been developed from empirical work and insight gained from within one particular area. Substantive theories are readily modifiable (Glaser, 1978) and can be found in sociological inquiry relating to family relationships (Charmaz, 2006) and patient care (Glaser and Strauss, 1967). A formal theory is described as theory that addresses more abstract, conceptual areas of research, often drawn and developed from multiple pieces of research and comparing different groups across society (Kearney, 1998). Therefore a formal theory commonly sits above one specific area or context and has wide applicability, an example of formal theory would be stigma (Goffman, 1963). I do however acknowledge that different researchers approach the development and categorisation of theory in different ways and the literature discusses a range of levels of theory developed through Grounded Theory work.

Specific to Constructivist Grounded Theory, as used in this study, Charmaz (2006) defines theory development as being an interpretive process that questions what the

multiple realities mean to those within a specific social context rather than the researcher seeking to explain an objective view of reality. She further proposes that the theory should not stand outside of the co-constructed interpretation of the studied phenomena (Charmaz, 2006) and hence the theories that develop from Constructivist Grounded Theory studies are often not formal, as they are grounded within a specific social context and within a specific investigation. The development of my theory is further addressed at the start of the Discussion chapter (Chapter 7).

Rigour

Rigour is of critical importance when determining the worth of empirical research. Researchers often discuss, describe and debate the quality of qualitative research (Jeon, 2004; Charmaz and Thornberg, 2020) and qualitative research has been contested by many quantitative researchers due to its lack of generalisability (Myers, 2000), validity and reliability (Bryant and Charmaz, 2007; Charmaz, 2006). The trustworthiness of many qualitative studies is evaluated based on their credibility, their dependability and transferability (Lincoln and Guba, 1985). However, there has been less written about how to construct a high quality theoretical analysis within Grounded Theory (Charmaz and Thornberg 2020).

Grounded Theory is not evaluated exclusively by qualitative criteria, but also by the constructs that have been used to develop it (Elliot and Lazenbatt, 2005). As such, Grounded Theory requires its own set of criteria for evaluating quality (Berthelsen et al., 2018) and these criteria can vary depending on the version of Grounded Theory adopted within a study. Berthelsen et al., (2018) advocate that researchers must be specific about the approach they take to evaluating a Grounded Theory study to enhance transparency.

Within a Constructivist Grounded Theory, as used in this study, Charmaz (2006) sets out quality criteria. The criteria for judging quality in CGT need to acknowledge that any conclusions developed are context-dependent. Charmaz (2006, 2014) proposes four specific criteria - credibility, originality, resonance and usefulness - in addition to Glaser's quality criteria of (1) fit: does the theory fit the substantive area? The theory and the categories must fit the data (2) workability; does the theory work to explain

relevant behaviour in the substantive area of study? (3) relevance and modifiability; is the theory readily modifiable as new data emerge (Glaser, 1978, 1998). Charmaz (2014) acknowledges that combining credibility with originality enhances the resonance and usefulness of a study and is important criteria to consider. I will briefly discuss these criteria in the following sections.

Credibility

Charmaz and Thornberg (2020) propose credibility begins with having sufficient relevant data for asking incisive questions about the data, making systematic comparisons throughout the process and developing analysis. It has been suggested that rigour is implicitly built into the Grounded Theory method and that transparency of application is essential to denote the credibility of a study (Cooney, 2011). Such transparent accounts include those of the researcher and require researchers to be reflexive throughout to enhance methodological rigour and support researcher credibility and the credibility of the study findings (Bowen, 2009). Furthermore, Chiviotti and Piran (2003) suggest that credibility relates to letting participants guide the inquiry process, checking theoretical construction against participants' meanings, the use of participants' actual words in the theory and articulating the researcher's personal views and insights. In line with the Constructivist approach, children's communications and their accounts remain central throughout this study and will be evident throughout the analysis and conceptual developments. Charmaz (2006, p182) poses a number of questions that researchers can use to assess the credibility of their study, they include:

- Has your research achieved intimate familiarity with the setting or topic?
- Are the data sufficient to merit your claims? Consider the range, number and depth of observations contained in the data.
- Have you made systematic comparisons between observations and between categories?
- Do the categories cover a wide range of empirical observations?
- Are there strong logical links between the gathered data and your argument and analysis?
- Has your research provided enough evidence for your claims to allow the reader to form an independent assessment and agree with your claims?

Originality

In the section about originality, Charmaz (2006, p182) suggests asking the following of your research;

- Are your categories fresh? Do they offer new insights?
- Does your analysis provide a new conceptual rendering of the data?
- What is the social and theoretical significance of this work?
- How does your grounded theory challenge, extend or refine current ideas, concepts and practices?

Originality in Grounded Theory can take different forms such as offering new insights, providing 'fresh' conceptualisations and establishing significance (Charmaz 2006, Charmaz and Thornberg, 2020). Although, this may not sound drastically different to other qualitative research, in Grounded Theory it is the rigorous systematic processes and staying grounded in the data without reference or immersion in existing literature at an early opportunity that facilitates original and fresh work with new insights that are socially and theoretically significant in the setting or topic.

A central tenet of PhD research is the original contribution to knowledge that the work makes. As a PhD student, I should aim to produce original research with originality of ideas and methods. Originality within Grounded Theory should come with the putting together of new ideas into new connections (Glaser, 2005) as Charmaz (2006, p127) notes, looking at an area imaginatively to create new insights and interpretations.

Resonance

Charmaz (2006) states that a strong combination of credibility and originality increases the resonance and usefulness and the value of the contribution. It is important that the 'liminal and taken-for-granted' (Charmaz, 2006:p182) are considered and accounted for. The constructed concepts should 'make sense' to participants (Charmaz, 2006), and resonate with their lives, experiences and worlds. Charmaz (2006:p182) suggests that in order to assess the resonance of a study, researchers should ask;

- Do the categories portray the fullness of the studied experience?
- Have you revealed both liminal and unstable taken for granted meanings?

- Have you drawn links between larger collectives or institutions and individual lives, when the data so indicate?
- Does your grounded theory make sense to your participants or people who share their circumstances? Does your analysis offer them deeper insights about their lives and worlds?

Usefulness and fit

This means that the theory developed and the categories presented must 'fit' and work within the social context that the study was conducted (Charmaz and Thornberg, 2020). Aligning to this idea of 'fit' is the notion that the researcher should describe both the setting and the sample within the study to show how the categories and/or theory that is developed as part of the study fits with the data and social context that the study was conducted in. The theory must work and should explain actual relevant problems or processes within that setting and sample. The fittingness of a Grounded Theory study also refers to the delineation of the scope of the research in terms of the sample and setting and level of theory generated and describes how the literature relates to each category within the theory (Chiviotti and Piran, 2003). This helps to relate the core category and main findings to ensure they have meaning to the participants and those within and outwith the setting and topic. It is also important that the researcher is clear in the level of theory that is developed from undertaking the research (Chiviotti and Piran, 2003).

In terms of considering usefulness as a criterion of Grounded Theory studies, Charmaz (2006, p182) asks,

- Does your analysis offer interpretations that people can use in their everyday worlds?
- Do your analytic categories suggest any generic processes?
- If so, have you examined these generic processes for tacit implications?
- Can the analysis spark further research in substantive areas?
- How does your work contribute to knowledge? How does it contribute to making a better world?

The abovementioned criterion of rigour and the questions that Charmaz (2006, p182) provides as a basis for understanding and assessment of rigour were considered continually throughout this study.

4.10 Conclusion

I have used a Constructivist Grounded Theory methodology in this study as it is concerned with understanding an issue (communication) or concern from the perspective of those affected by it (children and parents). In this chapter I have discussed the central tenets of Grounded Theory (Glaser and Strauss, 1967) and advancements made to the methodology, especially those by Charmaz (2006) in the development of Constructivist Grounded Theory. I have discussed how the focus within Constructivist Grounded Theory on the relationship between the researcher and participants influences the research process and co-construction of knowledge aligned to the aims of this study. More specifically, Constructivist Grounded Theory supported the investigation of what, how and importantly why children and their parents behave, communicate and interact as they do during radiological procedures. The process of conducting a Constructivist Grounded Theory study has been outlined with emphasis on constant comparison of data, theoretical sensitivity, memo writing and theoretical sampling.

The chapter has considered how the research methods fit within a Constructivist Grounded Theory approach with a focus on the co-constructing relationship between the researcher and the child and parent participants. Observational techniques and interview methods aimed to support the co-construction of knowledge, through providing choice to children to communicate their thoughts and ideas. In the next chapter, I will discuss methods specifically and will consider the practicalities, challenges and ethical considerations such as issues of gaining access to the research site, methods of recruitment, informed consent and assent, ensuring children are aware of their involvement in co-construction of knowledge, acknowledging capacity and capabilities and ensuring understanding and sensitivity within the study.

Chapter 5 - Research Methods

Watching the Performance and Going Backstage: Observing X-ray Procedures and Interviewing Children and their Parents

5.1 Introduction

In the previous chapter I demonstrated how this PhD study fits with a Constructivist Grounded Theory approach and how this methodology supported me in exploring the communication that occurs during a child's X-ray and children and their parent's experiences of the procedure. In line with constructivist thinking, I wanted to investigate the multiple realities that exist and explore the differences in children's accounts and experiences of undergoing an X-ray procedure, as well as exploring their parent's experiences. I introduced observational methods, interview methods and activity-based interview methods in the previous chapter, discussing them in terms of co-construction and the chosen methodology. In this chapter, I will discuss these methods in more detail to show how they were used. The data collection methods aimed to construct knowledge by observing children and parents on the 'frontstage' of the X-ray procedure and then 'going backstage' by asking children and their parents in an interview about the observations and their experiences and what they felt was important about the X-ray procedure. Although dramaturgy became an important part of this thesis, there is limited reference to this concept or use of dramaturgical metaphors within this chapter as the application of this concept inductively arose from the analysis and consideration of the findings as opposed to influencing or shaping the methods used.

I begin this chapter by highlighting how important children's voices are in this research and how it is their right to be included in things that matter to them. I refer to the background chapter (Chapter 2) and emphasise that children have not always been heard or listened to within research and healthcare settings, with adult voices often overshadowing their opinions and accounts. I have provided this information at the beginning of this methods chapter, as I believe it is integral to situating and centring children's voices in this research study and to understand the importance of using

accessible and appropriate methods in research with children and parents. Such child-centred methods can help to empower children to become active stakeholders in their own healthcare (The Children Act, 1989) and facilitate them to share their experiences and opinions in relation to procedures, such as an X-ray, where their voices have previously been overlooked, discounted or invisible. I refer to the importance of using multiple qualitative methods, referred to by Wilkinson and Wilkinson (2018) as a 'palette of methods'; to provide children with multiple ways to discuss their experiences in a way which hopes to uncover new insights and diverse perspectives.

Following this, I describe the selection of participants and the method of purposeful and theoretical sampling, in line with a Constructivist Grounded Theory methodology. Lastly, I discuss the process of obtaining ethics approval from the University's Faculty Ethics Committee (FREC) and Health Research Authority (HRA). I draw attention to the ethical principles that have guided this research by focusing my discussion on issues relating to power, site access, assent/consent and confidentiality. I conclude the chapter by outlining the various methods and processes used to interpret and analyse the data to provide an understanding of how I have arrived at the categories detailed in the following findings chapter.

5.2 Acknowledging children's voice and the development of child-centred Methods

As emphasised throughout this thesis, the voices of the children and their own perspectives were always foregrounded in this research. Their active and engaged participation in the study was vital in order to be able to listen to them and to understand how they experienced having an X-ray procedure and the ways they communicated their wishes. The utilisation of different methods employed in this study supported constructivist thinking and not only reflected the different ways children and parents can experience and interact during X-ray procedures but also the multiple ways children and their parents can communicate their thoughts and accounts in research. I have positioned children as active social agents and central informants of their own lives, experts in their own experiences (Kaplun, 2019) and able to make sense of their social worlds and processes (Woodhead and Faulkner, 2000; Tay Lim and Lim, 2013; Abebe, 2019). This is important because, as the scoping review

(Chapter 3) elucidates, many of the previous studies investigating children's experiences of X-ray procedures have not consulted with children directly and instead have explored their experiences through parents or radiographers proxy accounts. I believe that to make healthcare services more child-centred, children need opportunities to be consulted and space to be listened to about their health.

However, including children as active participants in research about matters concerning them is a relatively new way of thinking. Research long neglected children's experiences and often positioned them as 'objects' of research (Morrow and Richards, 1996), with research frequently being conducted *on* children rather than *with* them (Kellett and Ding, 2004). This is especially true in healthcare research whereby children's views have historically been rarely sought or acknowledged (Coyne, 2008). It was therefore important that the methods and approaches I used to obtain children's voices, views and accounts were appropriate, engaging and empowering, "reflecting a direct concern to capture children's voices, perspectives, interests, and rights as citizens" (Corsaro, 2005, p45).

Such rights are outlined in The UN Convention of the Rights of the Child (1989), The Children Act (1989) and the National Service Framework for Children (2004). These documents provided a turning point in how children were viewed and researched (Woodhead and Faulkner, 2008), affording them the right to be involved and have their views listened to in matters that concern them (Lundy et al, 2011). Articles 12 and 13 of the UN Convention of the Rights of the Child (1989) have particular relevance to this study, as referred to in the background chapter (Chapter 2) because of their focus on children's involvement and their right to form an open view and perspective and express such views and experiences. Article 12 reads;

"State parties shall assure to the child who is capable of forming his or her own views freely in all matters affecting the child, the views of the child be given due weight, in accordance with the age and maturity of the child."

Article 13 reads;

“The child shall have the right to freedom of expression; this right shall include the freedom to seek, receive and impart information on ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art or in any other media of the child’s choice.”

This agreement positions children as social actors (James and Prout, 1997) with variety and diversity worthy of study in their own right, rather than a single and universal phenomenon (Barker and Weller, 2003). James and Prout (1990) argued for the social construction of childhood to be acknowledged and for due attention and recognition of children and young people’s agency, rights and competency to be sole reporters of their lives. Children positioned in this way are active in the construction of their own social lives (James, Jenks and Prout, 1998) and processes and are not simply the creation of adult input or influence nor as a mere biological phenomenon (Jenks, 1996). Children are ‘beings’ rather than ‘becomings’ (Uprichard, 2008; Balen et al., 2006), and are active in the lives and interactions they have with others and the societies and situations in which they live and interact; they are described and acknowledged as having ‘agency’. There is therefore a greater understanding of children as active communicators (Young and Barrett, 2001) trying to make sense of their social world (Woodhead and Faulkner, 2000). There has been a shift, although less evident in health research, away from a focus of ‘adults know best’ to now understanding that the best person to provide information or share views on a child’s experience, view or perspective is the child themselves. As a result, I seek to understand children’s experiences through their own voices, positioning them as active agents in their own lives who are able and willing to discuss things that matter to them in their healthcare procedures.

5.3 Methodological approaches when working with children

Child-centred methods recognise children as different from adults and therefore methods of data collection focus on different approaches, not necessarily used in isolation, that aim to support children that could find it difficult to convey feelings (Coad, 2007) while at the same time avoiding being patronising or belittling children. How children are centred in research depends upon how children are ‘seen’ by the

researcher. Children in this study have been viewed as unique, with different abilities and competencies to each other and to their parents.

Traditional research thinking and practices have, arguably, restricted full engagement with children and for adults to adequately listen to children; the methods used require imaginative rethinking (Lambert et al., 2012). The use of traditional methods, positivist in theory, such as large-scale quantitative enquiry or assessment of children by adults has resulted in research 'on' children rather than with or for them (Green, 2015; Lambert and Glacken, 2011; Kellett and Ward, 2008; Crane and Broome, 2017), focussing on adults providing proxy information. Conducting research with children therefore commonly raises questions about whether research with children is different to research with adults (Prout, 2008; Einarsdóttir, 2007) and seeks to find ways of addressing such differences using methods that acknowledge them. As a result, there has been a drive in research for appropriate 'child-centred research approaches' (Noonan, 2016, Fargas-Malet and McSherry, 2010).

Child-centred approaches are still developing, using new and innovative participatory methods requiring children to be active in research by drawing their own answers (Noonan, 2016), taking photographs or mapping (Coad, 2007) or walking with the researcher and commenting on things of importance to them (Veitch et al., 2020). Child-centred approaches aim to create methods of communication that are inclusive (Ford et al., 2017) and familiar to children. Child-centred methods are more encompassing of the child's voice (Coyne and Carter, 2018) and invite a dialogue that instils respect and recognition of both children's rights and their capabilities. Such methods challenge researchers to develop strategies of enquiry that are fair and respectful to children (Morrow and Richards, 1996), whilst also being appropriately fun and engaging (Ford et al., 2017).

In the following section I will discuss the methods used with children in this study to promote their involvement in ways that are engaging and ethical. I will demonstrate, how child-centred methods were used in this research and illustrate with whom they were utilised by providing the demographics of the participants in this study and details of participant recruitment.

5.4 Sampling and Recruitment

Children and their parents were sampled in accordance with Constructivist Grounded Theory methodology and in line with the ethics approvals obtained (see discussion later in this chapter). One difficulty prior to undertaking qualitative research is the anticipation of how many participants will be needed to answer the research question. For the purposes of the ethics approvals, it was anticipated that forty-five observations would be conducted. However, throughout the study, sampling was guided by the developing analysis and thus this number was flexible. I first observed a range of the different X-ray procedures children were having, this included but was not limited to, chest X-rays, full body X-rays, hand X-rays, leg and feet X-rays and dental X-rays. The only X-rays that were not included in the observations were those that were conducted as part of investigation for non-accidental injury. Other radiological procedures such as CT scans, MRI scans and Ultrasound were excluded due to the research focussing on non-invasive procedures and the need to be able to clearly observe children's non-verbal and verbal interactions which would be blocked by some of the machinery. I observed plain X-ray procedures involving children aged 4-11 years old and their parents.

Grounded Theory utilises non-probability sampling in order for concepts and categories to develop and for conceptual saturation to be reached (Breckenridge and Jones, 2009). Initially a purposeful sampling approach was used to gain variation in procedural experience. I continued to use this sampling approach, until categories began to develop through initial analysis, roughly after around twenty-five procedures. My technique then developed into a more theoretical sampling approach to purposefully seek out perspectives and experiences that were less represented as well as developing ideas and concepts that were emerging, such as seeking out children who were younger in age and especially younger boys. This allowed me to begin to develop and expand categories and concepts until 'saturation' was reached. Within a Constructivist Grounded Theory study, saturation is discussed as being when concepts and categories are complete, and in this study, I continued to recruit until the three main categories had been developed. The analysis process will be discussed later in this chapter.

Participants were recruited from the Radiology Department of a large Children's Hospital. I met with Radiology Department staff prior to gaining ethical approval to discuss the study and the recruitment processes and outline the inclusion criteria for this study. The radiology team were supportive of the research project and interested in how it would be conducted. Following this initial meeting, when I was granted access and ethical clearance, I revisited the department and provided radiographers with more information. When recruitment started, I went to the hospital twice a week on set days. I chose to go twice a week as conducting data collection in a busy environment using observations, interview and activity booklets with children and arranging interviews with parents, sometimes as a date in the future, meant I could easily be overwhelmed by the amount of data I had collected. Limiting the days I went to the department meant I had time to properly record my findings and organise each dataset as well as still have time to be accessible for telephone interviews. My regular presence in the Radiology Department helped build a positive relationship with staff, who were welcoming, helpful and supportive of my research. The rapport with the staff helped build my confidence as a neophyte health researcher. The staff were generous with their time, explaining the department, procedures and they shared many anecdotal experiences with me, some of which were recorded in my memos (Appendix A) and helped deepen my sensitivity to the context.

During recruitment, where possible, I spent full working days with a radiographer who provided consent for me to observe procedures they were undertaking. Working in this way meant that radiographers could advise me on the patients that were in the department and whether they met the inclusion criteria, and so enabled me to approach them and invite them to be part of the research. This time spent with the radiographers also provided me time to build rapport with the radiographer and reduce any anxiety or nervousness they may feel about being observed carrying out the routine X-ray procedures, in turn, hopefully yielding a more accurate and true account of interaction during an X-ray procedure.

Parents and children were approached in the waiting room and invited to be part of the study. If they showed an interest then I provided parents and children with information sheets and asked them to consider their potential participation whilst waiting for their

appointment (no additional time was required prior to the appointment). If they were happy to be part of the study they were then provided with consent and assent forms and I answered any questions they had. Following this, I would remove myself from the waiting room, as I felt this hindered rapport as parents and children would frequently become frustrated with the waiting times and I was unable to change this or check when they would be seen. Once children were recruited, I would observe their X-ray procedure and, in some cases, interviewed them using the activity booklets straight after the observation in a quiet area of the waiting room away from radiographers, other children and if they wished, their parents. Building rapport was more difficult with children and parents than the radiographers due to the wait, the waiting room and the fast pace of the procedure. However, the initial engagement about the research and the methods I used in this study helped build a good rapport with children and the stickers and activity booklets helped me to engage with children and adapt to work effectively in a busy department.

5.5 Patient and Public Involvement and Engagement (PPIE)

In recognition of the value of PPIE in ensuring research is grounded in issues of importance to children and families and uses appropriate methods and recruitment strategies (Hoddinott et al., 2018; Flynn et al., 2019), I sought the opportunity to consult with children who had experience of being in hospital, undergoing procedures and this included some children who had experience of undergoing X-ray procedures. Whilst developing the study, I attended a Children and Young People's Forum meeting to seek advice and feedback on my proposed methods, ethical issues and recruitment strategies. This is an established group and the children and young people are regularly consulted on research projects and designs. These children were roughly aged between 7-17 years old, which was useful as many were the same age as the children who would be the focus of this study. During the consultation, I used printed materials and felt-tip pens and carefully planned questions and activities to seek the views of children on my proposed research, the suitability of the proposed methods, activity booklets and questions. I met with the Children and Young People's Forum separately to the parents group that ran alongside the Forum and then we all came together as a big group where additional points were raised.

Children provided an invaluable insight and fed back a number of points, which are outlined below along with information on how I took their comments on board and made changes.

Information and Assent forms

Children felt that;

- It was better to write “X-ray” rather than provide a blank space for children to fill in the procedure they were having as this was seen to be less confusing to a number of children
- It was important to detailing on the information leaflet front cover what the project is about rather than just asking if they would like to be involved in ‘a project’
- The word “harmed” should be removed from the information sheet and be replaced with something such as “worry about your safety”
- Study participation should be detailed as not taking very long rather than taking “15 minutes”
- It was important to detail that children have *an option* to be recorded or notes taken on what they say rather than saying they *will be* recorded

Interview activity booklet

Children described that;

- “Emoji” style symbols and stickers would help children to articulate how they feel rather than asking them to draw on yellow face outlines
- The booklet layout would be better if I asked what the good things were and what could have been made better on the same page
- The speech bubbles and space to write should be made larger
- Care needed to be made with the use of colours and different accessible forms of the booklet (paper colour, size, font colour) needed to be created for those who may have difficulty viewing certain colours or smaller text

General

Children felt that;

- The size of the children's eyes on the logo should be reduced (as advised by one child who really did not like the size of the eyes of the cartoons!)
- I should not approach a child who made it obvious they did not want to speak me or who was very poorly
- A completely new information booklet and assent form should be created for younger children (4-7 years old) as the general consensus was that younger children would not understand some elements of the materials presented to the group
- It was important that I spoke to the child and acknowledged them as equally important as adults in deciding to take part, rather than speaking over them to their parent/ health professional

5.6 Methods used with children in this study

It is recognised that to understand children, their experiences and social engagements, researchers should engage with methods that aim to position children as competent participants and central to the research process (Bryan et al., 2018).

The use of multiple methods in this study was in recognition of children as diverse, with different interests and preferences for engagement. I used two main methods; observations and interviews to collect data with children aged 4-11 years old having a non-urgent X-ray and their parents. The interviews with children were augmented with an activity booklet. As mentioned at the beginning of this chapter, the use of these two different but complementary methods, helped me to observe the 'frontstage' whilst exploring the 'backstage' of children and parents experiences.

5.6.1 Non-participant observations

In her work, Charmaz (2004) discusses how, in qualitative research, it is important for researchers to enter and learn from the world they are studying. I aimed to achieve this learning through the use of non-participant observations. Non-participant observations are a data collection method whereby researchers enter social situations and observe events and interactions without actively being involved (Kawulch, 2005). This method has a number of benefits to this research as it allows for careful comparisons to be made between observations, they impose no extra time or 'burden'

on radiographers in terms of my role in the procedure being to just almost 'blend in' to normal practice and they require no extra thought, time or effort from children and their parents. However, the main disadvantage of non-participant observations, if conducted without interviews, would mean that communication and occurrences would have to be taken at face value, without the opinions and meanings children or parents ascribe to the observed communication. Data collected through observations therefore are mostly focussed on what happens and less on why or how it felt that it happened.

The observations were a central part of the data collection process and were focussed on identifying children's communication during an X-ray procedure and how they interacted with the adults present. Observations are often used in research with children in clinical settings and are described as invaluable for examining research questions about the mechanisms involved in social interaction (Aspland and Gardner, 2003). Observations are a well-established method of enquiry into children's lives and despite not being a new or innovative method in a growing field of techniques, sensitively used, observations remain a powerful and non-intrusive way of exploring children's experiences in certain contexts or settings (Quaye et al., 2019). Observations in this research were particularly useful to explore the real-time events in a 'natural' setting; with natural meaning an authentic radiology hospital setting rather than an artificial research environment. Non-participant observations allowed me to explore the interactions and actions that made up the social processes, for example a social process of facing uncertainty and a social process of co-operation during the X-ray procedure and gain a sense of what was happening on the surface, not dissimilar to watching a performance of a production or a play. Utilising a non-participant approach focused on collecting rich, descriptive data enabled me to gain an insight into what was happening during the procedure, (Kelleher and Andrews, 2008; Bray et al., 2016). The collection of descriptive observational data enabled me to take key moments of the procedure back to children and their parents to form the basis of further enquiry to seek out further meaning from them. Observing in this non-participant way allowed me to impose as little as possible on the procedure and 'see' what was typically happening during the X-ray procedure, although my presence and role during the observation was overt and radiographers, children and parents were aware of the nature of the research.

As I was a novice, non-health professional researcher with an 'outsider perspective', I decided to spend some time undertaking preliminary unstructured observations before the formal recorded observations. During this time, I was an observer with no real question or purpose other than to build my confidence and rapport with the radiographers and identify important contextual circumstances. This experience enabled me to gather practical information such as where best to stand so not to obstruct the procedure or be a dominant presence in the room. It also helped me ensure I followed safety and infection control precautions in each of the different rooms and, although trivial, helped inform me what to wear and any resources I needed.

After recruiting children and their parents in the waiting room I would wait in the staff bay until the radiographer called the child for their procedure. Although some would argue that this time after recruitment is important in building rapport with children and parents, I made the decision to remove myself due to a number of reasons. Firstly, during the first few observations, whereby I waited in the waiting room, it became apparent that the wait before the procedure was often extensive and, as I was required to wear an identity badge with the NHS logo and hospital name on, parents often used me as a means of complaining about the waiting time or to check on their appointment. Parents also used this waiting time to discuss the X-ray procedure with me and sought answers to clinical questions they had in regards to the procedure. As information was a topic I wished to ask parents about, not only did I feel that my presence could impact their behaviour in the procedure by providing information but as a non-health professional I was not equipped to answer these questions.

Choosing to remove myself during the waiting time and stand in the radiographers' bay also ensured that the radiographer was aware I would be present during the next procedure and thus could ensure there was adequate room for me to be in the room without being too obvious. For example, student radiographers were frequent visitors to the department and often shadowed certain staff members. I felt that having an X-ray room with at least three adults (myself, a student radiographer and a qualified radiographer) in could be overwhelming for a child. It was therefore decided that if a 'shadowed' radiographer was conducting the investigation, I would replace the student radiographer in the room for that appointment only. This approach worked well but also

demonstrates the careful considerations I had to make during the data collection part of this research.

The formal observation began as soon as a child was called into the room by the radiology staff and ended when they returned to the waiting room. The observation was recorded on an A4 sheet of paper designed specifically for this research and refined during my preliminary observations. The sheet provided some structure to help me capture key verbal and non-verbal interactions on face outlines and also had space for notes, arrows showing the direction of communication and key responses, words, short quotations and descriptions. There has been discussion that the use of such 'structure' when conducting observations can lead to prior assumptions being made (Mulhall, 2003). However, conducting observations in this semi-structured way helped me to focus on the behaviours I set out to observe (context, positioning, tone and atmosphere), whilst also being receptive to new and emerging ideas.

I aimed to be of least influence as possible on the procedure so not to significantly alter the actions that happened nor interfere with social processes, but instead harness the skill of blending into the local situation so as to not draw attention (Hennick, Hutter and Bailey, 2020). The radiology department works at a fast pace and the business of clinical practice has previously been noted as meaning that observations are likely to gain insight into actual as opposed to 'performed' practice. The protective screen in the examination rooms often aided me in becoming discreet and supporting me in my non-participant observer role. The protective screen helped as despite me feeling a bit like an 'elephant in the room', on many occasions the screen removed me from the eye-line of children. It is, however, acknowledged that my presence in the radiology room may have influenced the actions and interactions of those present, but hopefully not in a significant way.

I found that after each observation, which was not followed directly by an interview with a child, I needed space away from the busy department to focus on what had been observed and I took time to add to my field notes, memo and absorb what I had observed. Field notes were an important part of this research as they allowed me to really focus on what I had observed during the X-ray procedure and to gather my thoughts about what I had seen, heard and considered. The field notes also provided

me with an opportunity to consider my role in the construction of knowledge and how the ways I presented myself, collected data and wrote these notes was shaped by me as a person and my part in the research. Research suggests that different researchers with different foci in their work create field notes in different ways (Mulhall, 2003). For me, field notes were an important part of bringing my thoughts and understanding into the data but in a way that was separate from the observation and interview data, so not to take away the voice and constructions of meaning from children and their parents.

As soon as possible after the procedure, I converted the observational data into electronic format, creating comic strips of the procedure and the communication that occurred (Appendix B). When creating the strips, I removed any identifiable information in line with data management plans submitted during ethical approval processes. I transcribed my field notes into a narrative text in order to represent the process happening and points of interaction and communication more coherently.

Through the observations I became familiar with the contexts of children's X-ray and identified the different verbal and non-verbal communication that occurred during the procedure. Conducting observations over a three-month period allowed me to explore themes and ideas developing through constant comparative analysis and the time and opportunity for theoretical saturation to occur. Although observations allowed me to explore what happened during a procedure, they did not enable me to explore the meaning of how it felt to be a child or parent during an X-ray procedure. This prompted the need for a further avenue of enquiry through the use of interviews. As different interview methods were used, I will discuss the process of interviewing children and their parents in two separate sections.

5.6.2 Interviewing children using an activity booklet

Following the observation of their X-ray procedure, children were invited to be part of a semi-structured interview. They were given the opportunity to use an interactive activity booklet designed especially for this study to help prompt their responses and support them to answer questions. The booklet aimed to provide them with a platform to discuss their experiences and specifically examine actions and interactions that happened during the procedure and ask children about them. Interviews can be used

to compliment other methods to further probe human experience, to identify not only what is done but also how it feels and why it matters (Sutton, 2015). However, traditional 'talk-centred' methods (James, Jenks and Prout, 1998) require imaginative re-thinking (Clark and Moss, 2001) for adults to adequately listen to children and their views (Lambert et al., 2014). 'Task-centred' participatory activities have been suggested as better approaches for capturing the child's voice and they draw on children's existing skills and interests (Bryan et al 2018).

Using the activity booklets helped to support the qualitative methods I employed and ensure they were participatory and contributed to an active and interactive process, which literature suggests can create a process whereby "both children and adults listen, hear, respond, interpret and construct meaning" (Lambert et al., 2012, p196). Utilising such participatory methods is said to be more stimulating, fun and interesting as opposed to children being asked and providing answers to rigid questions.

Children could choose to just talk to me in the interview or engage in the interview via a 3-page activity booklet created for this study. The activity booklet was composed of seven child-centred activities that aimed to be flexible and appropriate to the broad age range of children included in the study and the various ways they might want to communicate with me. There was flexibility in the booklet to explore events observed during the child's procedure. The activities were designed in such a way that prompted discussion and could draw on and examine specific moments during the X-ray procedure. If they chose to engage with the booklet, they could complete all the activities or some of the activities. The activity booklet utilised age appropriate participatory, 'child-friendly' methods such as drawing, stickers and mind-mapping techniques, to promote engagement with the research and interview questions. Such methods have been said to place the voices of children at the centre of the process of research (Søndergaard and Reventlow, 2019). Utilising these activities alongside an interview schedule enabled children to communicate and answer the questions using different methods. This ensured attention was paid to activities children might enjoy, the varying literacy levels children have and the perceived burden of participation (Greig et al, 2007).

Being asked direct questions about experiences can feel intrusive, overwhelming and unfamiliar, especially as children often lack experience of being consulted directly by unfamiliar adults (Punch, 2002; Alderson and Morrow, 2020). However, I did not assume that children would prefer the activities to a more traditional interview method as often utilised with adults, and they were given choice to 'just talk'. However, all the children in the study chose to use the activity booklet during their interview.

I took extra care to ensure that children felt well enough to participate in an interview, as I was aware that some children might have injuries that made them uncomfortable or restricted their ability to draw. However, I made sure there was time to allow children to rest or just talk if they did not want to do the activities.

As discussed earlier (Section 5.5) the activity booklet used in this study was informed by PPIE with children, this engagement aimed to make sure that the format, language, appearance and questions were meaningful to children.

The first page of the booklet asked children to answer how they remembered feeling before and during the radiology procedure by choosing an 'emoji' style sticker or completing the picture of a face corresponding to their feelings (Figure 3).

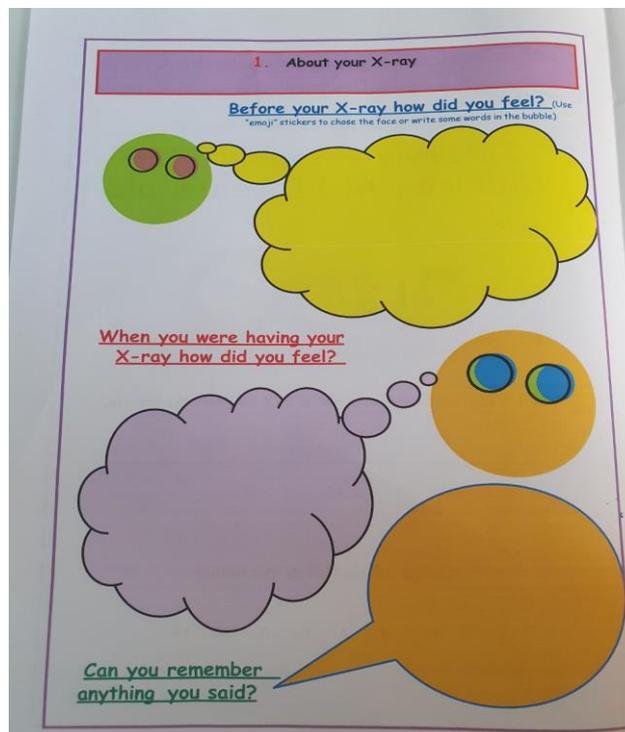


Figure 3 Page 1 of the children's activity booklet

The booklet aimed to help children consider the emotions they were feeling during their procedure and this activity allowed me to check the meanings behind their feelings and the faces they chose. Using emojis in research is relatively new and has been taken from a rapidly expanding digital landscape that children are familiar with. This digital landscape has provided researchers with new opportunities to consult with children. The use of emojis in research has been said to improve participant engagement and interaction with the research topic in ways that are salient for children and young people (Mackenzie et al., 2018).

If a child remembered feeling like they were sad they could draw a sad “downward facing,” mouth, if they felt happy they could draw a smile or an “upward facing” mouth. Most of the children chose to draw their own emojis rather than using the pre-printed ones. I designed the questions at the beginning of the booklet so that children would be utilising stickers or basic drawings. Utilising these sticker orientated methods early in the schedule aimed to ensure that the children spent shorter amounts of time on these questions than the more personal questions about their own feelings and experiences later on in the interview. The use of a drawing or sticker activity early in the schedule has been considered in literature to be helpful in interviews, feeling non-threatening (Dreissnack, 2006), and putting the child at ease (Irwin and Johnson, 2005). I also found this to be the case in this research, and children said that they enjoyed completing the activity booklets and many were proud of their answers and took the booklets home with them once I had photographed their drawings and choices.

The second page of the booklet asked the children to complete a mind map of the good things about their X-ray and what could have made things better (Figure 4).

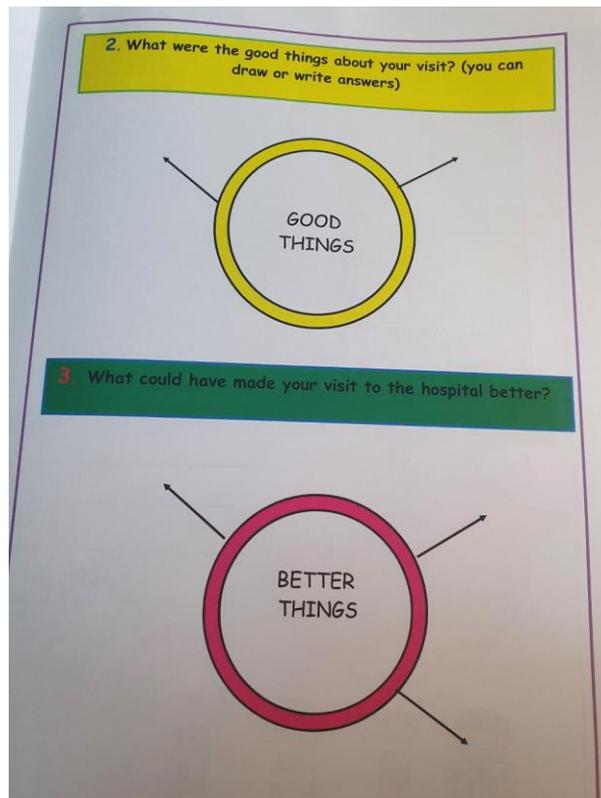


Figure 4 Page 2 of the children's activity booklet

This was predominantly a writing task, although no set instructions were given and children were given freedom to answer this question in any way they wished. This task appealed more to the older children in the study than the younger children who tended to use the emoji stickers on this page and talk to me about the answers instead of writing them. Little has been documented about using mind-mapping techniques with children in hospital settings (Coad, 2007) however, a mind-map activity was useful in this scenario as it prompted children to think about different aspects of their visit and things that mattered to them rather than restricting them to one answer. In work by Coad (2007), mapping techniques were used in a similar way to how they were used in this study. Children who participated in this study were asked to identify good and things that could be better specifically in relation to their X-ray procedure and the department, but most of the children also commented on the wider hospital environment and the people present during their procedure.

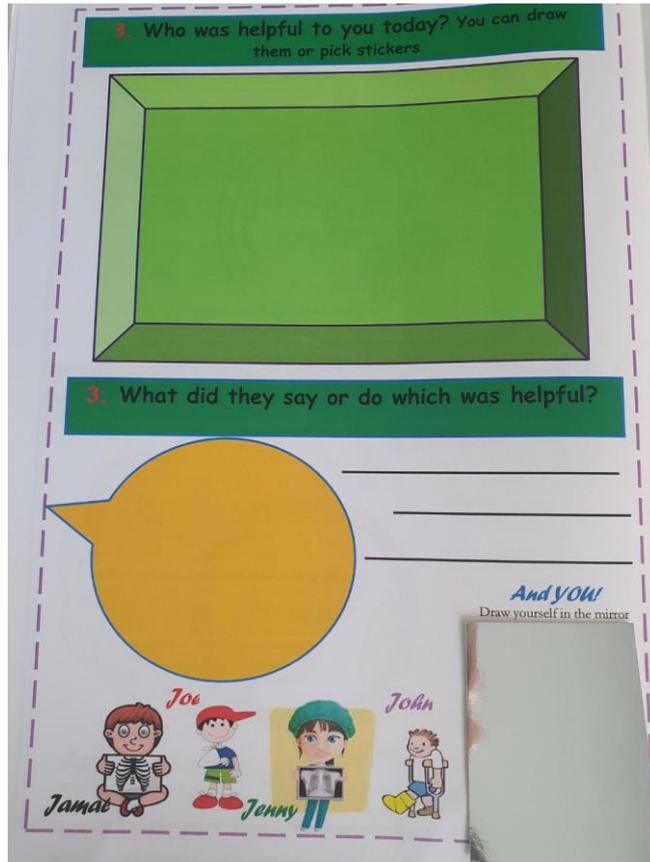


Figure 5 Page 3 of the children's activity booklet

The back page of the activity booklet (Figure 5) utilised stickers that I made personally using cartoon characters on labels (Figure 6), children were also provided with blank labels to make their own stickers, although no-one did.

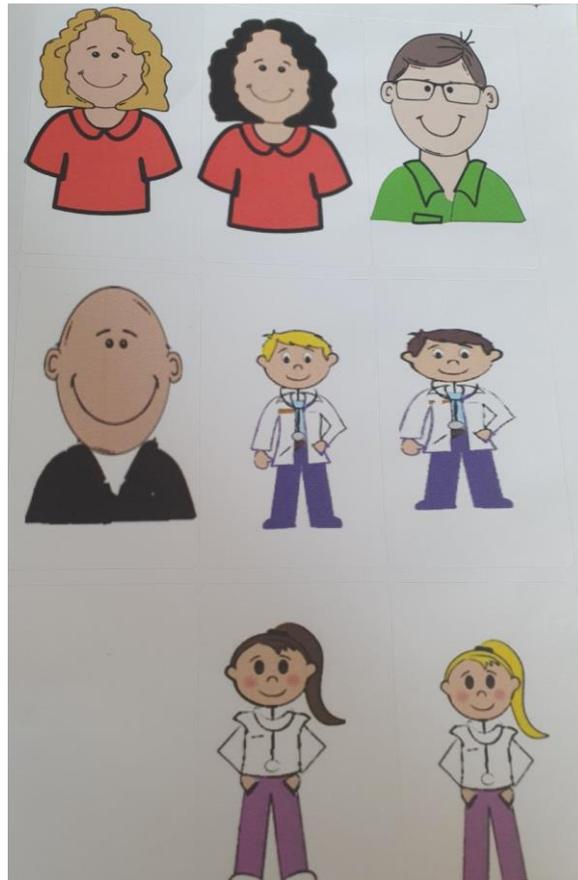


Figure 6 Stickers provided to children

This question asked children to think about who was helpful to them during their procedure and gave them the option of drawing or choosing the stickers I had made of “Mum” “Dad”, “Male Radiographer” and a “Female Radiographer”. All of the children interviewed chose to answer this question using the stickers rather than drawing their own images. However, as children were only presented with fairly limited options of who helped them, this could have limited what they could comment on, for example, there were no stickers of siblings, grandparents, their teddies or their toys, which some of the children communicated to me. However, I was aware of this and provided children with blank labels to draw on and make their own sticker.

The booklet acted as an aid or prompt for children to answer the questions set out in the interview schedule and the activities were used alongside the spoken interview. Whilst I used the answers children provided in the activity booklets in data analysis, I

have chosen not to conduct detailed analysis of each separate image from the activities, instead I used the photographs of the activities within the transcripts to support and illustrate the answers children verbally provided. I made this decision as the activities were not designed to provide answers but were designed to instead act as prompts to engage children and focus their thinking. I used prompt questions and asked children to explain their choices or drawings or clarify the words they wrote and felt that the supporting answers from children about their activities provided useful insight into their answers.

Following observation of the procedure, the activity booklets (Appendix C) were used alongside the interview schedule (Appendix D). The activity booklets contained questions that asked children about their experiences and the actions and interactions that happened during certain points of the procedure, prompting them to consider and share specific thoughts and feelings about what happened, what was said and how they felt. The activity booklets provided a fun and focussed opportunity for children to reflect on their procedure. The use of the activity booklets also meant that I was able to be theoretically sensitive and ask the children questions informed by previous interviews. The activity booklets therefore allowed me to begin and open up conversations with children and explore particular aspects of their procedure that may not have occurred or been less focussed without the booklet. Each activity aimed to open up discussion and seek information about the communication observed during a child's X-ray procedure and children's experiences of this. This also helped to further understand some of the observational data whereby children declined to be interviewed afterwards as children supported me in co-constructing ideas by discussing how certain aspects of communication can feel to them. As part of the use of activities and visual prompts I was able to take my observations back to the children, showing them the A4 sheet and talking to them about what I had seen, and ask them about the procedure, how it felt and the booklet helped children to focus on this one event.

The activity book exceeded the aim of building rapport and allowing children to express their feelings in ways they felt comfortable, it also seemed to reduce the power imbalance between a child and myself. In most cases, children seemed to become

more open and ready to communicate with me when given the option of answering questions with the booklet rather than without it. The booklet also acted as an aid to support the *informed* assent of a child to participate in the research. Two parents chose to look through the booklet before consenting for their child to participate in the interview. Some children would look through the booklet before beginning the interview to child see exactly what we would be covering in the interview. None of the children refused to take part after viewing the booklet.

Each activity task and interview question was optional and children were able to tell me whether they wanted to use the activity to help them answer the question or simply communicate their answer verbally. All children were also able to use their 'pass'; an option provided to children before the interview to help them to refuse to answer any questions that they did not want to answer for any reason at all. This was not something physical like a card or thumbs down but instead was a way of ensuring that they knew that if they did not wish to give an answer, they did not have to. The use of the 'pass' also allowed me to reaffirm a child's assent, as if a child communicated that they did not want to answer a particular question I was able to explore whether this meant they did not wish to answer one question or whether they wished to pause, withdraw or stop taking part in the interview. This happened on two occasions whereby a child communicated that they did not wish to answer a question. On gentle probing this was because they did not think any of the stickers looked like their Mum, and so I pointed out that there were blank labels on the sheet for them to draw their own Mum and I offered to help them with this and on another occasion the child did not wish to answer as they did not know how to spell the words they wanted to communicate, and again, I offered to help them with this.

I was aware of the impact the various adults could have on how children would be able to exercise their participatory rights. As children's voices and accounts relating to their X-ray procedures were central to this research, I was especially cautious of not only my own role and position as an adult researcher but also of the presence of the child's parents during the interview. It became apparent quite early on in my research that many of the children I was asking to participate were not used to being consulted about their experiences and often looked to parents to 'fill in the blanks' and give an answer

on their behalf. I reassured children frequently that it was their ideas I wanted to hear and that there was no right, wrong or silly answer. I tried to empower children to say exactly how they felt in exactly the way they wanted rather than a well-formed answer relayed to me by their parents. I also attempted to reduce the power imbalance of having at least two adults present (myself and parent) as a child spoke about their experiences in an interview setting. I provided children an opportunity to choose whether or not they wished for their parent to be present during their interview. If the child decided they wanted their parent to sit away from them during the interview, I ensured that the parent could still see the child but would be unable to clearly hear what they were saying.

I found the above documented approach the best way to construct knowledge with children as their early stage thinking and 'messy or unclear' answers became the basis of a process of thought that we could unpick and refine together. Despite the use of 'child-friendly' or 'child-centred' methods, it was important to understand that children may not only feel uncomfortable because of the methods used, but also because of the lack of consultation they can have in everyday life.

Research with children is more frequently stepping away from a 'one-method-fits-all' approach and researchers are opting to use complementary methods "to capture a broader and deeper range of children's perceptions and experiences than a reliance on a single technique" (Darbyshire et al., 2005, p423). I believe that this study has been strengthened significantly by the use of multiple qualitative methods especially when using a constructivist underpinning. Using observations alone, although highly detailed and insightful, would only provide a partial picture and would only be my own interpretation of what I had seen. Instead by utilising a complementary method, such as interviewing, I have been able to deepen knowledge and uncover new insights into children's meanings.

5.7 Interviewing Parents

In this section, I detail and discuss the interview process undertaken with parents using a semi-structured interview schedule (Appendix E) that was adapted and changed to incorporate aspects of their child's X-ray procedure as topics for discussion, to allow for co-construction of meaning and also informed by previous interviews and ideas to

support theoretical sampling and sensitivity to the data. A child's parent was interviewed in a similar way to the children using prompts that arose from the key things observed during the procedure such as their verbal interaction, non-verbal actions and how they felt about it. Overall, the interview experience with the parent that accompanied the child during their X-ray procedure, was engaging, positive and insightful and raised a number of issues of importance to the research.

In line with the aforementioned point in the methodology chapter (Chapter 4), I referred to Charmaz's (1994) instructions for interviews with parents. I focused on setting the tone, seeking information, feeling and reflection and searching for narrative before ending on a positive note. Qualitative researchers often favour face-to-face interviews as the most productive mode for producing data that incorporates the 'why' and 'how' of experience (Holt, 2010), aiming to explore intimate exploration of meaning. There has however, more recently, been a shift to alternative forms of interviewing including through video interfaces such as Skype and FaceTime or via the telephone (Iacono et al., 2016). Telephone interviewing was utilised in most cases with parents in this study, to seek out accounts and thoughts about their child's X-ray procedure. I was initially hesitant about interviewing parents via the telephone, as this was not a method I was familiar with and I had concerns about 'losing' contact with participants in the time between the procedure and the interview. However, telephone interviews helped in this study as X-ray procedures were sometimes full of heightened emotions and afterwards parents were often in a rush to take their child home or to school. Because of the heightened emotions and some procedures being distressing for children, offering parents the chance to be interviewed via the telephone at a later date, no longer than a week after the procedure to enable them to still recall what happened during the procedure, meant they had time to consider the events and also had the opportunity to be interviewed without their child being present. Telephone interviews also intended to help increase recruitment numbers through increased flexibility for interviews to be conducted at times suitable to parents and not add extra time to their hospital visit. It also appealed to parents who had been distressed or challenged by their experiences and there is some evidence in the literature that telephone interviews compared to face to face interviews can reduce anxiety and unease of a participant (Rahman 2015).

However, after a number of instances of parents agreeing to take part in telephone interviews and then not answering the phone, parents were instead invited to choose whether they would prefer to participate in a face-to-face interview at the hospital after the procedure or a telephone interview at a later date. Providing this choice improved the number of parents participating. However, the numbers of parents who participated in interviews are fewer than the number of observed procedures and the number of child interviews. Parents reported that they declined to be involved in an interview due to time constraints, wanting to get back to work and their children back to school, believing they have nothing to add or say and in some cases needing to comfort their children after the X-ray procedure.

It is important to comment on the environment and context of the parental interviews as some were conducted face-to-face in a quiet area of the radiology department with children present and others were conducted in private areas away from children such as via the telephone when they were in their home. Being private during an interview was important to some parents, with them making this obvious to me by saying "One sec, just going to go in the other room" (Mother of boy, 7yrs) or "Hold on a minute, he's just here!" (Mother of boy, 10 yrs), whilst wanting to discuss parts of the X-ray procedure. I remained sensitive to the ways parents answered questions, especially when their children were around, in order to pick up on any reluctance or hesitation or non-verbal cues that suggested a parent's discomfort at discussing certain aspects of the procedure in front of their child/ren. This was only noted in one of the parental interviews when the parent covered their child's ears to talk to me. On this occasion, I asked if the parent would be willing to be involved in a separate telephone interview at a time when their child was not present, in response the parent asked the child's grandmother to take the child to the hospital shop so she could discuss the things she did not wish to disclose in front of her child, although this interview was considered mild and the parent wanted to discuss how their child had annoyed them rather than anything distressing about the procedure. This was not dissimilar to some of interviews conducted with children when parents were present. I was aware that in some cases the parent's presence during a child's interview could impact on their responses to the interview questions, for example when parents were present and children were asked "who helped you today?" or "how did you feel when [Mum] said...?" Children may have

felt they needed to respond in a certain way. It is important to be aware of this in research conducted with individuals in family units in order to explore in-depth sensitive issues that otherwise could be missed or lack in quality of response.

There were similarities and differences noted in the responses given to the interview questions dependent on whether parents were interviewed face-to-face or via the telephone. At the start of the interview, parents would be invited to discuss how they felt the procedure went before I asked any questions that related to specific key moments observed during the procedure. Starting the interview in this way allowed for rapport to build and the conversation to be open, natural and data to be organic (Bolderston, 2012). This open interview style seemed to help participants focus on the information they wished to share and the experiences and social interactions that they considered to be important during their child's procedure. A level of flexibility in the questions was required throughout each interview and as the data collection process progressed, with a number of alterations being made to the topic guide in order to explore concepts that were occurring frequently throughout initial analysis.

5.8 Ethical Considerations and Processes

Research that involves children has several specific methodological and ethical concerns (Einarsdóttir, 2007). In this section of the chapter, I discuss ethical considerations and processes that were involved to ensure this research was conducted in a manner that ensured no harm to children, their parents and myself. Ethical considerations, as a set of moral principles to be adhered to (Flite, 2013), are central to all research and influenced all stages as a reflexive part of the research process. The following section details the process of gaining ethics approval for this PhD study from the Faculty of Health and Social Care Research Ethics Committee at Edge Hill University and the Health Research Authority (HRA). With regards to discussing the ethical considerations of research, "merely reporting Ethics Committee decisions is an insufficient response inherent within the qualitative or interpretative research paradigm" (Darbyshire, 1992:pp61). As a result, there are specific considerations that need to be made when researching in NHS settings and with children which merit special attention and a more detailed discussion (Wilkinson and Wilkinson, 2019). In the following section, I discuss details of these issues and how

they were addressed, drawing on my personal memos written at the time of data collection to illustrate how the 'ethics on paper' translated into 'ethics in practice' when collecting data within the setting of a Children's Hospital.

5.8.1 Ethics Approval and Health Research Authority Approval (HRA)

Ethical issues were considered throughout each stage of the study to ensure good research practice. The research adhered to Edge Hill University's policies and protocols and the documentation and details submitted to reviewers at the University and the Health Research Authority (HRA).

A considerable amount of time was spent preparing and amending documents for the various ethics review processes. This was a multiple stage process that involved providing a Criminal Records Bureau (CRB) check (now Disclosure and Barring Service), obtaining ethics approval from relevant committees and seeking permission from senior managers in radiology and research departments within the Children's Hospital. Ethics approval was sought in the first instance from Edge Hill University Faculty of Health and Social Care Research Ethics Committee (FREC) submitted on the 11/04/2017 and granted on 09/05/2017 (Project Ref: FOHS 172) (Appendix F). As the study involved children and parents within a health care setting further approvals were required. An online document was completed using the Integrated Research Approval System (IRAS ID: 228773) to obtain REC approval (Ref: 17/LO/ 1248) (Appendix G) received on 03/08/2017 and reviewed by the Proportionate Review Sub-Committee on 18/08/2017 and approved on the 25/08/2017 to further support a Health Research Authority (HRA) approval obtained on 14/09/2017 (Appendix H). Following authorisation granted by both FREC and HRA, I completed a research passport form and sent it to the Children's Hospital, they then provided me with a letter of access (Appendix I) to the site. The ethical approval process was invaluable to this study and adherence to the university policy and the ethical documentation I submitted was continuously reviewed, this ensured compliance at all times.

5.8.2 Ethical Considerations with Children in this Study

The above section provides only the "bare bones" of information relating to ethics associated with this research. Although many of the key ethical issues when

conducting research with children are based around the same tenets of conducting research with adults, there are several complex factors that require further attention or additional considerations (Tinson, 2009). This research was considered to be of minimal risk to the children, parents and radiographers. However, ensuring they were involved in a meaningful way was potentially challenging due to salient issues of power, access, informed assent and confidentiality. The following sections will address the considerations that needed to be made in this study to adhere to ethical guidelines and standards of research rigour and uphold the principles of conducting ethically sound research, specifically with children.

Power Relations

Power disparities, paternalistic attitudes and cultural notions that exist between adults and children in society (Robinson and Kellett, 2004) make research encounters with children sensitive and unique. Despite an upsurge in attention given to children's voices and the methods that seek to listen to them (Coad, 2007), ethical issues in research with children still require careful consideration and can be challenging. This is especially so within the context of research and the processes within ethics review systems that deems children as vulnerable (Carter, 2009). Children can be viewed by some as a homogenous group who lack any substantial power in most situations, often lack awareness of their rights and see adults as superior because they hold authority over them in most of their everyday activities. Considering this, power disparities are a central ethical issue that required extra attention in research (Graham et al., 2013).

When children are being asked to take part in research by adult researchers, they may find it hard to say no, to disagree or to contribute in a way they feel is authentic and true for how they felt or experience a situation (Punch, 2002). The adult researcher-child participant dynamic therefore required acknowledgement and attention, as power imbalances can be considered invasive, undermining of autonomy and disempowering to children involved in the study (Graham et al., 2013). Consideration was required to minimise the effects of such dynamics (Mayall, 2008) and to find ways to rectify the power imbalances by creating spaces that enabled children to speak out and be heard (O'Kane 2008). This has already been discussed in relation to the use of activity booklets that utilised participatory methods in the interview with children.

It is also important to discuss how the setting and context of the research had influence over the power dynamics and disparities in this research. The children were often first-time visitors to the hospital and radiology department and were unfamiliar with the dynamics and were essentially in an environment where adult authority and power was dominant. They were expected to act in a certain way and be 'on their best behaviour', somewhat dictated by their parent and the radiographer carrying out the examination.

The issue of power was one that became more apparent to me in 'practice' than on ethical applications or 'paper'. Despite discussing ways to reduce power imbalances when interviewing children and working with them and their parents, it became apparent that power plays an important role in more than just recruitment and data collection when working with children. When data collecting, I tried to shape my role of a 'researcher' and adult as unimportant- children were the most important voice, and rightfully so. Although I was honest and overt about the research, I tried to reduce power by stripping away my researcher role to be less formal, in the way I spoke and dressed. Wilkinson (2016) discusses her appearance and personality and the influence both had on her research with young people. Similar to Wilkinson's (2016: pp121) viewpoint that her 'embellishments' of fake tan, hair extensions and makeup functioned as signifiers of her personality to the young people, I was aware that the clothes I chose to wear and how I did my hair and makeup acted as signifiers of my personality to children. Initially, I chose to wear suit trousers and a smart top and used a clipboard to write down my observations that was a prominent 'prop' in my hands. I reflected on the choice I made to dress in this way after a few of observations and interviews and became aware that I felt uncomfortable, I blended in to what 'other professionals' in the hospital wore and I became aware of how my appearance could be evoking an unintentional power disparity between myself and the children. Following this reflection, I observed what parents were wearing to their child's appointment, and whilst I was often younger than parents of 4-11 year olds, I decided to wear more casual and comfortable clothes to support me in being 'familiar' and non-threatening to the children.

I aimed to project an approachable persona and participated in small informal chats with children. Moser (2008) discusses how personality is the 'new positionality' and

reflects on how aspects of her personality including her interpersonal skills, mannerisms and navigation of others personalities could impact a researcher's access to certain participants and the information they share. I agree with Moser (2008) and feel confident that my personality and my social skills with both parents and children improved the data collection as I was able to quickly build rapport with parents in the waiting room and we often laughed and joked and they were interested in me and in my 'job role'- they often commented that they "didn't actually know what a PhD was". I had children (mostly) determine the agenda of the interview related to what they felt important to them and participated in fun activities with them. I helped them choose stickers and colouring pens, gave them control over when to have breaks and when to move to the next activity. I aimed to be empowering and supportive. This worked well to engage children, put them at ease and collect rich descriptions from them. However, as a researcher, I had to be aware that I was powerful by virtue of my role as well as my socially more powerful status of being an adult (Alldred, 2000). How I interpreted and represented the voices of the children in this research was important to ensure due weight and attention was given to their participation. This was carefully considered throughout the study and even after the research encounter had ended, I began writing up children's accounts and experiences acknowledging my position as an interpreter of children's thoughts, wishes and feelings.

Access

Access will be discussed in two ways, firstly access to the department and NHS site and secondly in terms of accessing children for the research, both of which require similar considerations.

Shaping the discussion of access from a top-down approach, to gain access to conduct research at the Children's Hospital and specifically within the Radiology department I was required, as part of the ethics requirements, to provide evidence of a recent Disclosure and Barring Service (DBS) check. Obtaining such information from the Home Office is often the first legal/official requirement from several individual and institutional gatekeepers that control the access to children. Following DBS checks further issues of access needed to be addressed by the hospital directly as I was required to obtain a Research Passport that ensured I was suitable to access the

hospital environment based on Occupational Health Checks, DBS checks, reference, educational attainment checks and my ethical approvals. Lastly, access to children for research purposes also needed to be negotiated with parents who acted as gatekeepers. This was an important negotiation that required various levels of consultation with parents through information giving and consent and assent forms that will be discussed.

Gatekeeper's access

As detailed, there were various gatekeepers through which to negotiate access to the site and children and although the process was guided by the requirements set out by such powers, children themselves also needed to exercise their own rights to participate in the research. As a result, informed assent from the children was an ethical requirement. The concept of assent is central to this research both in terms of the research topic and also the ethical participation of children and their parents in the study. When conducting any research with children or adults obtaining informed consent is a necessity as detailed in the UK Framework for Health and Social Care Research (2017) and the General Data Protection Regulation (GDPR) (2018).

The processes and underpinnings of gaining consent and assent are not dissimilar but do require careful consideration of issues such as competence. Consent and assent are vital to ensure that participants, whether child or adult, are protected during the study, are appropriately informed and have the power of free choice to choose or decline participation (Polit and Beck, 2008). Autonomy plays a central role in research and in order to respect a person's autonomy informed consent needs to be sought. However, the concept of 'child consent' or more accurately 'assent' can be problematic, inconclusive and unclear (Oulton et al., 2016; Murray, Swadener and Smith, 2019; Bray, 2007), with a multitude of definitions being used interchangeably. For the purpose of this study, assent refers to the child's choice about participation and involvement in the study. This is informed by the definition by Conrad and Horner (1997: p164) that defines assent as "a child's informed agreement to the conditions of participation", as such, be part of the observations and to opt in to being interviewed afterwards.

Within this study, assent was thought of as an on-going process as opposed to an isolated event. In research such as this, that seeks to hear children's voices and consult with them directly within a health care context, the parent or guardian of that child has to provide consent for their child to participate. This may sound somewhat ironic and contradictory but stems from ideas and thinking about adults understanding of children's competency that suggests children below certain ages may not be capable of making fully informed or autonomous decisions in ways adults can (Taylor et al., 2013; Bray, 2007). However, in seeking assent from children as well as consent from their parents, I demonstrated that their choice mattered and their voices and opinions were important both to me and to the research. Within this study children's assent was prioritised.

In order for children and parents to make a decision whether to participate or not, it was essential that the terms of participation were understood (Alderson and Morrow, 2011). This emphasises the notion of being 'informed' and ensuring that both the children and their parents understood the project and what they were assenting and consenting to. Before I approached any of the parents or children, consent was obtained from the radiographers who were likely to be present during a radiological procedure. They were provided with information sheets and provided consent to observe the procedures they performed and record the communication that occurred during them, including communication from them with children and parents. Once a radiographer had consented to take part and be observed they were clear they would not be able to withdraw their data, as this would effectively withdraw the child's and parent data as well. Children, parents and radiographers were provided with clear and accessible information in the form of information leaflets, or in a booklet format (Appendix J, K and L).

The booklet outlined the study and parents were given time to read the booklet whilst waiting for their child's procedure. In some instances I read the booklet to them, for example, on occasions when they had their child sat on their knee and were unable to hold the booklet and when one parent asked because they were adjusting their child's plaits in her hair and had no free hands to hold the booklet with but was still interested in what I was saying, I then also read the booklet with their child. Both parents and

children were encouraged to talk to me about the project and ask any questions. The aim of the information booklet was to assist and support the assent/consent process by prompting and supporting an open conversation about the project rather than being the sole source of information available. Parents asked me on a number of occasions if their child's participation would mean they would be called sooner for their appointment by the radiology staff, in these cases I made it clear that I had no control over the waiting time. I also informed parents that I was not involved in their child's care and that their participation or decision to decline participation would not in any way impact on the care that their child received from the department. I ensured that children understood the information given to them by asking them questions about what they thought the project was about and I also spent time highlighting that even though their parent may want them to be involved it was their choice and it was okay to say 'no'. It was important for children and parents to understand that assent and consent were an on-going consideration. Children and their parents were able to indicate at any point that they had changed their minds. They could indicate their withdrawal of assent/consent by no longer wanting me to watch the procedure, or changing their minds about being involved in an interview or wanting to pass on a question, asking to have a break or asking to withdraw from the study. However, this did not happen in this study. Following the initial discussion about the study, I left the families with the information to consider their participation, I ensured I remained close by in case they had questions but I tried hard to not be too obviously present to allow them space and the opportunity to discuss their involvement between themselves without feeling pressured.

Following consent being obtained from Radiographers for me to observe them conducting the X-ray procedure (Appendix M), if the parent and child were happy to take part, then two forms of consent were obtained from parents, the first for their own involvement in the observation and possibly an interview at a later date and secondly, for their child's involvement in the research observations and interview (Appendix N and Appendix O). Assent was then obtained from all children who wished to participate, on a separate assent form (Appendix P). Consent and assent were obtained in written format before the observation of the X-ray procedure and reaffirmed at each stage of the data collection process: before observation (radiographers,

parents and children); before the child's interview (parent and child); before the face to face interview with the parents and/or verbally during the telephone interview. I decided this was a necessary arrangement as often parents did not know how the procedure would unfold and sometimes children and/or parents were distressed after the procedure and wanted to leave the hospital rather than take part in an interview. Parents were aware that they could withdraw the observational data after the procedure if they wanted to, although no parent did. On three occasions parents would ask to see the notes I had taken during their child's procedure, out of interest of what I was doing, although they never really spent much time reading my rough hand written notes and instead appeared to 'check' that I was doing what I said I would before interviewing their child. Transparency in what data I collected and their interest in it, built trust with the parents.

Confidentiality

Confidentiality and anonymity are important considerations in research, especially research that involves children (Alderson and Morrow, 2020). Confidentiality of all participants has been protected throughout the data collection and analysis. All personal details of children and their parents have been anonymised and pseudonyms chosen by the children have been used to ensure that none of the participants in the study can be identified or are traceable. Although it was unlikely that the children would disclose any information that was regarded as a safeguarding issue, I was honest with children that confidentiality would be broken should I feel it necessary. This will be discussed in greater detail in the following section.

Disclosure of poor practice or harm

In keeping with the Children Act (2004, 1989) and University policy for working with vulnerable groups, the safety of the children involved in the study was always a main concern of mine. I clearly documented in the information leaflets that the children's privacy and confidentiality would be protected. However, I was honest with my intent that if any of the children participating in the study disclosed something that meant I was concerned that they were being harmed, could harm themselves or somebody else was being harmed then I would break this confidence and discuss the issue with

those deemed necessary. Not only was the concept of disclosure an issue, but I was aware that I may observe poor practice or malpractice during the collection of data. I had to consider what actions I would take if I felt I was observing practice that could be deemed potentially or actually harmful whether intended or unintended.

As I am not a registered health professional and have neither a nursing nor a radiology background, I did not feel qualified to make any final decisions on poor practice or malpractice. However, I had a clear action plan in place if I had concerns that poor practice or harm was identified, this involved a range of actions depending on the concern, including reporting it to my supervisory team or reporting it and seeking advice from senior staff within the department. However, on no occasion did I observe or have poor practice reported to me.

Data Management

The raw data collected during this study consists of consent forms, assent forms, audio files, transcripts, children's drawings, observational field notes and handwritten notes. All hard copy data was converted to digital files and is stored in a password protected file on the encrypted University one drive server. Interviews that were recorded were transcribed as soon as possible and transcripts added to the password-protected folder and the audio files deleted from the Dictaphone. All identifiable data was removed at the point of transcribing the interviews and converting the observational data onto datasheets. The hardcopy consent forms and activity booklets have been stored in a sealed envelope in a locked cabinet in a password protected office at Edge Hill University, thus data is stored and managed in a way that is compliant with the Data Protection Act, (2018), General Data Protection Regulation (GDPR), the University Research Ethics Policy as well in accordance to my ethics approvals.

5.9 Rigour in this study

The previous methodology chapter (Chapter 4) introduced Charmaz's specific criteria for assessing and evaluating quality and rigour in a Constructivist Grounded Theory study, including credibility, originality, resonance and usefulness/fit. This section of the thesis, will discuss these criteria in relation to this study.

This study utilises a Constructivist Grounded Theory approach and as outlined by Charmaz (2003) should provide a useful conceptual rendering and should explain relevant problems or processes. The methods used in this study allowed for flexibility and supported me to co-construct meaning to move towards developing an interpretive theory (Charmaz, 2006) that accounts for variability and the complexities of children's communication and experiences during X-ray procedures. The next sections will now discuss rigour within this study in relation to Charmaz's (2006) four criteria.

Credibility

The credibility of this study can be demonstrated through the transparent accounts of the research process and the analytical methods that I have used to develop the conceptual categories. I have strived to be methodologically self-conscious in this study, a term highlighted by Charmaz (2017). This means understanding why I have chosen this research, why I have chosen the methodology and specifically Constructivist Grounded Theory and understanding my ontological and epistemological assumptions and the impact these have had on the research conducted and the ideas I have developed.

I have been transparent with the children and their parents by consulting them about their opinions of the research methods and materials before data collection began and also throughout the study by asking them in the interviews about the observational data and the meanings they ascribed to it. I have aimed, throughout each of the chapters to present the children's accounts and reported experiences first. I have aimed to provide enough evidence in the form of observational notes and interview quotes to enable the reader to assess the developed categories and theory.

I have aimed to provide details throughout the thesis on the sample and sampling methods, and have included justifications for using Grounded Theory and the methods stated in this chapter. I have also been transparent in the final chapter of this thesis whereby I document the strengths and limitations of this research, thereby adding transparency and credibility to the study. By doing this I have addressed the questions Charmaz (2006) states as criteria for credibility, addressing how I achieved familiarity

with the setting and topic and demonstrating how the range, number and depth of my observations have supported me but also limited me in doing this.

Originality

This study makes a number of original contributions to knowledge and does so in a way that offers 'new insights' about children within X-ray settings. Charmaz (2006) suggests that novel ideas are of significance if they can further thinking, research and practice and the worth of a Grounded Theory study rests on the analytical insights it provides. In the scoping review chapter, I have identified how there is a dearth of literature that explores children's communication during an X-ray procedure or documents their experiences using their direct accounts. This study provides new insights into children's experiences of a procedure and how they communicate during it, through the development of conceptual categories and a core category that moves this study toward developing an interpretive theory.

The originality of this research stems not only from my outsider position and my 'different' knowledge of the field but also from my rigorous approach to being open and adaptable to the data. Charmaz and Thornberg (2020) recommend going back and forth between the data and the developing analysis and playing with the data to look for all possible theoretical explanations.

Resonance

Throughout this thesis, I have documented, often in depth, the stages of Constructivist Grounded Theory and how I have aligned my work to them. This includes, but is not limited to, the processes of theoretical sensitivity and sampling, memo writing and coding. Hall and Callery (2001) suggest that the previous thinking around what makes Grounded Theory studies 'rigorous', fails to address the nature of the relationship between the researcher and the participants in the study, and thus, this is a key consideration in and a central tenet of Constructivist Grounded Theory. Therefore, throughout this thesis, I have addressed my role as a researcher and the role of children and parents. I have provided accounts of how I have remained reflexive and detailed the methods I have designed, the way I used them and my role in shaping the research process and the subsequent data I collected and analysis of it.

I have tried hard to gather rich data from participants, meaning being open to the empirical world I was studying and a willingness to understand children and parents experiences, as well as experiences in a radiology department as an 'outsider'. In this way, I hope that my developed categories and the discussion of how they work towards developing an interpretive theory and imaginative understanding (Charmaz, 2006) would 'make sense' to the children and parents within a radiology department.

Usefulness and fit

I recognise that whilst CGT is context dependent and my work developed as a result of the relationship between the participants, and myself the work contributes to highlighting how communication with children during their X-ray could be improved. This work aims to be useful in adding to our understanding of the limits in how we interact with children within hospitals. The scoping review conducted as part of this PhD highlights how this new interpretation is likely to have relevance to other healthcare settings where children are cared for.

Within the discussion chapter, I am able to show how the concepts and core category fit extend and challenge the ideas about children's communication and experiences during X-ray procedures

5.10 Summary of research methods

In this methods chapter so far, I have provided details on the research design, the recruitment of children and the different methods used to observe and interview children and their parents about their experiences of having an X-ray procedure. This chapter has also discussed the ethics approvals and ethical considerations that underpinned the study. The observational and interview methods used in this study worked well to meet the aims of this research and engage with children and parents. The activity booklet facilitated children's active participation and promoted their voice in the research. In the following section I provide details of the methods used to analyse the data aligning to Constructivist Grounded Theory (Charmaz, 2006).

5.11 Data Analysis

As a Constructivist Grounded Theory methodology (Charmaz, 2004) was used in this study, this required me to actively interpret the observation and interview data collected.

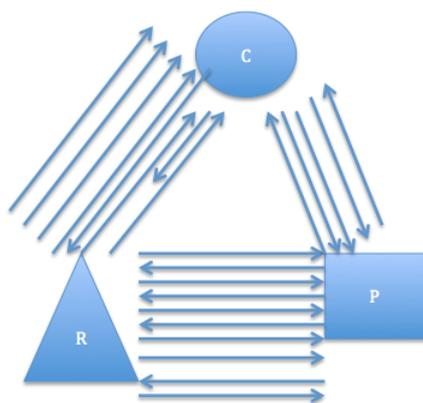
Analysing data in line with a Constructivist Grounded Theory approach is non-linear. Data collection, analysis and the conceptualisation of theory occur as an iterative process from the beginning of the research until a theory is developed. In keeping with the principles of Grounded Theory and specifically Constructivist Grounded Theory, theoretical sampling, constant comparison through analysis and memo writing have been adhered to throughout the process of both data collection and analysis (Charmaz, 2004). Despite adherence to the stages for analysing data recommended with the methodology, what follows is an account of the data analysis 'journey' or process I followed and the multitude of ways I tried to make sense of the data collected, guided at each stage by what I had seen, what was going on and what children and their parents had told me. Throughout I remained as grounded in the research and the data as I could, whilst also acknowledging myself and my role in the research process. This section documents the often trial and error process which I faced through analysis, justified and refined through memoing. Charmaz (2014) states that the researcher's analysis composes the story: it does not simply unfold before the eyes of an objective viewer.

This section of the chapter will present a description of the various methods used in order to analyse the data collected from the observations and interviews. As Charmaz (2003, p273) noted, in discussing Constructivist Grounded Theory, "the viewer creates the data and ensuing analysis through interaction with the viewed" and therefore the data do not provide a window on an objective reality. This means that, although there is every effort made to present the viewpoint of participants, there is acceptance that "we shape the data collection and redirect our analysis as new issues emerge" (Charmaz, 2003: p271).

As discussed in the earlier sections of this chapter, observations were recorded by hand, and the interviews were audio-recorded and transcribed verbatim as soon as possible on completion. Coding of emerging data was undertaken during data

collection and this allowed me to start to define and categorise data early in the process. Early pieces of data that were collected were initially coded as stand-alone pieces of data, constantly compared to each other and coded on a 'line-by-line' basis. In observations, this was initially quite difficult as there were no set 'lines' as such to analyse. Instead, I took each section of the observation and closely focussed on examining 'what is happening' here (Glaser, 1978). This form of coding prompted close study of the data and the beginning conceptualisation of ideas (Charmaz, 2006, p11). The purpose of initial coding is to start the process of fracturing the data to compare incident to incident and to look for similarities and differences in beginning patterns in the data (Chun Tie et al., 2019). Initial coding worked from the ground up and was based on the actions observed in the observations, working in this way, helped to reduce the likelihood of superimposing my own preconceived notions on the data (Charmaz, 2006).

During the initial coding phase, I tried hard to look at the data in many different ways, examining the multiple realities that exist in different ways. Taking sections of the data I collected, I began diagramming. To allow for a more thorough understanding of the communication, graphics were produced to explore communication that occurred between children, parents and radiographers. I produced diagrams and graphics that helped me see and get a feel for "what is happening here" (Charmaz, 2006, p24) this is linked to mapping processes discussed by Charmaz (2006) as an important part of Grounded Theory analysis. I began by illustrating who was talking to who by using various shape graphics – child (circle), parent (rectangle) and radiographer (triangle) and I used various arrows and graphics to help me visualise the data in detail by directing them towards who the exchange was for and how it was received (Figure 7). At first, this appeared to work and represented the data well, however, as I continued, I realised that diagramming in this way was sometimes messy and unclear, especially for the longer procedures or those with more frequent communication. I changed my approach and the layout of the diagram to an A4 page that showed each verbal communication more clearly.



Notes:

Clear 'conversational' back and forward exchanges between R and P- "talking to" parent
Lack of communication from the child to R
Lack of responsive communication from P to C
R to C communication is "talking at"- lack of communication back
Child tried to join in but parent shut this down, then radiographer

Radiographer to child: Hi, come on in, I'm [radiographer's name], I'll take your picture today
 Parent to radiographer: Hi, I'm [parent's name], I'm [child's name] Mum
 Radiographer to Parent: Hi [parent name], can I just run through a few details, can I ask when her birthday is and where you live?
 Child: My birthday **interrupted**
 Parent to child: I'll do it
 Parent to radiographer: It's the [child's d.o.b], and our address is [address]
 Radiographer to parent: okay great thanks
 Parent to radiographer: Where do you want us?
 Radiographer: Do you think you could just stand behind that screen there and I'll get [child's name] sorted
 Radiographer to child: Can you just hop up on the bed for me?
 Child to Radiographer: Up on here?
 Radiographer: If you lie back, I'm just going to move this [referring to the machine]
 Child to Parent: Mum, is this ok like this?
 Radiographer to Child: Can you just lie back?
 Radiographer to Child: Right, we're ready; I'm just going to go behind here
 Child to Parent: Mum?
 Radiographer: If you just lie nice and still, try and keep your hands up where they are
 Pause in communication
 Radiographer to Parent: Right, we're all done, you can come out now **laughs**
 Child to Parent: Mum, I was trying to tell you something
 Parent to Child: I know but the lady was talking!
 Radiographer: Sorry!
 Parent to Radiographer: We're good to go now, yeah?
 Radiographer to Parent: Yeah course!

Figure 7 An example of an early stage analysis graphic (electronic version)

I formulated numerous codes and aimed to describe actions. Examples of these initial codes included 'talking at', 'talking to', 'speaking up' and 'joining in' and in the interviews codes were often the children's own words (in vivo coding) and included 'fearing', 'the unknown', 'frustrating' and 'needing'. These initial codes were not intended to highlight topics but instead were focused on actions (Charmaz, 2009) and I ensured that by using the words children said and the action words I remained close to the data and therefore the meanings the children were conveying about their experiences instead of using "an alien professional language to describe the phenomenon (Charmaz, 2006:p49). I tried hard during this initial coding to focus the codes on in vivo coding and the use of gerunds (words ending in -ing), this was to ensure that the codes reflected actions rather than reducing the important notions to mere topics that lost the sense of action (Charmaz, 2006). Working in this way helped me to see who was talking to who and how such communication was received, from this I identified that the communication in a child's X-ray procedure was involving,

interrupting or ignoring the child. This was identified from the graphics and constant comparison of data both within the observation and with other observations. The identification of the different types of communication became titles of the categories and was grounded in the data I analysed. They developed in an authentic way to reflect and remain grounded in the data that was collected.

This initial coding was a messy, real world research process that saw me go back and forth with the data, use post-it notes over highlighted parts of the observations, draw on my memos and incorporate handwritten ideas jotted in the margins and line spacing of the interview data. This process, at first, seemed disorganised, especially when surrounded by a cohort of other researchers using different methodologies, techniques and computer assisted qualitative analysis software. However, this initial step was invaluable to quickly understand the data that I was collecting, as I was able to immerse myself in it rather than being slowed down by the use of technology and learning new software. This hands-on approach to analysis is advised by Glaser (1998) as important within Grounded Theory.

As analysis progressed, I focussed on being more critical in my approach to coding. I reflected on the idea that data, according to Charmaz (2000) are narrative reconstructions of experience and I tried hard to reflect on the experiences children, their parents and I had during their X-ray procedures. It was at this point that I decided to combine the data for each 'family', so the data set from observations and child and parent interview data, if I had been able to recruit them to two or all three parts of data collection. Combining the data in this way aligns with Charmaz's (2006) discussion of 'diagramming' as an alternative way of integrating ideas that many Grounded Theorists use. This diagramming, in a way that I have called 'fusing' as a nod towards radiological terms, supported me to critically explore the multiple realities and social processes at play during a child's X-ray procedure. By combining the data, I unintentionally create a 'datasheet' that mapped on feelings and experiences based on children and parents interview data, onto the actions and processes that occurred during the procedure and collected in the observation.

For each procedure observed and interview conducted I combined the data. The field notes and data from the observation were transferred to an A3 sized version with each

encounter with a family being documented on this sheet (Figure 8). At first this was messy and handwritten. I quickly realised that fusing the data in this way helped paint a clearer picture of the data and so decided to draw on my earlier analysis trial and error experience and turn the handwritten datasheets in to electronic versions (Figure 9). Once complete, the A3 sheets then provided a visual and complete dataset combining all data collected based on that one procedure. These A3 sheets, called “datasheets” (Figure 9) from here on, have been an invaluable resource throughout the data collection and analysis phases of this research. This process of changing the handwritten versions helped me to immerse myself further in the data, almost similar to re-reading transcripts and being open to different emergent realities to support me to develop a conceptual understanding inductively.

The electronic versions of the datasheets (Figure 9) were far easier to follow and used a cartoon strip to visualise the observational data to prompt my memory of the 45 observations and what happened during them. The verbal data collected in the interviews with children were mapped on to each section that their account related to. For example, if a child spoke about when the radiographer positioned their leg ready for imaging, this data would be placed above the section of the observation that illustrated this action and any communication that occurred at this point. Parents data would then be mapped onto the points which related to their child’s account or if not, they would be mapped on to the section of the observation that parents chose to discuss. Each time, adding the different layers of data added a new perspective and dimension to the data that I had in front of me. The ‘fused’ data provided me with a visual and clear picture of what was happening during the procedure, alongside my diagrams of the communicational exchanges, as well as allowing me to explore how certain aspects of the communication and the procedure were described as feeling for the children and parents involved.

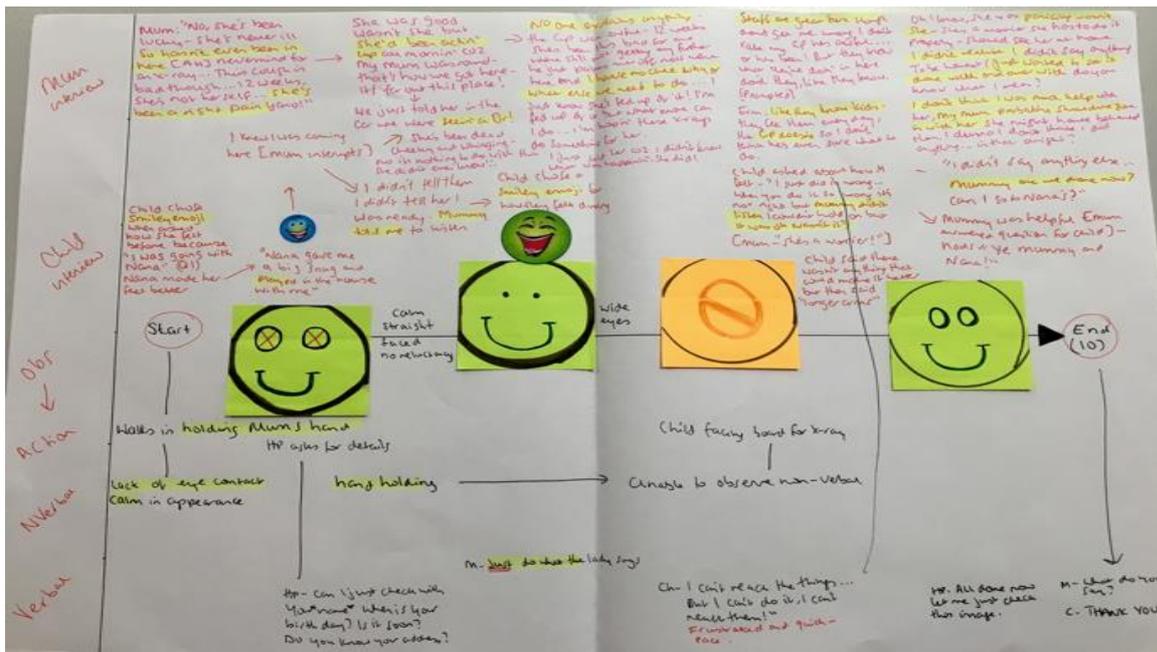


Figure 8 Handwritten fusing of observation and interview data

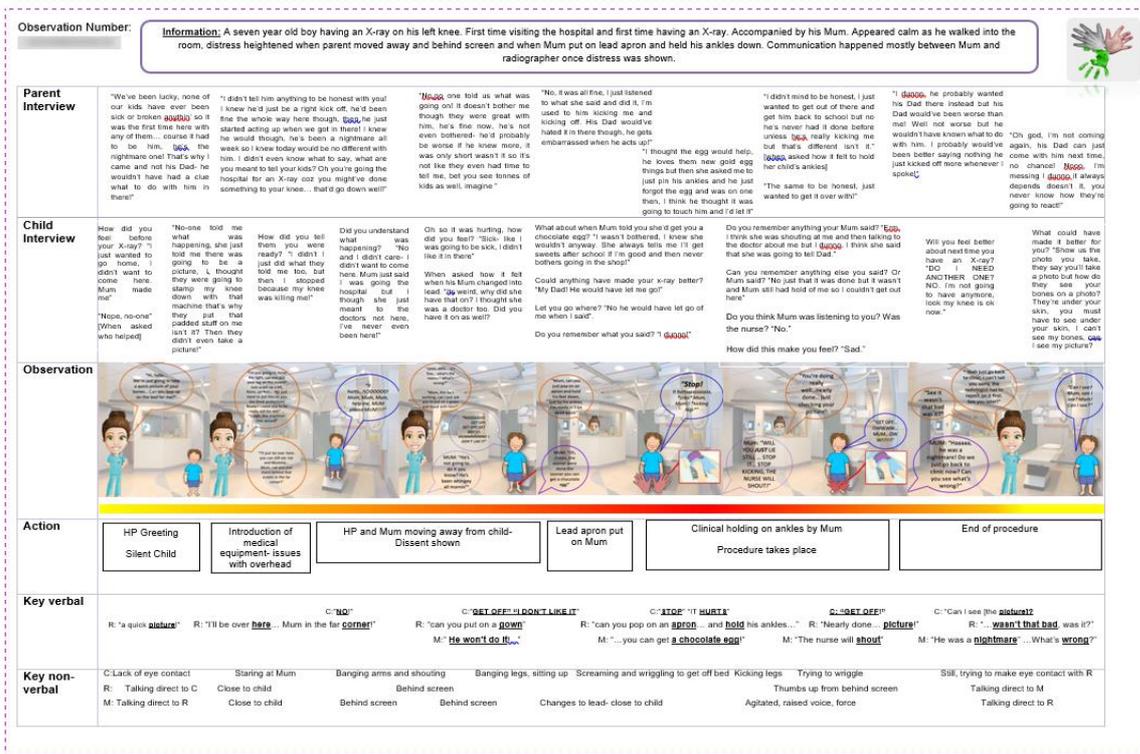


Figure 9 An electronic version of a datasheet

The datasheets supported me in my early stage thinking and theorising and also served as a means of developing a sensitivity of the data and the possibilities within it. I immersed myself in the data depicted on the datasheets and read them regularly to begin developing the initial codes, and exploring the meaning behind actions and responses to identify emergent themes that then formed the basis of other interviews and were reviewed and amended as new data was collected and ideas emerged.

Fusing the data and mapping on other data focussed my attention not only on the actions and processes within the triad (radiographer, parent and child) of who was present during a procedure but also the meanings of them. The method also allowed for an investigation into how a particular observed interaction was discussed as influencing or impacting upon children and their parents experience. I was able to find out what children and their parents thought and see if there was anything in the observational data provoked this feeling or that was different to how they described. Combining the data in this way, using this fusing method, allowed me to ask questions to assist in the analytical process such as, 'how does it feel when certain things are said or done?', 'what are the influencing factors on the procedural process?' and 'how are certain actions or inactions described as impacting on those involved?' These questions supported me in progressing the coding of the data from the initial coding to more focussed coding and supported me to examine relationships in the data at a theoretical level, seeing the bigger picture and aiming to "weave the fractured story back together" (Glaser, 1992: p72).

The A3 'datasheets' therefore provided the basis of further enquiry and the focused coding was more directed and conceptual than the initial coding process. I worked with larger segments of data, moving across and between observations, interviews, activity booklets and compared the experiences, actions and interpretations of what was happening in the child's X-ray procedure. For example, for the initial code of 'frustrating', I moved between the data to seek out all instances where 'frustrating' was noticed and how each child talked about it. Seeking out all sources of data related to this code allowed me to compare the data and be open to refining the code with each source of data.

I began focussing not only on the direction of communication and how it felt but also on the 'type' of communication that was happening (e.g. order, instruction, information, question, general conversation). Further graphics were designed and a guiding key was used with each dataset to ensure consistency and accuracy. Each verbal interaction was assigned a graphic from the guiding key or assigned a new design if the type of communication could not be justified. These graphics and the analytical decisions I was making were discussed at length at multiple supervisory meetings.

Through analysing data using an innovative combination of illustrative graphics and a novel way of diagramming, I have aligned with Grounded Theory thinking that advocates more than just text analysis and encourages diagramming in the later stages of analysis. Conducting analysis in this way has allowed me to be able to visually emphasise communicational exchanges and build an understanding of the dynamic and unique thoughts, feelings and wishes children having X-ray procedures have in order to fill gaps in current understanding of children's experiences during certain clinical procedures.

This research has resulted in my own theorising of the studied experience, that is children's communication during and experiences of X-ray procedures and aligns with Charmaz's (2006) ideas of interpretive theories and theorising whereby I have gone back and forth with the data to develop a conceptual whole, using different methods of analysis to really ground myself in the data and develop an "imaginative understanding" Charmaz (2006, p127). This means that the end point of the analysis and the interpretive Constructivist Grounded Theory developed from the multiple realities that exist and I am part of this new conceptual understanding and imaginative theoretical interpretation. This will be discussed in detail in the Discussion (Chapter 7) whereby I elucidate how I have utilised a dramaturgical lens to explore communication in a child's X-ray procedure, in a novel way. The imaginative interpretation that explores 'playing a part in the performance' is grounded in the data I have collected, and was co-constructed with children and parents and further developed throughout the analysis process.

The theorising process in Constructivist Grounded Theory is not transparent or mechanical (Charmaz, 2006) and requires remaining open to the unexpected and as

Clarke (2005) elucidates, it is a process we do and keep on doing to understand a particular situation. Locke (2007) highlights that ambiguity and uncertainty are part of the theorising process and suggests the focus of theorising be on the commonly asked grounded theory question of 'what is going on here?' In this study this meant engaging with children and entering their world as much as I could through observing them as they underwent an X-ray procedure, talking to them, listening to them and through their drawings and actions. This was also whilst considering my role as the researcher in undertaking the theorising through interacting with and analysing the data and exploring children's actions, interactions and meanings.

I have used Constructivist Grounded Theory to guide me through the analysis process. Utilising this approach meant that I remained open to all potential ways of interpreting the findings, such as through the use of metaphors and dramaturgy. However, in line with Constructivist Grounded Theory, this interpretation of the data within a dramaturgical lens will not be referred to or discussed until the final stages of the analysis process and the discussion (Chapter 7).

Chapter 6 - Findings

Children were involved, interrupted or ignored in communication during their X-ray procedure

6.1 Introduction

I aimed to explore children's communication with parents and radiographers during a non-urgent, plain X-ray procedure. I was interested in how, what and why children communicate during a procedure, and aimed to explore how children and parents experienced the procedure.

I open this chapter with a description of the context of the study and the demographic information of the children and parents who participated in the study. I then present the three conceptual categories that developed throughout the analysis and are grounded in the events, processes and accounts children provided about their X-ray procedures. The categories, 'communication where a child was involved', 'communication where a child was interrupted' and 'communication where a child was ignored', each with two sub-categories that demonstrate the strand of choice throughout the categories and how children's choice was often in conflict to adult's choice, are discussed. These categories are grounded in the observation data, interviews from the children and the parents and the things children have written, drawn or used stickers to say in the activity booklets they were provided with.

6.2 The Context of the Study

6.2.1 The Hospital

This research was conducted in a large regional Children's Hospital that has over 300,000 children and young people accessing its services each year. The hospital is one of Europe's biggest and provides specialist services for children and young people. Due to being only one of four stand-alone paediatric trusts in the United Kingdom (UK), children and young people are often referred to the hospital from a wide geographical area.

6.2.2 The Department

The Radiology department, located within the hospital, provides all imaging modalities including nuclear medicine, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). The department currently has three general rooms for X-ray, a fluoroscopy suite, an ultrasound suite, a spiral CT scanner, an MRI scanner, a bone densitometer, and a Radionuclide Imaging department. The Radiology department is busy, with radiographers performing more than 70,000 radiological procedures each year. The department is clearly signposted for children and their parents, and volunteers are often available to help direct families if they require assistance.

Clerical staff at a reception desk welcome children and parents to the department and direct them to the adjoining waiting room where there are rows of seats, a television screen showing children's programmes, a screen that welcomes children and their parents to the Radiology department and an area with a playhouse for younger children to play in. The walls of the department are painted with bright and engaging artwork provided by funding from the hospitals charity. Typically, children and their parents wait for around twenty minutes, sometimes less but also sometimes much longer, before the radiographer greets them at a set of double doors and calls the child by their first name to come through for their X-ray. The radiographer walks the child and their parent along the corridor to the radiography room. The radiographers often use this short walk to the room as a time to introduce themselves to the child and parents before entering the room and beginning the procedure.

6.2.3 The X-ray Room

This PhD project is focussed on the plain X-rays that are conducted in the 'general' X-ray rooms in the radiology department. These 'general' rooms are where the observational part of this research was conducted. The space and layout of equipment inside each room differs, including the location of the screens that parents are invited to stand behind to protect themselves from the X-ray radiation. On entering the room the first noticeable thing is the change in light, there are no windows in the room and the light is more subdued compared with the bright glass lined corridors and waiting room. The second is the large machinery that is suspended from the ceiling. The beds used for the X-rays are often central and prominent; they are beige in colour with a

darker coloured thin mattress positioned on top. In a corner of the room, away from the X-ray camera, is a shielded screened off section where the radiographer is positioned to take the X-ray images. Sometimes the parent is invited to stand beside their child during the X-ray, wearing a lead apron decorated in child-friendly illustrations. Sometimes the parent is invited to stand behind the screen with the radiographer or stand separately behind a screen on wheels.

6.2.4 The Radiology Staff

Children and their parents often come in to contact with several members of staff during their visit to the hospital and the radiology department. Within the department children and parents meet clerical staff, they may see porters wheeling beds through the waiting room, and they come into contact with the radiographer conducting their X-ray procedure. Sometimes there is an assisting radiographer or a radiologist. As well as the permanent members of staff, the department regularly provides placements for student radiographers. On the days I was present in the department, children and their parents also came into contact with me.

6.3 Overview of participants within the study

Participants in this study included children and parents. I observed 45 children aged 4-11 years old undergoing a non-urgent plain X-ray procedure. Of the children who were observed 22 were boys and 23 were girls. The mean age of children who participated in this study was 7.2 years old, with an even spread of children aged 4-11 years in the observations; this was because the sample was recruited theoretically (Table 6.1).

Table 6.1 Number of children who participated, displayed by age

Age (years)	4	5	6	7	8	9	10	11
Number of children	8	6	6	5	3	5	7	5

I have provided an overview of the participants in this study in Table 6.2. I interviewed 17 of the children. All of the children who were interviewed were given the opportunity to use an activity booklet to help them answer the interview questions. All children who

were interviewed chose to engage with the activity booklet, some engaged with all of the activities, whilst some chose to engage with only a few of the activities, mainly the sticker activities. Some of the younger children required the support of myself or their parents to help them fill in some of the activities or draw for them.

I conducted the interviews with children in a quiet area of the department, away from other children and radiography staff. After I conducted a child's interview, I interviewed the parents who were also willing to be interviewed. Nine of the children's parents were interviewed either face-to-face (n=5) or via the telephone at a later time (n=4). I provided parents with the choice to be interviewed over the telephone as often they would agree to being interviewed, but once their child's procedure had been conducted, they changed their mind, giving reasons such as wanting to settle their upset child, wanting to get back home, rushing to get their child back to school or needing to get back to work. The number of parents who volunteered to be interviewed, was relatively low, however it was important for parents to feel that they did not have to take part in the interview and this was especially the case if their child's X-ray procedure had been heightened with emotion and/or distressing for them or their child. As many parents were first-time attenders to the department, it was important that they did not feel pressured to 're-live' the sometimes emotionally fuelled procedure in an interview. The majority of parents interviewed were mothers (n=7) and only 2 fathers were interviewed. This is mostly representative of parents who attended the X-ray procedure with their child, as only one parent was allowed in the room, although many of the children attending the department had fathers, grandparents and/or siblings waiting for them in the waiting room.

The procedures varied in length, some lasted for as little as 4 or 5 minutes with the longest procedure being 18 minutes in total. Two of the procedures involved two separate X-rays, for example, a spinal X-ray required an image to be taken with the child wearing their brace and another image without it. If the child was not aware of this two-part process prior to the procedure then the first image would be taken in the brace and then a thirty minute wait would be required for the second image in order for the changes in and out of brace to be imaged. Information about whether the child was a frequent X-ray attendee or a first time attendee was collected from all children.

Their mother accompanied most children to their X-ray appointment (n=25). However, some were accompanied by their father (n=5) or both their mother and father (n=12) and others were accompanied by their mother and their grandmother (n=3). Only one parent was allowed in the X-ray room with their child and in most cases this was the child's mother whilst the child's father or grandmother stayed in the waiting room, sometimes with the child's siblings.

As described in the earlier analysis section, the data (observation, interview/s) associated with each observation were fused into one dataset and are reported numerically linked to each observation. In the identifiers I have, where applicable, made it clear which dataset I am referring to, where this data was collected from and whether it was an observation, a child's interview or a parent's interview. I have included the gender and age of the child who was undergoing the procedure.

Table 6.2 Information about participants, the procedures they were observed during, the type of communication and whether they or their parents participated in an interview

Dataset Number	Age	Gender	Frequency of X-ray appointments	Duration of X-ray procedure (minutes)	Description of procedure	Child Interview	Adults Present at appointment	Parent interviewed
Child involved category								
2	6	Boy	Never	9	Tender Elbow	-	2	-
4	4	Girl	Frequently	10	Chest	✓	1	✓ Mother
9	8	Girl	Never	7	Elbow	✓	1	-
11	5	Girl	Once	6	Dental	-	2	-
17	6	Girl	Never	6	Forearm	-	1	-
20	7	Boy	Frequently	4	Hand	-	1	-
22	7	Boy	Never	9	Arm	✓	1	✓ Mother
23	9	Boy	A few times	5	Forearm	-	1	-
27	10	Girl	Frequently	13, wait 30, 5	Spinal	-	2	-
38	6	Girl	A few times	7	Upper arm	-	1	-
41	10	Boy	Frequently	6	Leg length (EOS)	-	2	-
42	5	Girl	Frequently	8	Feet	-	1	-
Child interrupted category								
1	10	Boy	Never	8	Foot	-	1	-
5	4	Boy	Very frequently	18	Pelvis	-	2	-
6	9	Girl	Frequently	13	Spinal (EOS)	✓	1	✓ Mother
8	6	Girl	Never	9	Chest	✓	2	✓ Mother
10	7	Boy	Once	13	Forearm	-	1	-
13	10	Girl	A few times	15	Knee	-	1	-
15	4	Boy	Frequently	7	Pelvis	✓	1	✓ Father
16	11	Boy	Never	4	Knee	-	1	-

24	7	Girl	Never	4	Chest	-	2	-
25	7	Boy	Never	8	Foot	✓	1	-
29	4	Boy	Never	5	Chest	-	2	-
33	9	Girl	Never	4	Hand	✓	1	-
34	10	Girl	Never	8, wait 30, 7	Spinal	-	2	-
35	5	Girl	A few times	8	Dental	-	1	-
36	5	Boy	Frequently	10	Ankle	✓	1	✓ Mother
37	9	Girl	Never	12	Leg/ lower limbs	✓	2	✓ Mother
39	6	Boy	Never	9	Hand	-	1	-
43	9	Boy	Never	19	Chest	✓	2	-
Child ignored category								
3	11	Boy	A few times	6	Dental	-	1	-
7	4	Girl	Never	18	Fluoroscopy	-	1	-
12	5	Boy	Never	8	Chest	-	1	-
14	4	Boy	Never	9	Chest	-	1	-
18	11	Boy	Very Frequently	6	Leg/ lower limbs	✓	1	-
19	4	Girl	Never	17	Dental	-	1	-
21	4	Boy	Never	6	Pelvis and hips	✓	2	-
26	5	Girl	A few times	11	Dental	✓	2	✓ Father
28	6	Girl	Frequently	12	Leg lengths EOS	-	1	-
30	8	Boy	Never	6	Knee	✓	1	-
31	11	Girl	Frequently	11	Spinal	-	1	-
32	5	Boy	Never	8	Feet	✓	1	-
40	8	Girl	Never	6	Chest	-	2	-
44	11	Girl	Never	5	Ankle	✓	1	✓ Mother
45	10	Girl	Frequently	12	Forearm	-	2	-

Key: ✓ = Participation in interview - = No interview took place

6.4 Introduction to the study findings

I have analysed the data collected through observations and interviews in line with a Constructivist Grounded Theory methodology, as discussed earlier. This approach enabled me to categorise the data with a focus on examining the specific ways children communicate and are communicated with and how this makes them and their parents feel during an X-ray procedure that occurred throughout a child's X-ray procedure.

Through focussed and extensive analysis of the data, I have distinguished three different types of communication that occurred between a child, their parent and a radiographer during an X-ray procedure. I foreground children's voices throughout this chapter to support my interpretations and understandings.

I have constructed this findings chapter around the three main categories of communication during a child's X-ray procedure and the sub-categories within them. I have labelled the three main categories, *communication where a child was involved*, *communication where a child was interrupted* and *communication where a child was ignored*. Each category has two sub-categories and these sub-categories emphasise how different ways of communicating during a child's X-ray procedure opened up or constrained children's communication with the adults present.

I am mindful that the words - involved, interrupted and ignored – I have used as category titles may provoke preconceptions. As an example, involvement and *involving* a child is generally associated with positive experiences and practice, especially in recognition of the importance of children's voice and their right to express it. Similarly, *ignoring* a child would most commonly be associated with negative experiences and practice due to the word *ignored* provoking images of someone being excluded or disregarded. Therefore, it is important to emphasise that the order of the categories does not reflect good to bad practice nor does it reflect children's positive or negative experiences. Instead, I have chosen to label the categories and present them in this order based on the presence and extent of communication and how parents and

radiographers responded. Throughout this findings chapter, I draw attention to the complex nature of communication within each of the categories and I challenge the assumptions evoked by the words used in the category headings by drawing on children and parents interview data that elucidates how certain communication made them feel. Despite the categorisation of data into three distinct types of communication in an X-ray procedure, I acknowledge that communication and children's experiences of undergoing an X-ray procedure are unique, complex and nuanced.

A summary of the three categories and the key findings (Table 6.3) has been developed and included to provide a visual introduction to the key ideas that will be discussed throughout the rest of this findings chapter. I refer to the data in each of these categories using data labels that state who spoke (mother/ father/ boy or girl), if the data is the words from the radiographer then I have stated this in the text. Following the information about who spoke, I have included their participant number and age and I have abbreviated interview to 'int' and observation to 'obs'. As I have mentioned previously, the activity booklets were used to prompt children and to put them at ease to answer the questions in a way that was possibly more appealing and attainable. Although I have not analysed the children's drawing or sticker activities separate to their interview data, if the activity booklet demonstrates a point clearly, I have included it as an image and this is referred to as part of the child's interview. As an example of the participant's data labels, if I have stated, (Mother of boy, P22, 7yrs: int) I am referring to data contained within dataset number 22, from the interview with a Mother of a boy who is 7 years old.

Table 6.3 Children's Communication in an X-ray Procedure: Summarised Findings

Children's Communication in an X-ray Procedure: Summarised Findings						
Main Categories	Communication where a child was involved		Communication where a child was interrupted		Communication where a child was ignored	
Description of main category	Involvement was characterised by an abundance of communication between children, parents and radiographers and children's opinions and perspectives were sought with the expectation they could change or influence what happened in the X-ray procedure.		Interruption was characterised by children's communication that was incomplete due to adults interrupting them. Interruption halted communication and either confirmed a child's wishes or adults changed the meaning of what children were communicating.		The ignored category is characterised by a lack of communication by the child or to the child. Instead, children's communication was overlooked, silenced or not sought by adults. Children had very little power to change or influence what happened in the X-ray procedure.	
Participants	Observations n= 12 Child interviews n= 3 Parent interviews n= 2		Observations n= 18 Child interviews n= 8 Parent interviews n=5		Observations n= 15 Child interviews n=6 Parent interviews n=2	
Sub-categories	Involvement in communication initiated by a child	Involvement in communication initiated by an adult	Communication interrupted for the benefit of a child	Communication interrupted for the benefit of an adult	Communication ignored by a child's choice	Communication ignored by an adult's choice
Description of sub-category	Children wanted to be involved in communication and looked to the different adults present to meet their needs. They reported feeling confident and supported.	Adults tried to involve children. Communication was often not about the procedure. Children felt talked <i>at</i> and communication was reported as not always meaningful.	Some children had their communication halted to correct their misconceptions. Sometimes parents would repeat what their child was saying perceiving to relay this in a more understandable way.	Adults sometimes had their own agenda and would interrupt children so that the procedure could be completed as quickly as possible. Adults would skew a child's wishes.	Some children felt relieved when adults did not speak to them. They reported that they felt that too much talking would mean the procedure lasted longer.	Some children reported feeling frustrated when adults talked <i>about</i> them. Children would communicate but would be silenced and their voices would go unheard.

6.5 Communication where a child was involved

“They were good with him weren’t they, they didn’t bother with me, and I just stood and watched. They let him take the lead and he did... I liked that” (Mother of boy P22, 7yrs: int)

6.5.1 Introduction to the ‘communication where a child was involved’ category

In this category are the datasets whereby analysis has identified that during the X-ray procedure communication mostly involves the child. This category is characterised by an abundance of communication during a child’s X-ray procedure, although children did not necessarily always discuss this as a positive thing. The communication observed occurred between children, parents and radiographers. Children spoke often and were often spoken to and included in communication. Children’s opinions and perspectives were sought with the expectation they could change or influence what happened in the X-ray procedure.

I have chosen to present the ‘*communication where a child was involved*’ category first to represent the X-ray procedures that contained the greatest quantity, albeit not always quality, of communication *to or with* the child undergoing an X-ray procedure.

Children’s involvement in communication during their X-ray procedure occurred in two main ways, identified within two sub-categories. Children enforced their own involvement in communication by initiating some of the communication. Other communication was initiated by the adults present during the X-ray procedure by them speaking directly to children (although sometimes this was not about the procedure) or seeking their opinions and sharing decisions.

I have purposefully used the term *involved* in this category to emphasise what the communication and interactions ‘looked like’ during the observed procedures. Further insight and theoretical depth to this category was gained through children and their parents reported experiences of the X-ray procedure during their interviews.

6.5.2 Data in the ‘communication where a child was involved’ category

From the 45 observations and also the interview data I collected, I analysed and categorised 12 datasets as communication where a child was involved. The data included observations of boys (n=5) and girls (n=7) as well as a data collected with a 4-year-old girl, an 8-year-old girl and a 7-year-old boy who participated in an interview, and two mothers who were also interviewed (Table 6.4). The age of children in this category varied from 4 to 10 years old. Data categorised as having communication where a child was involved is mostly obtained in this category from 6-year-old children (n=3) who make up 25% of the total datasets in this category. The younger children, such as the 4 year olds make up only 8.3% of the datasets and no data from the 11 year olds observed or interviewed were categorised as having involved the child in communication.

Table 6.4 Participants in the communication where a ‘child was involved’ category

Dataset	Age	Gender	Procedure description	Child Interview	Parent Interview
2	6	Boy	Elbow	-	-
4	4	Girl	Chest	✓	✓
9	8	Girl	Elbow	✓	-
11	5	Girl	Dental	-	-
17	6	Girl	Forearm	-	-
20	7	Boy	Hand	-	-
22	7	Boy	Arm	✓	✓
23	9	Boy	Arm	-	-
27	10	Girl	Spinal	-	-
38	6	Girl	Arm	-	-
41	10	Boy	Leg EOS	-	-
42	5	Girl	Feet	-	-

Key: ✓ = participation in interview - = no interview took place

6.5.3 Involvement in communication initiated by children

Communication in this category was most often dyadic and direct and was initiated by a child to a radiographer. Children often initiated communication first

in the procedure by themselves, and radiographers asking children the 3-point check directly rather than asking the child's parents often enabled this. This was identified in 10 of the X-ray procedures in this category with the other 2 X-ray procedures being conducted using the EOS machine. In these procedures (Girl P27, 10yrs: obs and Boy 41, 10yrs: obs) the radiographer asked the child's parent the 3-point check details whilst the child changed in to their hospital gown, an action that is unique to the EOS procedures. The subtle action of inviting children to talk to the radiographer demonstrated to children they can and are welcome to communicate during the procedure. It was observed that from the 10 X-ray procedures where this happened, 8 of the children responded directly to the radiographer without hesitation or prompt from their parent and there were only 2 children who did not respond to the radiographer.

The children in this category communicated their autonomy by actively engaging with the radiographer or their parent. Observations noted that all of the children who facilitated their own involvement in communication were either the first to speak when they entered the X-ray room, greeting the radiographer or their first interaction was by responding to a question, to answer their name, address and date of birth. A child speaking first seemed to relay to their parents that they did not have to answer on their behalf and many parents responded positively to their child's communication by providing a gap and time for their child to speak to the radiographer.

Communication in this category occurred freely with the adults and by children's own choice. The general comments that I made in my observation field notes described children's communication in these X-ray procedures as 'chatty', 'conversational' or 'friendly'. Communication happened mostly without direction or prompt from the child's parent or from the radiographer. The following excerpts from observations can be used as examples to this point, the underlined text mirrors my notes and was my way of emphasising aspects of the procedural encounter that were most notable;

Child walked in holding Mum's hand, spoke first to the Radiographer "hiya!" Radiographer responded with "Hello! Are you ok?" Child talked about her cough in detail for a four year old and

then demonstrated her cough to Radiographer. Radiographer responded to child “should we try and see if we can see anything inside and make it better” then continued with the 3-point check and child answered all questions without hesitation or without looking to parent. Child’s Mother had to correct some of the answers (child was unsure of address). Child asked a similar question back to the radiographer, “what’s your name?” (Girl P4, 4yrs: obs).

Child entered the room and went straight towards the Radiographer and asked them if they could lie on the bed “I lie here?” Radiographer responded by saying they had to check a few things first and then the child will need to “sit on the chair not on the bed” (Girl P11, 5yrs: obs)

Whilst most children waited and chose to involve themselves in the communication after adults had spoken, as the two observation notes demonstrate, some children *involved themselves* in communication from the very first opportunity, right at the start of their X-ray procedure, before the radiographer could perform the 3-point check with the child. In these instances, children’s communication stemmed from their excitement demonstrated by a 6-year-old boy’s communication when he entered the room, “this is SO cool, lasers, lasers, lasers” (Boy P2, 6yrs: obs) or curiosity about the procedure demonstrated by a 7-year old boys question to the radiographer, “so just how can you see my bones with this [referring to the X-ray machinery by waving finger]” (Boy, P20, 7yrs: obs) or to communicate the things they wanted the radiographer to know such as the 4-year-old girl who spoke to the radiographer about her “poorly cough” that she had had “for weeks” and that “hurts” (Girl P4, 4yrs: obs).

I found that when children initiated their involvement after the opening moments of a procedure, where the adults would talk and checks were made, their communication was often about the procedure and the machinery. An example of this was when one child waited to join the communication and then asked the radiographer “so you’ll not be here so who will take the picture?” (Boy P23,

9yrs: obs). This communication, initiated by the child, shows how the child involved himself in communication by communicating his uncertainty about the procedure and what was happening. The radiographer used this opportunity to respond to the child's communication with an explanation, [I] stand behind the screen to protect myself, I'm still here and can see you but don't be worrying because you're perfectly safe where you are!" (Boy P23, 9yrs: obs). This type of dyadic communication sustained a child's communication in the procedure as their communication was understood, acknowledged and responded to directly. This was often with the answer a child needed to feel at ease and more confident as a 9-year-old girl undergoing an X-ray of her elbow made reference to in her interview saying she,

"...liked it when she [the radiographer] listened and then told me what was happening so I wasn't as scared anymore..." (Girl P9, 8yrs: int)

A lot of the children initiated communication by asking the radiographer questions such as, "*do I lie like this?*" (Girl P42, 5yrs: obs) "*can I put my arm down?*" (Boy P20, 7yrs: obs) or sought information like "*what does this do?*" (referring to the foam positioning block) (Boy P2, 6yrs: obs) or "*why is the light in a cross shape and not a circle?*" (Girl P38, 6yrs: obs). The following excerpt from my field notes demonstrates that these interactions stood out to me as prominent during these procedures.

'Child dominates communication- happy to speak to the Radiographer. Communication was mostly from child to radiographer. Procedure was child-led' (Boy P2, 6yrs: obs)

Even when it was obvious that the radiographer was not entirely sure of the answer, they would respond to children and answer the questions they asked. For example, when the child in the above asked why the light on the X-ray machine was in a cross shape and not a circle, despite hesitancy, the radiographer responded by explaining,

"It helps me find where to take a picture... that's a good question!"
(Girl P38, 6yrs: obs)

Such responsive communication even when the radiographer was not sure of the answer was reassuring to children and I noted in my observations that were observed as being *“accepting of the radiographers answer and trusting them”* (Girl P38, 6yrs: obs), I noted this down in my observation notes as being identified from the non-verbal communication demonstrated by the child who *“confidently nodded, glanced at the light and put their hand with the cross of the light reflecting on her skin, as though show understanding of what the radiographer had said”* (Girl P38, 6yrs: obs). The radiographer, in this instance especially, acknowledged the child’s curiosity and query and provided a suitable answer as well providing a subtle nod to the child that questions were “good” to help open up communication between them.

Some children directly communicated their needs to the radiographer and/or their parents. The following observation showed a child initiating communication to voice what would help them through their procedure.

Child: *“Can my Mum stand with me, why does she have to be over there [referring to behind a safety screen]...”*

Radiographer: *“Oh, yeah course... sorry about that! Mum, there are safety aprons over there, pop one over your head and that’ll do fine to protect you”*

My observation notes: Communication responded to by Mum being allowed to stand with child- child’s wishes acknowledged. Child’s communication responded to before communication with parent happened. Radiographer was direct with Mum, no choice offered (Boy P23, 9yrs: obs)

These examples of child-initiated communication demonstrated that children could exert some level of control over what happened or did not happen during their procedure. Within this sub-category children’s communication was often direct which meant that adults heard them and responded to their communication with action, for example *“I need you [Mum] here”* followed by the child’s mother putting on a lead apron and standing with them (Boy P23, 9yrs: obs) or *“I’m too low down”* followed by the X-ray table being raised (Girl

P9, 8yrs: obs) or “*I can’t see you Mum*” (Boy P23, 9yrs: obs) followed by the portable safety screen being moved. This type of communication enabled change to happen to suit the needs and wishes of the child; their verbal communication could influence and shape what happened during the procedure.

In the interviews, children who had initiated communication during their procedure reported that they had felt confident in talking; they said that they had felt “*ok*” and that it was “*easy*” (Girl P9, 8yrs: int) to talk to the radiographer. This is further shown in the following quote whereby an eight-year-old girl discussed remembering conversing with the radiographer about what was happening during their procedure.

“I knew I could just ask, so I just asked her if it was happening so that I knew when the machine was moving. I was asking if it was happening now or later” (Girl P9, 8yrs: int)

This open communication initiated by children, was also recognised by parents. Parents discussed that they liked it when the radiographer involved their child, as seen in the quote chosen to open this section,

“They were good with him weren’t they, they didn’t bother with me, and I just stood and watched. They let him take the lead and he did... I liked that” (Mother of boy P22, 7yrs: int)

A mother of a 4-year-old girl explained how the radiographer listened to their child’s direction to ‘wait’ before continuing with the procedure.

“I think she knew it didn’t feel right and she wasn’t straight on to the board, so she asked her (the radiographer) to hang on a sec... I think she just said stop didn’t she?... I’m glad she listened to her”
(Mother of girl P4, 4yrs: int)

The above quote shows how some children were able to influence what happened during their procedure by instructing the radiographer or their parent, often enabled by the radiographers communication that sought the child’s choice. Children’s instructions in these procedures were acknowledged and

acted upon by the adults present, as shown in the excerpt from an observation below:

Child: "I've got a pain- it hurts me like this"

Radiographer: "what is the best way for you to be comfy in there [ref. to the EOS machine]"

Child: "Can I put my arms like [by side]?"

Observation: Procedure conducted with arms relaxed instead of on shoulders (Girl P27, 10yrs: obs)

The communication from adults observed in these procedures was responsive to a child's questions or statements; on no occasion was a child's communication blocked, interrupted or not responded to by adults. Children initiated communication and then asked questions about the procedure throughout the duration of the X-ray. Below is an example of a 5-year-old initiating communication whilst she was standing in position for her foot to be X-rayed and then continuing with the dialogue uninterrupted during the procedure:

Child to Radiographer: "Is it happening?"

Radiographer to Child: "The X-ray?"

Child to Radiographer: "Yes?"

Radiographer to Child: "Soon, yes!"

[following a separate conversation]

Child to Radiographer: "Has it happened?"

Radiographer: "All done now!" (Girl P42, 5yrs: obs)

Children frequently questioned instructions from radiographers or parents before deciding to complete an action, asking first why they were being required to do something to help them decide if they wanted to. For example, children's curiosity was often triggered when the X-ray machines would start to move or they were asked to position their limbs or body in a certain way, these actions were mostly commonly followed by 'why' questions from children, such as "Why aren't you taking a picture of my arm?" (Boy P20, 7yrs: obs) and "why will the

machine touch me?” (Boy P2, 6yrs: obs) and “why do I need to keep still?” (Girl P42, 5yrs: obs). The radiographers in the involved procedures were observed as always being responsive to a child or parents questions, I recorded that their answers were ‘quick’, ‘accurate’ but also ‘brief and to the point’. As an example, when the six year old boy asked whether the machine would touch him, the radiographer instantly answered in a ‘reassuring manner’ as the following excerpt shows;

Child to Radiographer: Will the machine touch me?

Radiographer: [instantly reassures] No, no it really won't, the light is just on you, nothing will move closer. (Boy P2, 6yrs: obs)

Adults supported a child who had chosen to initiate communication throughout the procedure and the thread of communication initiated by them ran from the beginning and throughout the procedure. This thread meant that when children had initiated communication, adults sustained their involvement by presenting them with key moments during the procedure to initiate their choices and questions. Children’s responses to radiographers could alter the trajectory and events that occurred in the procedure. These key questions encouraged and welcomed the children to join in the communication during the procedure. Often these questions invited children to make choices in relation to ‘small’ decisions during the procedure. Small decisions included radiographers frequently asking “*should we start?*”, (Boy P2, 6yrs: obs; Girl P9, 8yrs: obs) as well as questions such as, “*do you want your Mum to hold you up?*” (Girl P11, 5yrs: obs). Sometimes parents would repeat the radiographer’s questions to their child and this seemed to provide extra encouragement to their child to join in the conversation and show them that the question was for them and not their parent. Observations showed that despite parents relaying the radiographers question to their child, interestingly the child would direct their response directly to the radiographer, and this was noticed on three separate occasions.

An important question that enabled children to become involved in their procedure and to have a choice was asking them when they were “*ready*”. This was observed as a key moment in a number of procedures and was evident when the child communicated “ok” (Boy P23, 9yrs: obs) or “*ready*” (Boy P41,

10yrs: obs) or “let’s go!” (Girl P11, 5yrs: obs) to the radiographer and exerted their involvement in the decision to start. It was interesting that in the procedures where children were asked to decide when to begin, they also communicated when they wanted something to change such as “I’m not comfy” (Boy P2, 6yrs:obs) or “can I turn round?” (Boy P2, 6yrs:obs) as well as “can we finish here?” (Boy P23, 9yrs:obs) The invitation to join in by signalling when to begin the procedure seemed to also open up opportunities for children to say when they wished to pause or stop the procedure.

During the interviews, children acknowledged the role of the radiographers in facilitating what they communicated. An eight-year-old girl was observed asking for a pause during her X-ray procedure - “can we hold on a minute?” (Girl P9, 8yrs: obs) and in her interview after the procedure, she spoke about feeling able to ask for a pause and her expectation that change would happen because she voiced her choices.

“My arm was hurting, so I just wanted her [radiographer] to wait a minute before she took my picture and I wanted her to wait so I could get it comfy again” (Girl P9, 8yrs: int)

This quote shows how this child felt able to direct their communication directly to the radiographer and how they were confident in asking for a pause to the procedure. From my observations, the children in this category neither showed fear nor talked in the interviews about feeling fearful or scared about talking to the radiographer. The children were confident to open up communication and ask for aspects of the procedure to change such as the way they were positioned to increase their own comfort:

Child to Radiographer: “My arm hurts like this”

Radiographer to Child: “What helps?”

Child to Radiographer: “Putting my hand underneath here to hold it” (Girl P9, 8yrs: obs)

This excerpt from an observation demonstrates that children, who were often protective of their injuries, felt able to tell the radiographer when something did not feel right and the radiographer responded to support the child’s control

rather than limit it. The radiographer in the above quoted procedure was unable to let the girl put her hand under her elbow as it would interfere with the observation, instead I noted how the girl was 'offered an alternative foam block for comfort' (Girl P9, 8yrs: obs).

Children further demonstrated that they understood that during the procedure they were the focus of attention from both their parents and the radiographer. They demonstrated awareness of this through asking to be rewarded if they were "good" (Boy P2, 6yrs:obs) or "brave" (Girl P42, 5yrs:obs), and this was regardless of their age. This notion of a reward sometimes came from parents. In one procedure a parent was observed saying "*remember what I told you, be good and we can get a surprise!*" (Girl P42, 5 yrs: obs) to which I noted that the child responded by 'standing still', 'speaking quietly' (Girl P42, 5 yrs: obs) and one child was observed 'crossing their arms and putting their finger on their lips' (Girl P38, 6yrs: obs), after rewards were mentioned, for a brief moment before the radiographer re-positioned her. Children had been told that if they "*behaved*" (Mother of girl P4, 4yrs: obs), "*sat still*" (Mother of girl P42, 5yrs:obs) or "*were good*" (Mother of girl P27, 10yrs: obs), they would receive a promised reward such as "*chocolate eggs*" (Mother of girl P4, 4yrs: obs), or a later return to school (Mother of boy P23, 9yrs: obs) as seen in the following negotiation,

Child to Parent: "*If I'm good, I can go in [to school] after lunch can't I?*"

Parent to Child: "*Behave yourself then!*"

Child to Parent: "*That wasn't a no!*" (Boy P23, 9yrs: obs)

The idea of rewards influenced how children behaved and even the older children hoped for rewards during their procedure, reporting that things like "stickers" (Figure 9) would help make things better.

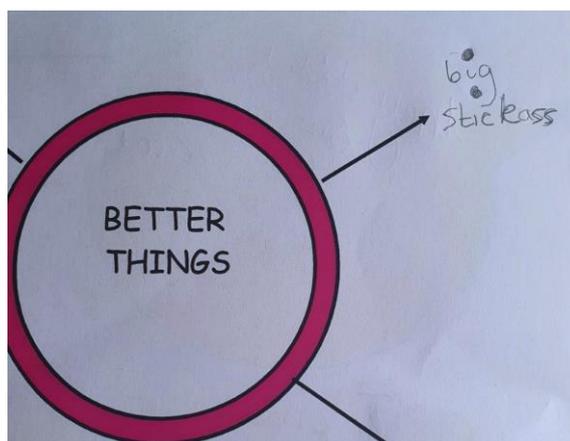


Figure 10 Boy P23, 9yrs: int said that 'stickass' (stickers) would make things better during the procedure

However, children's behaviour to "get what they want" (Mother of girl P4, 4yrs: int) was not always associated with positive behaviour. The following parent described her child as being "*needy*" (attention seeking) for trying to enact control through being upset, evidenced in the following excerpt:

"Trust me, she is sneaky. She knows if she cries that they'll let me stand with her. She's had these [X-rays] a million times, she knows she goes in, lies on the bed, and it's as straightforward as that but she's needy so she cries and gets exactly what she wants!" (Mother of girl P4, 4yrs: int).

This quote highlights how parents were not always mindful of their children's needs and that when a child attempted to control aspects of procedure it could be seen as devious. In other cases where a child was upset, the momentum of a procedure would slow or would stop so that a child could be comforted by their parent with cuddles or by "*having sips of juice*" (Girl P42, 5yrs: obs). On one occasion a child decided once their procedure had started that she wanted "*Dadd*" as she wrote in the activity booklet during her interview (Girl P27, 10yrs: obs), and so, the mother obliged and asked the radiographer if she would "*mind waiting*" (Mother of girl P27, 10yrs: obs) so she could go to fetch the father from the waiting room. The radiographer appeared to welcome this change by calmly agreeing that it was "*fine*" (Girl P27, 10yrs: obs). The mother left the room and then father entered the room on his own which appeared to confuse the

radiographer, as she seemingly was expecting the mother to return as well, saying “*are we waiting for Mum too?*” I observed that the child appeared to be ‘happier’ (Girl P27, 10yrs: obs) with her father in the room and said, “everything is ok now, I feel better!” (Girl P27, 10yrs: obs). Although this was not in response to any communication so it is not known whether this is because her Father was with her or if she was referring to her injury.

6.5.4 Involvement initiated by an adult

This sub-category is focussed on children’s involvement in communication during a procedure initiated by either their parent or radiographer. On occasions children would initially be quite quiet as they entered the X-ray room and adults, often the radiographer, would initiate communication directly with a child. The observations of this type of communication involved adults talking ‘at’ a child, with adults asking multiple questions and making multiple directions. It was observed that in one procedure, even before the imaging took place which normally happens quite quickly, one radiographer had asked a child seven non-procedural questions aside from the three-point check of name, date of birth and address. My observational notes recorded the detail of six of the non-procedural questions that radiographer asked the child,

“Have you been in school this morning?”

“What lessons have you had already?”

“Did you do anything nice for your lunch?”

“Is your Mum taking you back to school?”

“Are you going straight back in?”

“Talk to me about what you’re doing later” (Boy P22, 7yrs: obs)

In the interviews, parents discussed how they preferred it when the radiographers talked directly to their child rather than to them. They reported that this direct communication helped their child trust the radiographer's instructions. Parents also discussed how their child was more likely to comply with instructions and directions if they came directly from the radiographer. One parent discussed this in detail:

“I remember her asking him to move his arm and sort it so that the light thing was on it... I was just stood there and was thinking to myself ‘oh here we go!’ and thinking the attitude was all gonna start, the fuss, the hassle I’ve had every day since he broke it! I just looked over and gave her the look, yeah that’s when I rolled my eyes... I was just looking like brace yourself you’re in for trouble with him now, but he just did it!! He actually just got on with it. I did well to keep my big gob shut, it goes to show though doesn’t it, like he just did it because he knows they know best, they know these injuries and they know more than he does that he doesn’t need to be scared of it... I’ve been telling him but mums never know nothing do they?” (Mother of boy P22, 7yrs: int)

In some cases the adults persisted with asking a child questions apparently in order to cajole them into joining in the communication. On some occasions, the adults continued asking questions, despite children being reluctant to respond as shown in the way they muttered a muted response and/or their body language showed that they did not want to respond by “turning away” or “looking away” (Boy P22, 7yrs:obs). A parent spoke of how their repeated questions were an attempt to know how their child was feeling;

“I just wanted to know he was ok so I kept trying to get him to talk. He’s easily scared. I wanted him to talk to me and let me know he was alright with what was happening” (Mother of boy P22, 7yrs: int)

Despite this communication being an attempt to involve a child, the parents or radiographers seemed to try too hard to engage a child in the conversation despite clear signals that a child did not want to join in. Adults in this sub-category would often force communication to fill silences with superficial ‘chit chat’. Communication was abundant but superficial, surface level and one-sided and was *to* rather than *with* the children. This superficial communication was often seemingly focussed around what adults thought children would be

interested in talking about. One interview with a child highlighted how a radiographer's well intended 'chit chat' was perceived as not relevant to them;

“She [the radiographer] kept talking, she was asking me loads of questions like all the time talking about school and football but I don't care about school and I'm not allowed to play football. It was like she thought she was my mate and not a doctor” (Boy P22; 7 yrs: int)

The children's interviews indicated that, on occasions, parents and radiographers acted and communicated in ways that the adults perceived to be meaningful, but this was not always how the child felt about the communication. Some of the observed dialogue seemed generic and over-rehearsed and did not seem authentic or individualised. This is demonstrated in the previous quote, where the radiographer was aware of the child's football injury and yet continued to ask if the child was going to play football that day.

Much of the abundant communication observed in these procedures was underpinned by a repetitive script that the radiographers used, often focussed on topics such as school, the child's hobbies or about their lunch. Radiographers and parents used these assumed 'safe/good topics' to engage with children, fill silences or distract away from the procedure. Despite the efforts of adults to engage children in conversation for distraction, comfort or support, when children were interviewed and asked about these conversations, they said that despite knowing the radiographer was talking to them the talk was not helpful. The following excerpt from an observation helps to demonstrate the dissonance between the observed adult initiated 'chit chat' and a child's recognition in the interview that this superficial conversation did not meet their needs or anxieties;

Radiographer to child conversation is dominant. Radiographer asks child *“what are you going to do at lunch?”* Talks about school. Child is quiet and is focussed on the machine. Radiographer asks whether the child has had lunch or *“what do you fancy for it?”* Radiographer is colloquial and friendly but child looks increasingly anxious. (Boy P22, 7yrs: obs)

“No-one told me what was going to happen... I thought it [the X-ray machine] was going to cut my skin open and stamp my hand down but she just kept asking me about my lunch” (Boy P22, 7yrs: int)

Despite there being high levels of communication sustained with surface level conversation in these procedures, there was a lack of direct communication and information provision to children regarding the procedure.

Surface level communication that lacked depth or explanation was also illustrated by the way radiographers provided procedural information to children, saying things such as, *“we’re just going to take a picture”* (Girl P4, 4yrs: obs), *“just like taking a selfie but of inside”* (Boy P22, 7 yrs: obs) or *“we’re going to look at your bones”* (Girl P17, 6yrs: obs). Phrases like these were used to inform children what was going to happen in a child-friendly and more understandable way. However, children in the interviews described how these phrases could be unhelpful, sometimes misleading and confusing for them. The child communicated their frustration about the procedure by saying:

“They said it was a picture but I didn’t get to see my picture!” (Girl P4, 4 yrs: int)

One of the children asked their parent to fill in the activity booklet, asking them to draw so they could talk, the parent drew pictures related to what the child said, although they were not told by the child specifically what to draw (Figure 11).

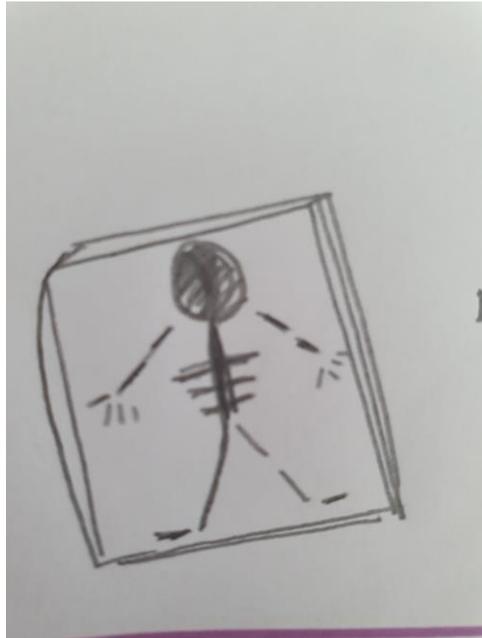


Figure 11 Girl P4, 4yrs:int - A parents drawing of the X-ray 'picture' their child said they would like to have seen

When adults directly sought children's opinions the children's responses were often short as they replied to questions with one-word answers or short comments. Although children's responses were short, they replied easily and freely without seeking confirmation from parents or relying on parents to answer for them. For example;

Radiographer to Child: "Are you ok in there, can you hear us?"

Child 9 to Radiographer: "Yes!"

Radiographer to Child: "Okay, we'll begin in a sec!"

Child to Radiographer: "It's noisy in here, sounds like an aeroplane... I'm fine though, just loud isn't it!"

Radiographer to Child: "Yeah it's noisy, can you still hear ok?"

Child to Radiographer: "Yeah, you don't need to shout so much!"

(Girl P27, 10yrs: obs)

The children did not require a mediator, their communication on every occasion was directly with whom they wished it to be with and they spoke for and about themselves.

6.5.5 Summary of the ‘communication where a child was involved’ category

This category has presented two distinct ways children can be, or appear to be, involved in an X-ray procedure. Parents and radiographers played significant roles in shaping, influencing or facilitating children’s involvement in communication. In procedures where children initiated communication and wished to interact with radiographers, communication was often more meaningful, was focussed on the procedure and responded to children’s wishes. In these instances, children actively led the communication, asking questions or communicating their needs, how they felt or what they wanted to happen or change.

However, in procedures where adults initiated communication, this communication was often superficial and lacked direct relevance to the X-ray procedure. In these procedures, attempts were made to involve a child but this was mostly by being talked at, and the children expressed disinterest in discussing non-relevant things like school or football. Some children communicated only by responding to adult-initiated directions, as well as questions they were asked and instructions they were given. Some communication was considered or discussed as being meaningful for children whereas some communication that occurred was considered unhelpful.

6.6 Communication where a child was interrupted

“She is always butting in, she answered everything. Just so she can make me go back to school” (Girl P37, 9yrs: int)

6.6.1 Introduction to the ‘communication where a child was interrupted’ category

In the following section, I provide an overview of what interrupted communication looked like in the observed X-ray procedures as well as how children and parents spoke about this type of communication.

The ‘communication where a child was interrupted’ category is characterised by a child's communication being broken, halted or limited by an adult and adult communication dominating or replacing a child's communication. In this category, children's communication was interrupted in two ways. Firstly, by their speech being halted or interrupted by an adult in the middle of the child trying to get their point across. This meant that what the child had begun to communicate was never heard or at least not heard in their words or the way they had intended. Secondly, adults sometimes cut short children's communication to repeat what children had said but maintained the meaning so that, to some degree, children's thoughts and questions were still communicated just not by themselves.

6.6.2 Data in the ‘communication where a child was interrupted’ category

From the 45 observations, I analysed and categorised 18 datasets as ‘communication where a child was interrupted’ (Table 6.5). The data included observations of boys (n=10) and girls (n=8). The age of children in this category varied from 4 years old to 11 years old, with a mean age of 7.4 years old, demonstrating that communication was interrupted in procedures regardless of the age of the child. However, this category had the highest percentage of 9 year olds (n=4 / 22% of this category) and 10 year olds (n=3 / 16.6% of this category) when compared with the other two categories. Of the 18

observations, eight children, four mothers and one father participated in an interview (Table 6.5).

Table 6.5 Participants in the ‘communication where a child was interrupted’ category

Dataset	Age	Gender	Procedure description	Child Interview	Parent Interview
1	10	Boy	Foot	-	-
5	4	Boy	Pelvis	-	-
6	9	Girl	Spinal EOS	✓	✓
8	6	Girl	Chest	✓	✓
10	7	Boy	Forearm	-	-
13	10	Girl	Knee	-	-
15	4	Boy	Pelvis	✓	✓
16	11	Boy	Knee	-	-
24	7	Girl	Chest	-	-
25	7	Boy	Right foot	✓	-
29	4	Boy	Chest	-	-
33	9	Girl	Hand	✓	-
34	10	Girl	Spinal EOS	-	-
35	5	Girl	Dental	-	-
36	5	Boy	Ankle	✓	✓
37	9	Girl	Leg	✓	✓
39	6	Boy	Hand	-	-
43	9	Boy	Chest	✓	-

Key: ✓ = participation in interview - = no interview took place

6.6.3 Interruption that benefits a child

This sub-category is characterised by the X-ray procedures where adults’ communication was observed to be frequent and dominant, yet my field notes linked this to adjectives including ‘*supportive*’, (Girl P34, 10yrs:obs) ‘*purposeful*’ (Boy P36, 5yrs: obs) and ‘*helpful*’ (Boy P5, 4yrs: obs). In these procedures, children reported in their interviews that being interrupted was not necessarily a bad thing and could be of benefit to them. When asked about an observed specific moment where a parent or radiographer had interrupted them, some children discussed how they felt their parent helped to communicate their wishes for them. This was demonstrated when a child replied to the radiographer’s questions about where the broken bone was, by saying “*Mummy knows*” (Boy P25, 7yrs: obs) and in another observation when a child was asked by a radiographer about how they had sustained their injury, they said “*My mum*

can tell you" (Girl P37, 9yrs: obs). These children purposefully waited for their parent to help them answer a question and some talked in their interview about how they wanted their parents to talk for them, stating *"Mum just says it better than me"* (Girl P37, 9yrs: int). In the following section I will discuss the key findings and evidence of interruptions that benefitted a child in an X-ray procedure.

Some interruptions were intended to help relay the child's communication to the other adult present. On some occasions, parents would interrupt their child when they were flustered, my field notes recorded instances of when children would be 'wriggling' (Boy P5, 4 yrs: obs) or 'becoming restless' (Boy P36, 5yrs: obs) or 'fidgeting' (Boy P25, 7yrs: obs) or not making much sense in what they were saying. For example, in one observation a boy stated *"I want... because my cast... it's straight"* (Boy P10, 7yrs: obs), this was interrupted by the child's parent who said *"since his cast has come off he's a bit scared that he can't move it"* (Mother of boy P10, 7yrs: obs) referring to moving the child's fingers to put them in position for imaging of his arm. The child's initial communication could have easily been misunderstood by the radiographer, and so in effect, parents would sometimes say what the child had started saying but more clearly for the radiographer. As seen in the following notes from an observation of a 4-year-old's X-ray of their pelvis, the parent interrupted their child to try and help the radiographer understand their child's wishes.

Child to Parent: "It pains to...[Interrupted]"

Parent to Child: "It hurts lying on your back"

Parent to Radiographer: "It hurts him to lie flat with his legs like that, is there another way?" (Boy P5, 4yrs: obs)

Most interruptions of children's communication were by parents. Parents would interrupt to relay what their child was saying and ensure that their child was heard. Parents used their role to communicate on behalf of their child, to provide additional information or to repeat their child's wishes. A parent replaced a child's voice but the child's ideas, wishes or feelings were not altered and the child discussed their parents positively, opting to draw them (Figure 12) as an answer to what the good things about their visit were adding that;

“My Mum...[prompted with why]... because she would tell the nurse how I felt for me when I couldn't say” (Boy P43, 9yrs: int)

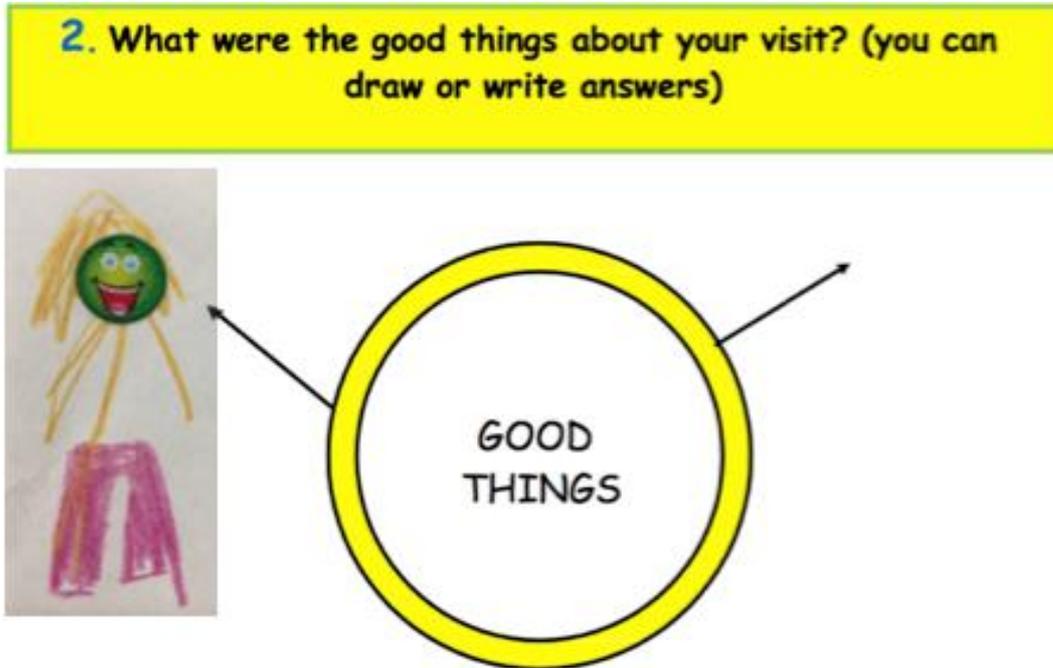


Figure 12 Boy P43, 9 yrs: int- A drawing of their Mother

Parents interruptions to their child's communication could help radiographers understand a child or were used to provide reassurance to their child if they were displaying heightened anxiety. The following example is from a mother who I noted in my observations 'jumped in' to reassure their child.

“I could hear her voice going [cracking] and she her looking round so I thought, jump in quick and tell her it [the machine] won't come near her!” (Mother of girl P8, 6yrs: int)

It was a common misunderstanding for a child to think the X-ray machine was going to touch them. In the above case the parent's interruption was positive as they tried to reassure their child. However, parents often interrupted their child as they felt they could communicate their child's thoughts and wishes better than their child. This was seen in the following observation:

Parent to Radiographer: “[interrupted child saying she was ok] I know she won’t tell you how uncomfortable it is, but it is. Without the brace on.”

Radiographer to Child: “Is it too uncomfortable like that?”

Child to Radiographer: “A bit!” (Girl P6, 9yrs: obs)

This excerpt demonstrates how a parent interrupted their child to try and help them share their discomfort and opinion. This is also seen in the following interview where the father described a need to advocate for his child when they were not being heard;

“[I] just did it [interrupted] because I could tell he was getting wound up and something wasn’t right but he was struggling to tell us what, he was struggling to get his words out and I knew she couldn’t hear him with all the noise [of the X-ray machines] and his mumbles so I said it again for him!” (Father of boy P15, 4yrs: int)

Children in this category discussed how they trusted that their parents were there for them and knew what to say and that the radiographer knew what to do, even despite suggesting in their interviews that they did not necessarily like it when a parent “kept butting in” (Boy P25, 7yrs: int). Children thought that the radiographer’s role was to perform the X-ray procedure and not necessarily to reassure or chat to them. The following quote from an interview showed how a child felt supported throughout by their mother, despite previously saying “it made me mad” (Boy P25, 7yrs:int) and thought she looked after them and that they were supported by the radiographer who was good at their job.

“My mum was the biggest help because she just sorted everything for me, she told me what to do and she answered the nurse for me because I didn’t know and sometimes couldn’t hear sometimes. But the nurse was sometimes good too, she was good with her job, she knew what she was doing with all the robots and where to put them and the buttons to press and she

knew it wasn't breaking when it was beeping like beep beeeeeep beeeeeep and even more than that" (Boy P25, 7yrs: int)

Children were mostly positive when questioned about how it felt to be interrupted by their parents and the radiographers responding that they felt *"happy about it because it wasn't all shh shh"* (Girl P6, 9yrs: int), *"fine because it's just my Mum"* (Girl P8, 6yrs: int). The notion of feeling relieved, using words such as *"thankful and better"* (Girl P6, 9yrs: int) was a prominent response in five of the eight child interviews when children were asked how it felt to be interrupted. The following child described how their parent jumping into the conversation provided welcomed guidance to them in an uncertain situation.

"[when talking about how it felt when his Mother interrupted him] I felt glad, I wasn't really sure what the nurse was asking me to do and I kept doing it wrong and Mum just said what I was, then she told me what to do better and it was good because I didn't want to do it wrong so Mum helped me do it right" (Boy P25, 7yrs: int)

As the child in the quote above reveals, children often felt there was a prescribed way of undergoing an X-ray procedure. Some parents were very brusque and would say to children to *"be good!"* (Girl P13, 10yrs: obs) *"be brave!"* (Boy P39, 6yrs: obs) and offer praise that *"you're doing well"* (Girl P35, 5yrs: obs)

Despite having noticed a number of occasions where a girl was interrupted by both the radiographer and her parent, one child (Girl P8, 6yrs) used the activity booklet and chose to use stickers of two radiographers to answer *"who helped you today?"* they labelled this with the word nurse which they asked me to write out for them to copy and then asked me how to spell my name (Figure 13) I asked about why they chose to put the radiographer (nurse) and me and the child commented that *"everyone helped"* because they *"didn't know what would happen but people were nice"* and that *"everyone answered the hard questions for me, when I didn't know..."* I asked why the child thought everyone was nice and they replied that *"when they didn't know, they answered and didn't shout", "wasn't too bossy"* and *"they smiled with their teeth"*. This finding shows how

interruption for the benefit of the child can be a positive thing and in this situation reduced the child's fear of not "knowing the answers" to the radiographers questions (Girl P8, 6yrs: int). This finding can also be used to exemplify how the activities in the booklet helped prompt and explore with a child the specifics of their procedure and discuss these in more depth.

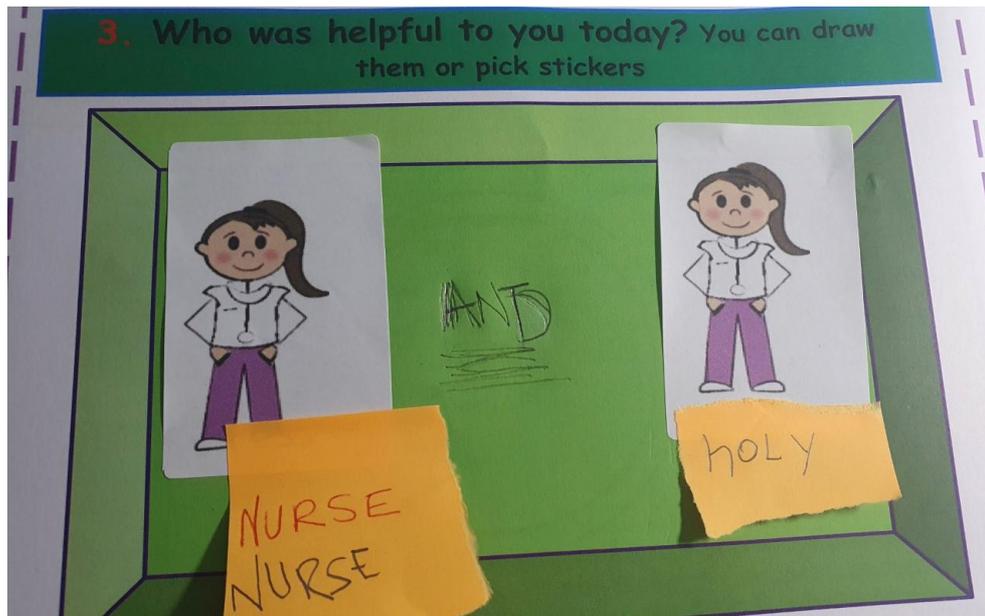


Figure 13 Girl P8, 6yrs: int- a drawing of a nurse and myself in response to who was helpful today

Some parents described in the interviews how they themselves did not know what would happen during their child's X-ray procedure. They reported a lack of information from the hospital about the procedure and how they had to rely mostly on what other family members or friends said would happen. One parent commented that:

"I tried to find out, I even watched YouTube videos hoping they'd explain it all for me...useless!" (Mother of girl P6, 9yrs: int)

6.6.4 Interruption that benefits an adult

Although it was rare in the procedures, children's communication was sometimes interrupted by adults for the adults' benefit and their communication

replaced children's voices and altered what a child had started saying. In the following example a child began asking the radiographer a question, but their parent quickly closed down this communication, for example;

Child to radiographer: "Do you know what the "X" in X-ray...[parent jumped in]

Parent: "So when do we get results?" (Boy P16, 11yrs: obs)

Interruption for the benefit of the adults present during the procedure was frequently linked to time constraints and attempts to enforce a child's 'good' behaviour. Parents often interrupted children to remind them to "behave", "be good", "stop acting up" and "just listen" (Mother of girl P37, 9yrs: obs) during the procedure. The parent of a 9-year-old girl described how she had interrupted her daughter to correct her behaviour when her daughter started showing signs of 'restlessness' and 'fidgeting' (Girl P37, 9yrs: obs).

"She was messing about, not listening and I told her to pack it in.

She's had these before so they should be quick but she thinks she can get away with murder...it's embarrassing" (Mother of girl P37, 9yrs: int)

As this quote illustrates, parents often interrupted their child's communication or action to discipline them or seek 'good behaviour' from their child. It is interesting to note that this mother felt that her child's behaviour was embarrassing to her, demonstrating parents perceptions that their child needed to perform in a certain way to make the parent 'look good' to the radiographer.

Within this category, the communication observed was centred on parents and radiographers' agendas, actions and communications. Parents could become frustrated at the waiting times in the department and any delays to the procedure being completed. The following quote shows how parents could become frustrated if the procedure took longer than planned or interrupted their plans. In the following procedure, the parent directed their frustration towards the radiographer.

*Parent to Child: "Hold on *name*..."*

Parent to Radiographer: “We waited ages, now you want pictures out of the brace, but we have to wait another 30 minutes at least for? I’ve got other kids I need to get...couldn’t we have done that first?!” (Girl P13, 10yrs: obs)

Adult agendas were prominent in procedures where parents interrupted their child. Parents agendas were often to “*get in and out the procedure*” (Mother of boy P36, 5yrs: int) quickly and they would interrupt their child to ensure that the procedure happened quickly. I began to identify a difference in the communication and interaction from the radiographers to children when they were due to go on their lunch break and also when the electronic list showed lots of patients were waiting. At these times, their communication was less frequent and more abrupt and instructional than observed in other procedures. Rather than using open communication, where a child could freely communicate, adults in the procedures in this category often interrupted a child’s communication to answer their own questions in a way that suited their plans for the procedure better. For example, on three separate occasions I noted a radiographer interrupting a child with phrases to stop them communicating such as “*hush one second*” (Girl P35, 5yrs: obs) and this communication was followed by a hint towards their own agenda or reason for this instruction such as “*the sooner we’re done the sooner we can go*” (Boy P24, 7yrs: obs). In another example, the radiographer said “*I can do it quicker when you’re not talking so much*” (Girl P35, 5yrs: obs) although it is important to note that this was a dental X-ray which is difficult when a child opens and closes their mouths to talk.

However, parents also had their own agendas when attending with their child for an X-ray procedure. Due to the nature of the non-urgent procedure, children were often well and parents would sometimes interrupt communication to stop their child from talking to try to make the procedure as short as possible so they could return to work and a child to get back to school, as illustrated in the following quote;

“She just waffles on, she’s chatty and spouts some rubbish. We would’ve been there all day with her just overthinking it all and

wanting to know the ins and outs of what was going on. So, yeah, like you said, I stopped her talking, so to speak, trust me it was for the better” (Mother of girl P6, 9yrs: int)

However, many of the children were aware of their parent’s motivations. One child commented that she aware that her parent was interrupting her and commented that;

“She is always butting in, she answered everything. Just so she can make me go back to school” (Girl P37, 9yrs: int)

Within this sub-category, parents communication and interruptions were linked to getting the procedure completed. However, children were aware that their parent was interrupting them and closing down communication in order for the procedure to be completed more quickly.

6.6.5 Summary of Interrupted Category

The interruption of a child’s communication and voice was prominent during these observed procedures. Children were interrupted for a variety of reasons. In some cases parents who acted as advocates for their child’s wishes and feelings, interrupted them. In these procedures, interruption could support children to have their messages communicated. In other cases the children were interrupted and their communication was overridden by the adults’ agendas and priorities. In these instances, interruption was frustrating for children and they were aware that their parents were interrupting for their own reasons and found this to be unsupportive during the X-ray procedure.

6.7 Communication where a child was ignored

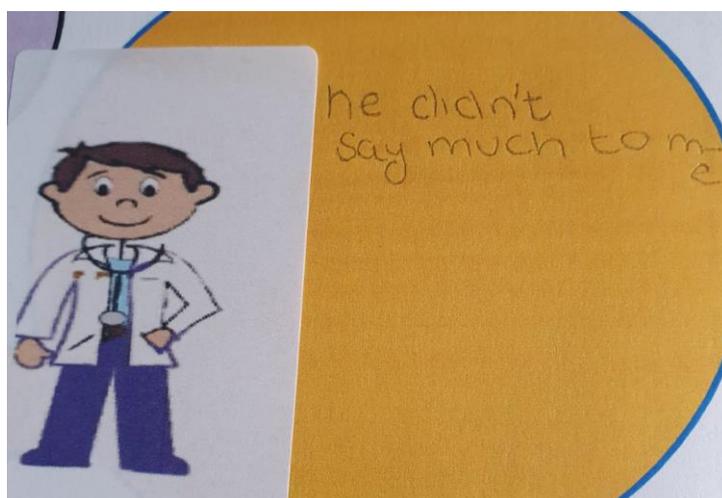


Figure 14 Boy P30, 8yrs: int- An activity answer that states the radiographer did not say much to the child

6.7.1 Introduction to the 'communication where a child was ignored' category

The ignored category is characterised by a lack of communication by the child or to the child. Instead, children's communication was overlooked, silenced or not sought by adults. Children had very little power to change or influence what happened during their X-ray procedure.

The final category in this chapter relates to where children's communication was ignored. This category is presented last as children's communication is less prominent and children had less influence on the procedure and what happened.

Children within this category did not play an involved role nor was their communication interrupted. Their procedures were not full of free-flowing conversation and they rarely shared their opinions or made decisions. Instead, children undergoing X-ray procedures within this category were, to varying degrees, ignored. These procedures are interpreted as children being ignored due to their communication being passively heard or overlooked, as what they

communicated had no impact on the things that happened during the procedure.

As with the other two categories, there are two distinct and contrasting agendas at play, these are explored through the subcategories of *ignored by a child's choice* and *ignored by an adult's choice*.

6.7.2 Number of datasets in this category

From the 45 observations, I analysed and categorised 15 datasets as 'communication where a child was ignored' (Table 6.6). The data included 7 observations of boys (n=7) and girls (n=8). The age of children in this category varied from 4 years to 11 years, with a mean age of 7.1 years old, again demonstrating that communication was ignored in procedures regardless of a child's age. However, This category has the highest percentage of 4 year olds (26.6%) when compared with the other two categories as well as the highest number of 11 year olds (26.6%) and children aged 4 or 5 years old make up data for over 46% of the category, this is an interesting finding as it suggests in the whole sample younger children (4 or 5 years old) as well as older children (11 years old) are most likely to be ignored in their X-ray procedures than they are involved or interrupted. Of the 15 datasets, six children and two mothers participated in interviews.

Table 6.6 Participants in the children 'ignored in communication' category

Dataset	Age	Gender	Procedure description	Child Interview	Parent Interview
3	11	Boy	Dental	-	-
7	4	Girl	Fluoroscopy	-	-
12	5	Boy	Chest	-	-
14	4	Boy	Chest	-	-
18	11	Boy	Legs	✓	-
19	4	Girl	Dental	-	-
21	4	Boy	Pelvis	-	-
26	5	Girl	Dental	✓	✓
28	6	Girl	EOS	-	-
30	8	Boy	Knee	✓	-
31	11	Girl	EOS	-	-
32	5	Boy	Feet	✓	-

40	8	Girl	Chest	-	-
44	11	Girl	Ankle	✓	✓
45	10	Girl	Forearm	✓	-

Key: ✓ = participation in interview - = no interview took place

6.7.3 Ignored by the child's choice

Children categorised as being ignored by their choice reported or were observed being fearful or worried about the procedure. This was often described as due to a poor understanding or uncertainty around what would happen or due to previous poor experiences. The children reported feeling fearful and anxious because they felt “*scared of the machines*” (Girl P40, 8yrs: obs) and “*unhappy, sad and bored...*” (Boy P32, 5yrs: int) and “*very very frytened and scared*” (Boy P30, 8yrs: int) (Figure 15) about their X-ray procedure. In the interviews some children communicated with stickers or drew faces to confirm these feelings (Figure 16):

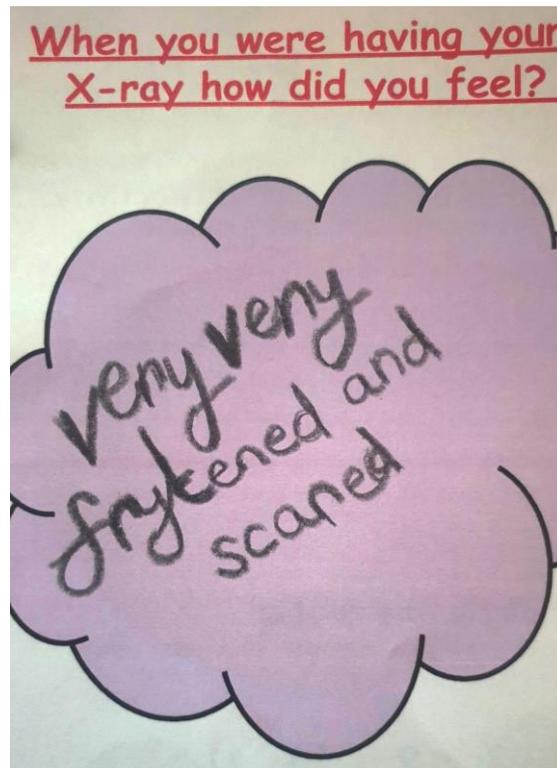


Figure 15 Boy P30, 8 yrs: int - Communicated that they felt frightened and scared

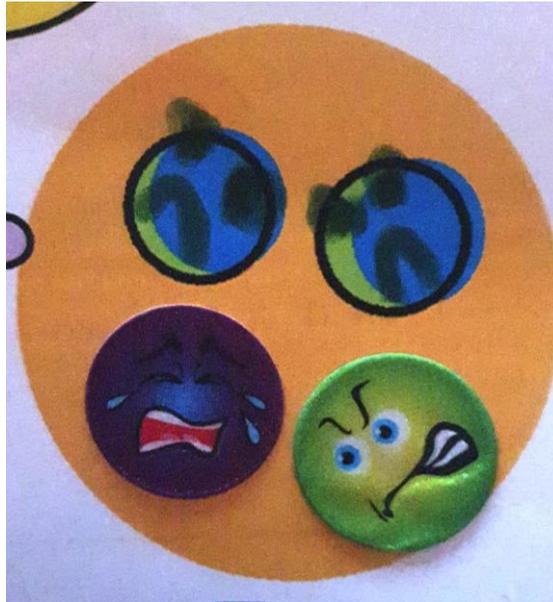


Figure 16 P32, 5 yrs: int- Extract from the activity booklet that shows a child communicating that they felt “unhappy, sad and bored”

The use of the stickers and drawing in the activity booklet supported children in communicating details about their emotions and feelings, rather than relying solely on a spoken answer to the question such as “how did you feel?” The drawing shown in Figure 16, supported the findings category as it allowed me to probe into the answers that were provided and seek out meaning with children as to how they were involved in their procedure. The design of the activity booklet placed the above activity (Figure 16) by the question “Can you remember anything you said?” This was intentional and provided a means of exploring how children expressed their feelings and responded to the actions and interactions that happened during their procedure.

Due to these feelings of uncertainty and worry, these children longed for the procedure to be over as soon as possible, they wanted to be quiet or respond with short direct statements as they thought this would help make their procedure go by more quickly. Notes from the observations picked up on how these children would respond ‘quickly and briefly’ and when asked about this in the interview children said,

“it was going slow because of talking” (Boy P32, 5yrs: int)

“I don’t like it when they talk about me, it makes it go so slow”
(Boy P18, 11yrs: int).

In many of these cases, children wished for the procedure to be completed quickly and often interaction and communication was perceived as only prolonging the procedure. In some of the procedures, children described that they preferred to be ignored and not spoken to directly during a procedure so that it was completed and “over with” (Boy P32, 5yrs: int) and because they found it “boring” and were “sooooooo bored!” (Figure 16) (Boy P18, 11yrs: int);

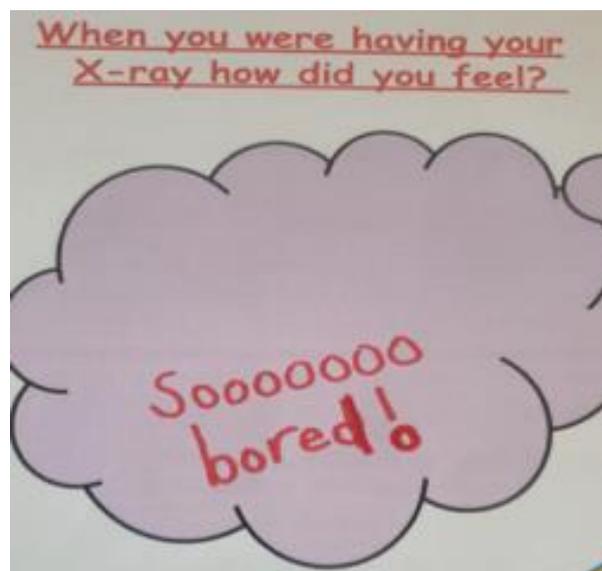


Figure 17 Boy P18,11yrs: int- Communicated that they were “sooooooo bored!”

The parents interviewed suggested that their children were quiet in the procedure because they “*they don’t like talking at the best of times so she was probably desperate to get down and out*” (Father of girl P26, 5yrs: int)

During the interviews, children in this sub-category frequently discussed their hesitancy to communicate with both the radiographers and their parents due to a lack of understanding about the procedure. The following interview quote showed a child’s frustration relating to their lack of information.

“I didn’t know I was even coming here, I thought I was going the DOCTORS not the HOSPITAL, so why am I here? If they asked

me anything I'd just say I don't know... because guess why? I don't know" (Boy P30, 8yrs: int)

The children in this sub-category said that, as they did not know what was going to happen in the X-ray procedure, they did not feel they were able to voice their opinions or wishes and were glad that the radiographer did not ask them any questions. In the following quote, a child discussed how it could be difficult to know how to respond to questions;

"No, I wouldn't want her to ask me anything, I liked no questions because I wouldn't know what to say" (Boy P32; 5 yrs: int)

As considered earlier, I am aware of the negative connotations associated with the word ignored and the action of ignoring a child's wishes in a health procedure. However, children in this study reported sometimes being happy for radiographers to talk to their parents instead of them. They were also happy when this meant radiographers completed the procedure as quickly as they could. Children interviewed in the sub-category ignored by the child's choice tended to respond positively about their experience and were particularly complimentary of the radiographers. One 5-year-old boy said, *"I liked the lady, she pressed the buttons and was standing there and she did my picture...just like that!"* (Boy P32, 5yrs:int) and an 11-year-old boy commented, *"I liked her, she just did it, she knew what she was doing and then I could go"* (Boy P18, 11yrs:int)

However, unlike the children who were involved in their procedures, the children in this category decided not to seek information, ask questions or initiate conversation. Instead, children in this category moved through their procedure unaware of what would happen next:

"I was just waiting for something to happen, so I just waited rather than talked. I was waiting for the machine to come down and touch me." (Girl P45, 10yrs:int)

Even children with previous experience of X-rays or the hospital environment, and who reported positively about the radiographers, described feeling fearful or anxious and were not sure what having an X-ray procedure would be like. In

an interview with an 11-year-old boy, he drew a 'sad face' for how he felt during his X-ray procedure and when asked what this meant he said it was not a sad face but it was a "scared face" (Boy P18, 11 yrs:int) and this was because he was "more scared than last time" (Boy P18, 11 yrs:int)., although he did not indicate why this was the case.

"I have had them [X-rays] before, on my tummy and on my chest, but they were different. This one was different too and was on my leg" (Boy P18, 11yrs:int)

Often the parents were in support of their child's wishes not to communicate or participate fully in communication during the procedure. As a result, parents often 'went with' their child's choice to be quiet and instead spoke for them and about them to the radiographer. My observational notes recorded 5 of the parents initiating communication with the radiographer that was about their child. I noted that this communication was 'loud and obvious' (Mother of girl P40, 8yrs: obs) and 'easily heard' (Mother of girl P28, 6yrs: obs). A further 2 of the parents also tried to initiate communication with me about their child; I recorded aspects of this communication during the procedure and noted that the parents said,

"it gets a bit uncomfortable when it's all just silent in here doesn't it",
(Mother of girl P28, 6yrs:obs)

"she [the radiographer] is busy doing what she does and we both knew that [child's name] isn't going to break into a conversation at any point."
(Mother of girl 31, 11yrs:obs)

It is important to note that both the above observations were during a child's EOS procedure. Whilst a child undergoes an EOS procedure, there is only one safety screen and the space is tight. The radiographers have to turn their backs to face the computer screen in these particular rooms and the child is partially enclosed in the EOS machine. Therefore, this finding may be unique to the environment that the procedure happened in as in other rooms I was often not stood beside a parent and the circumstances were different in terms of layout and the actions that the radiographer takes.

6.7.4 Ignored by the adult's choice

The datasets in this category were focussed on procedures where despite a child communicating dissent, pain or discomfort, the radiographer or parent made no attempt to communicate with them or halt the procedure. Some children in this category thought that their parents talked too much during the procedure. This led to children being ignored as the abundance of communication from their parent meant that there was a lack of opportunity for them to join in; children were effectively shut out of the communication.

This sub-category is shaped by the procedures where children's communication in the X-ray procedures was noted during the observations as *'missing'*, *'silent'*, *'lacking'* or *'absent'*. Parents communication towards their child within this sub-category was noted to be *'frustrating'* and *'unresponsive'* and radiographers' communication towards a child was observed to be *'abrupt'* and *'passive'*.

Communication in this category from radiographers was often direct and closed and did not provide much of an opportunity for parents or children to 'join in' or influence the procedure. For example, observations showing radiographers saying, *"right, we are ready to start"* (Girl P44, 11yrs: obs; (Boy P11, 11yrs: obs) were noticeably different from the communication in the 'involved category' when the decision of when to begin the procedure was given to the child. Radiographers were directive, using phrases such as, *"hop on the bed and I'll take your X-ray"*, (Boy P21, 4yrs:obs) *"mum will stand over there and I'll be here"* (Girl P28, 6yrs: obs) and *"up you get"* (Boy P32, 5yrs: obs). These types of communications were instructional and limited the opportunities for children to communicate back to the radiographer, ask questions or suggest anything different.

In some procedures, adults, most often parents, appeared to purposefully ignore the child by not acknowledging or responding to their verbal communication. I asked a child who I had observed was ignored, *'do you think mum was listening to you, was the nurse?'* with a clear *"No!"* (Girl P25, 5yrs: int) and the child reported feeling *"sad"* about this because she *"wishes she could talk to them"* (Girl P25, 5yrs:int). Children were not listened to even when

they expressed being in pain saying “*can you stop because it is hurting so badly*” (Boy P11, 11yrs:obs) or discomfort saying, “*When it’s (referring to the machinery) by my cheeks it hurted my side of my tongue...*” (Girl P19, 4yrs: obs) and parents could hear their child’s complaints. Despite this, they did not respond directly to them or do anything to support them. The following quote from an interview with a child showed they had not felt heard;

“Mummy just told me to be quiet all the time... but it was hurting me!” (Girl P25, 5yrs: int)

From the observations of the procedures it was noted that parents would often ignore when their child asked questions or when they communicated feelings or experiences, for example pain, “*STOP, it hurts!*” (Boy P11; 11yrs: obs) or fear of the X-ray machine “*I think it’s coming too close to me, it’s right there*” (Girl P40; 8 yrs: obs). In some of the cases, it was noted that there was a notable pause after a child’s communication that could have been used by a parent or radiographer to respond to the child, but instead this pause was filled by silence or by the radiographer and parent talking amongst themselves. As an example, the following parent commented in their interview about the lack of response to their child, they suggested that they had deferred the responsibility of listening and responding to their child to the radiographer. A Mother of an 11-year-old girl said,

“It’s not my job, I just brought her here, it’s not that I didn’t know she was saying stop it’s just it’s more her (referring to radiographer) job than mine , but she didn’t say much... she just got it done, in, done, out!” (Mother of girl P44, 11yrs: int)

This was an interesting finding and one that demonstrates assumptions associated with the different roles during a procedure. The observations within this subcategory showed children directed most of their questions towards their parents, with but these attempts to engage with them were ignored. When asked in the interviews about this, parent’s comments were similar to the abovementioned Mother and they discussed how they thought that it was “not their place to answer their child’s questions” and they thought the radiographer would. When I asked one parent about not responding they said, “*Oh, I know*

yeah, I just thought she [the radiographer] would answer her because to be honest I wasn't sure [what to say] but thought she'd know" (Mother of girl P44, 11yrs:int). Parents discussed how they relied on the radiographers to communicate with their child, as they felt they would be interfering if they got involved in the communication. This can be exemplified by the following quote from a parent about a radiographer;

"I don't like interfering, I know they [the Radiographers] have a job to do, they don't need me sticking my nose in do they?"(Father of girl P26, 5yrs: int)

Within this sub-category, parents would often speak on behalf of their child, even for the simplest of questions, such as the child's age. Parents speaking *for* their child from the outset of the procedure appeared to then impact on the way that the radiographer subsequently communicated and engaged with a child. After the initial interaction, the radiographer then directed all their communication towards the parent and away from a child. This is different to the cases where parents answered on behalf of their child and the children were glad to be spoken for, as seen in the ignored by the child's choice. In the procedures within this sub-category, children tried hard and repeatedly to replace their parents voices and be heard during their procedure.

The notes taken during the observations demonstrated how children would attempt to talk and join in the conversation, but parents would consistently provide answers for them and would continue to converse without acknowledging their child. Unlike the interrupted category, where children's voices were halted, the voices in these ignored procedures were never heard. The children's attempts to join in or communicate were drowned out by the voices of their parents. Children's communication was either silenced or absent all together. The following note highlights how adults could overlook a child's expression of their opinion, as well as the parent;

Child to Radiographer: "I won't be able to stand on there [reference to wooden steps]

Radiographer to Child: "Of course you will."

Parent of Child to Radiographer: "She's not strong on her feet"

Radiographer to Child: "Are you ready?" (Girl P44, 11yrs: obs)

This sub-category is laced with an absence of adult reaction or response to children's communication. Despite there being verbal communication between radiographers and parents, there was a lack of acknowledgement or enabling of children's communication. However, some parents disclosed that they had purposefully ignored their child as this was seen to be in the child's best interests. The same mother as the one in the previous observation was aware that she had not responded to her daughter because she was attempting to help her daughter join in the communication rather than rely on her to communicate;

"I do it to her to show her, she's really shy, you seen her, she doesn't like strangers. But she's in big school now and I can't always talk for her. I know it might look like I'm just not listening and sometimes I'm not, but the rest of the time I'm just trying to make her realise that mum won't always tell them" (Mother of girl P44, 11yrs:int)

There was an absence of opportunity for children to be heard during these procedures, resulting in children's communications being passive, sparse and sporadic. Children were given few opportunities to get involved in choices, decisions or communication relating to their procedure. In some cases, communication, even the superficial 'chit chat' observed in other categories, was completely absent from the procedure. In these procedures, communication was only observed when the radiographer checked the child's name and date of birth and to inform the child that the image had been taken. The following field notes show the lack of communication that could take place during a child's procedure;

"Do we have [child's name] here? Born on [child's date of birth]? And address is [home address]?" "Parent nods" "Ok, up on here then [points to bed]" image taken "Right, that's all done you're free to go!" (Boy P21, 4yrs:obs)

The communication that occurred in this procedure was closed, and there was no opportunity provided for a child to respond.

The physical distance between children, parents and radiographers was prominent in all procedures, unless lead aprons were utilised. However, specific to the procedures in this category, the distance made children ignored and alone. Within this sub-category the physical distance between a child and their parent when the X-ray was being taken was described as '*unexpected*' and some parents did not realise they could be next to their child. This was also the case from children who more often protested about being distant from their parent in their procedure "*No, not there Mummy, here!*" and "*Mum, come here!*", or "*Why are you over there?!*" (Girl P7, 4yrs: obs) Parents also discussed surprise at the distance between themselves and the radiographers and discussed this as being anxiety provoking during the procedure as shown in the following excerpt;

"It was hard to talk because I was shoved in the corner, I felt like they [the radiographer and the child] were just both miles away from me. I felt out of it [the procedure]... I didn't really get what was happening... it wasn't great!" (Mother of girl P26, 5yrs:int)

Both parents and children discussed the influence of distance on their experiences. There were critical moments during all of the procedures for children to be heard. One of these moments in a procedure was when lead aprons were introduced or when parents moved away from their child. Prominent in the children's interviews and drawings were feelings of sadness and aloneness when their parents moved away from them. During their interview the children chose emojis with sad faces and discussed feeling "alone" and "lonely" (Girl P44, 11yrs: int) and "*unsure because of the clothes*" (Girl P26, 5yrs:int). Not dissimilar from their child, a parent discussed feeling "*anxious*", "*unsure*", "*worried*" and "*hating it*" (Mother of girl P26, 5yrs:int) when the distance was introduced and she had to wear a lead apron.

Children in this category also tried hard to communicate their fears and emotions verbally and observations recorded them saying "*Help!*" (Girl P40, 8 yrs: obs), "*Ow, it is hurting me!*" (Boy P12; 5 yrs: obs) and repeatedly asking for

their parent to do something such as “*move the light Mum...Mum move it...The light is on me, move the light*” (Girl P40, 8 yrs: obs), as well as trying to get their parents attention by saying things like “*it’s burning me*” and “*it just touched my arm*” (Boy P30, 8 yrs: obs). Despite the moment being similar in some ways to the events in other categories, the responses by children were different. When children were asked about the things they said during a procedure, they often recalled them more accurately than children in the other categories, especially the negative things they said. For example, the child who said the machine was “burning” recalled this and said, “*I was telling Mum it was burning me, the light was on me and it felt like fire on my arm*” (Boy P30, 8yrs: int). Another child also remembered asking their mother to “*come closer*” which I observed as being ‘shouted to her parent across the room’ because they felt like the X-ray machine was going to “*malfunction and touch them*” (Girl P44, 11yrs:int). Parents did not recall exactly what their child said during the procedure but when I relayed the notes I had made they appeared to ‘laugh’ and said that they thought, “*it was a load of nonsense!*” (Mother of girl P44, 11yrs:int) then said they were, “*taken aback by the shouting and just didn’t know what to do!*” (Mother of girl P44, 11yrs:int)

Children worked hard to be heard and their communications would often be much louder than seen in other categories. In this category in eight out of the 15 procedural observations I noted the child was ‘shouting’ when asking for “*help!*” (Girl P40, 8 yrs: obs) or was ‘louder than before’ (Girl P7, 4yrs: obs) when a child asked for her Mum, one child used a ‘frustrated tone/ loud voice’ when she said “*listen to ME!*” (Girl P25, 7yrs: obs) Children were using volume and tone to emphasise their communication, yet parents ignored them. Parents in these instances ignored their child’s communication and spoke about their child’s communication to the radiographer rather than responding to it, as the following observation notes show,

Child: “*Listen to ME!*”

Parent to Radiographer: “*oh dear someone isn’t happy!*”

Radiographer to parent: short laugh

Parent to Radiographer: "How many children do you see a day?"
(Girl P25, 7yrs:obs)

Observations in this category, when compared to other datasets in other categories, showed a distinction in the radiographers physical position before and during some of the children's X-ray procedures. I observed that in this category, some radiographers positioned themselves away from the child from the start of the procedure, noted in my observation as '*entered the room and went straight to computer*' (Girl P44, 11yrs:obs) and '*radiographer enters room with child and then goes behind screen*' (Girl P26, 5yrs:obs). They entered the room with the child and the child's parent and then chose to go straight behind the safety screen, leaving the child, parent and also myself close to the door way. I noticed that this was brief and the radiographer went back to the computer screen behind the safety screen and this could have been to check the child's name, age and date of birth before asking them the 3-point check, as I noted, '*radiographer briefly goes behind screen, looks and comes back*' (Girl P26, 5yrs:obs) whereas in another procedure, the radiographer remained behind the screen communicating with the child from behind it (Girl P44, 11yrs:obs). On one occasion the radiographer never stepped out from behind the safety screen and the radiographer conducted a 3-point check, gave the child positioning instructions, took the image and said goodbye, all whilst behind the screen.

6.8 Summary of children 'ignored in communication' category

This section has presented how children's communication was sometimes ignored during their X-ray procedure. Children were not listened to and had no influence over what happened, they had no role in the communication that occurred about them or around them from radiographers and their parents. However, children did not always report negative feelings about being ignored. For some children, being ignored was their choice and exactly what they wanted. They were fearful of the events that might happen during the procedure and were scared of the radiographer so not having to interact or communicate with them was described as helpful. However, parents remained largely unaware of having ignored their child. They explained that they did not respond

to their child's communication for a few reasons including being distracted, not knowing what to say or because they felt it was the responsibility of the radiographer to provide information and communicate with their child.

I chose to discuss the findings of this category last as they are the procedures that are characterised by the least direct communication to or with the child although not necessarily a lack of communication from the child. Instead, the presence of adults' voices overshadows children's voices and the presence of one dominant adult voice in procedures appeared to dictate the actions and interactions that happened. The X-ray procedures categorised in this way are procedures in which the children's voices were neither prominent nor acknowledged.

6.9 Conclusion

The conceptual categories presented in this chapter emphasise the complex and multifaceted nature of communication during X-ray procedures. In essence, many children tried hard to communicate, join in communication and be heard during their procedure. How adults acknowledged and responded to this communication either opened up children's opportunities to become involved in their procedure or it constrained and forced children out of the communication and closed down opportunities for them to join in.

Children were sometimes able to communicate with the adults present in the procedure and, in these instances, felt able and supported to voice their concerns or questions and these would be responded to. However, on other occasions adults would initiate the communication, opening conversations with superficial 'chit chat' that children found to be unhelpful or uninteresting. This demonstrates that while involving children in communication is generally perceived to be a good thing, the way this involvement is managed and facilitated should be by the child's choice and should focus on things of interest to them.

Some children struggled to be heard during their X-ray procedure and this happened when adults interrupted what they were saying or overlooked their communication. In both of these instances, children had mixed views,

sometimes they felt relief that they did not have to communicate because they thought it meant that the procedure would be over sooner. Other times children were frustrated by their parents talking for them or not listening to them. This again demonstrates the complex nature of children's communication as well as the ways that adult agendas or views can dominate children's communication and can ultimately impact the messages they wish to communicate.

Chapter 7 - Discussion

'Playing a Part in the Performance' – An Imaginative Understanding (The Core Category)

7.1 Prologue: The Introduction

In this study, I explored the communication that occurred between children, parents and radiographers during an X-ray procedure and children and parents experiences. In this chapter, I examine the relationships between the three categories presented in the findings and “weave the *fractured* story back together” (Glaser, 1992: p72) within my interpretive theory that I have called, 'Playing a Part in the Performance'. In this chapter, I have formed the discussion around the idea that children's X-ray procedures resonate with theatrical performances as I found that the features unifying the findings categories align with features recognisable within the theatre. The Constructivist Grounded Theory approach adopted in this study focused my attention on the setting, interactions and actions within an X-ray procedure whilst allowing flexibility and freedom later in the analysis process to imaginatively consider the findings. These X-ray performances are shaped by the different roles children, parents and radiographers play, the lines (dialogue) they use to communicate and the set and stage regions that they perform on and interact with, exploring the findings in a novel way through a dramaturgical lens. By utilising a lens that encompasses aspects of theatrical performances, I have gained and present in this chapter, a new, unique and imaginative insight into the people and situations in children's X-ray procedures.

7.2 Plot: The Structure of this Chapter

I have structured this chapter in different theatrical parts; *the curtain* that discusses the core category and imaginative understanding and interpretation of playing a part in the performance, *setting the scene* that provides a brief overview of dramaturgy and theatrical concepts both generally and in health research, *three sections* that explore the *roles*, *lines (dialogue)* and *stages* that shaped communication within each of the three categories discussed in the

findings chapter (Chapter 6) and finally the *curtain call* where I conclude the chapter and summarise the main points.

Throughout this discussion chapter, I use familiar theatrical terminology to refer to the different concepts and characters that were apparent in the children's X-ray procedures. To help introduce the key terms used throughout the rest of this discussion chapter, I make reference to three different roles. The three roles are the *director*, this is the dominant role and director is mainly the instructor, the *lead* who is the dominant character in the performance, close to the action and with a frequent and dominant voice and the *extra* that is more of a bystander role and the person who plays the smallest role and has the least impact on the performance. I discuss lines as *improvised* or *scripted* dialogue and this refers to whether the dialogue that occurs is meaningful and beneficial or whether it is scripted and stagnant. Finally, I discuss the *set and stages*, that is the physical X-ray room including the layout, the *props* such as the safety screens and machinery and the costumes such the lead aprons. I discuss different stages, the *frontstage* (the observed procedure) the *backstage* (the private accounts obtained through the interviews with children and their parents) or the *wings* that in this discussion chapter refer to the areas on the periphery of the main stage, such as behind safety screens or away from a child.

7.3 The Curtain: Playing a Part in the Performance - An Imaginative Understanding (The Core Category)

Before a performance begins, as the audience enter the theatre and find their seats, there is often a curtain across the stage. The curtain maintains mystery and can be a focal point for an audience, due to its size and position in their eye line and as it is the first experience the audience have of the performance and theatre. This curtain, if artistically decorated, as they are on some occasions, can add depth to a stage and can stimulate a specific mood or tone. I refer to the curtain in theatre here intentionally as in this first section, I aim to give the reader their first experience of dramaturgy in a child's X-ray setting and a glimpse into the rest of the chapter by drawing on the key aspects of theatre to elucidate the imaginative understanding and interpretation leading to the

core category, 'Playing a Part in the Performance'. In this section, titled 'the curtain', I add conceptual depth to the findings by explaining how I have arrived at this core category.

As I constructed the categories, and continued to memo, I was driven by a quote by Strauss and Corbin (1998: p150) advocating that researchers describe their "gut sense" about the research topic when conceptualising the core category in research using a Grounded Theory methodology. Through constructing the different categories, it became apparent that there were distinct similarities and differences amongst the communication where a child was involved, communication where a child was interrupted and communication where a child was ignored. By focussing on meaning, action and process in the social context (Charmaz, 2006) of an X-ray procedure and following my "gut sense" I found that considering the data in this way aligned with a dramaturgical perspective. So, I explored the findings and categories, in a novel way, in relation to concepts of theatre - namely, roles, lines (dialogue) and staging.

To aid understanding, I have provided discussion of three familiar dramaturgical concepts that underpin this discussion. It is by using a dramaturgical lens that these concepts were identified as relating to each person's role, the communication of lines (improvised and scripted dialogue) and the stage regions that created different performances in this research.

7.3.1 Understanding roles

Using a dramaturgical perspective helped identify the different roles that radiographers, parents and children played and how they could be influential to the communication that occurred during an X-ray procedure. The analysis highlighted whose roles were more or less prominent and the ways children, parents and radiographers enacted these different roles or responded to them. Roles were sometimes naturally adopted or were allocated by dominant others. Roles could impact on how each person in the X-ray procedure presented them within the performance of the procedure. Those with director roles were leaders in the procedures; they communicated what they wanted to happen and were dominant in directing the roles of others. The lead role differed from this role in

the sense that this role was more active in the performance and played a part that was less meaningful than the director but was still dominant and responsive to the performances of others. Often extra roles in theatre are characterised as being 'limited' and often a 'non-speaking' role, it is however important to note that in this thesis the term extra role is used as a metaphor to depict the roles that communicated less, had less impact on the procedure and seemed less important. They are not, in this discussion, necessarily non-speaking parts. I have used the term extra, as it is more familiar than the more accurate theatre role of having a 'bit part' where there is direct interaction with the other roles and lead actors but there is no more than five lines spoken by the actor.

7.3.2 Understanding lines (dialogue)

Dialogue in a performance is one of the ways that the performer can communicate important things to the audience. The importance of the roles during the performance influenced the interactions that facilitated or constrained children's communication. This led me to explore what was happening in the procedure; what was being said and how it was being communicated. I identified procedures where spontaneous and improvised dialogue was apparent. I also identified contrasting instances where social scripts happened because of the familiarity and knowledge of the sequence of the events during the procedure. A key part of most performances is the dialogue that occurs between the actors. In some procedures the communication was improvised, meaning it was natural and responsive to the different events or dialogue that happened during the X-ray. In other procedures, procedural 'scripts' were observed. Procedural scripts in this chapter refer to segments of frequently utilised dialogue, delivered in a non-responsive way to the child.

7.3.4 Understanding sets and staging

I also explored the 'stage' upon which dialogue happened. This included a frontstage where communication was 'public', for example, in observations or in front of others, compared with what was 'privately' disclosed within the interviews or away from others. I explored how the different methods used

examined the different stages on which children and their parents performed different versions of themselves and their thoughts, feelings and opinions.

Radiology is a very particular and unique stage. In general, X-ray procedures and X-ray rooms are quite dissimilar to many other hospital environments. X-ray interactions are often brief and take place in a room where the lighting is dimmer than most other hospital areas. Bulky machinery and other medical equipment such as safety screens and lead aprons are used and there is a physical and noticeable distance between the children being X-rayed and their parents and radiographers. In this discussion, this X-ray room with its 'props' and 'costumes' is discussed as the 'set' space (the physical space where the procedure happens and within this set there are various different stages, including the frontstage, the backstage and the wings of the stage. I frame my discussion herein with Goffman's (1959) distinction of frontstage and backstage spaces, whereby the frontstage, termed the front region in Goffman's work, is described as the place where a performance is delivered. The frontstage is therefore the public and physical space of the set where the procedure happens for example in the X-ray room or specifically in the area where the X-ray imaging takes place such as on a bed or chair. These performances on the frontstage can be seen and heard by others. Other performances happen on the backstage, described by Goffman (1959) as the part of the set whereby the performer is able to drop the act and be more authentic. This backstage space is intended to be a private space. In this discussion, this backstage area was evident in the private accounts of the X-ray procedure shared in the interviews. The 'side stage' refers to 'waiting in the wings', the space away from the main stage where the procedure was performed, for example, parents or radiographers standing behind a protective screen.

Giving children the opportunity to go backstage and participate in an interview allowed for a type of access into children's own experiences that the observations of the frontstage could not afford. In some cases, children openly gave accounts of acting differently during the procedure to how they really felt inside. Within the interview they appeared to 'drop the act' and expressed feeling differently to how they were observed acting, such as feeling upset,

scared, nervous and uncomfortable. The use of observations of the frontstage and interviews on the backstage was a key strength of this research, and offered insights into children's experiences. Often researchers who are interested in experiences of clinical procedures do not access the backstage experiences and instead just conduct observations and rely on their interpretation of what they observe happens during a child's clinical procedure. I am aware that even during the interviews the children were still performing and portraying a certain version of themselves.

7.4 Setting the Scene: Dramaturgy and the Meanings of Theatrical Concepts in Health Research

I have utilised the theoretical lens of dramaturgy (Goffman, 1969) to add another layer of understanding to the social reality of an X-ray procedure and the relationships between the social actors (children, parents, radiographers). In this section, I discuss what is already known about roles, scripts and sets and explore how these concepts have been used within health care and other research. The following section is not intended as an extensive review of these concepts within the literature but aims to familiarise the reader with the main ideas referred to in the following sections of this chapter.

7.4.1 Dramaturgical Perspective

On the whole, a dramaturgical perspective entails the use of theatrical concepts to understand human behaviour and elucidate the social world (Brissett and Edgley, 1975). It is concerned with performance, participation and social interaction (Mehto et al., 2006), and is relevant and has a good fit to the developed categories. Dramaturgy has roots in performing arts and drama and stems from the work of Goffman (1959) who introduced the idea of dramaturgical analysis in his book 'The Presentation of Self in Everyday Life'. This symbolic interactionist theory makes the analogy of life as a theatrical performance and how we present ourselves and interact with others in everyday life much like actors performing on a stage. Like stage actors, social actors enact roles, assume characters, and play through scenes when engaged in interaction with one another (Jacobsen and Kristiansen, 2014). Goffman demonstrated an awareness of the impact of dialogue on the roles people play

noting that, *“When a word is spoken, all those who happen to be in perceptual range of the event will have some sort of participation status relative to it”* (Goffman, 1981, 3).

Literature often draws on the work about front and backstage and how individuals modify the role they play, according to the space they occupy on the theatrical stage (Riley and Manais, 2004). The frontstage performance gives a certain appearance and a public display, whereas Goffman (1969: 114) suggested that the backstage is a place whereby “contradiction” of the frontstage happens and actors let down their guard. Goffman (1969) highlighted that these regions were not static but varied according to the roles of others. In situations where we do not know the people we are interacting with, or do not feel at ease or at our most comfortable, we portray a frontstage version of ourselves whereby we perform a version of ourselves that we believe will be most favourable to others. The following sections discuss existing health literature that relates to these ideas.

7.4.2 Dramaturgy and Theatrical Concepts in Health Research

There are only a few studies that use theatrical underpinnings or aspects of performativity to explain interactions within healthcare contexts. However, it is not entirely new to consider health interactions as a performance or a theatrical endeavour and there are a few examples of the use of theatre being used as an analytical lens within health care (Riley and Manias, 2004; Murphy 2007; Bray et al 2019). Of particular relevance to this thesis, the role of a radiographer has been discussed as being like a technical director, focussed on managing a technical set through several well-rehearsed series of actions, such as positioning the patient, moving the machinery and capturing the image (Murphy, 2007).

Although some literature is laced with ideas loosely related to the different roles, Bray et al., (2019) is one of the only papers that uses performance related labels directly to distinguish the roles children, parents and radiographers can have in procedures. The work highlights the leading roles that are often adopted by radiographers or parents, exploring the idea of a ‘director role’ that tells

others what to do and where to stand and the more minor roles that children can have similar to walk-on actors with a small part.

Health literature makes reference to front and backstages as different spaces within a hospital; public (in front of patients) and private (away from patients). Murphy (2007) states that any area where patients and visitors are present, such as wards, clinics and presumably X-ray rooms would be frontstage and that staff rooms and radiology console rooms would be classified as backstage. The idea of the separate regions has mostly been discussed in literature focussed on the interactions with patients in operating theatres prior to receiving anaesthetic (Riley and Manias, 2004), as a frontstage performance and following the administration of anaesthetic as a backstage performance whereby the patient is unable to see or hear the interactions that occur. The frontstage is often a fixed space whereby communication of roles occurs, whereas the backstage is more relaxed and may elicit a more authentic type of performance (Murphy, 2009). In this discussion, I expand the concept of frontstage and backstage spaces to suggest that the unique nature of the X-ray room allows for a further side stage to be constructed using props such as the protective screens.

In the following sections I will discuss dramaturgy and theatrical concepts within the three categories outlined in the findings.

7.5 Communication where a child was ‘involved’

The main features of a procedure where a child was involved in communication align with the theatrical aspects of opening scenes. In opening scenes, whereby the initial communication from the very first moment influences the rest of the procedure. These procedures have strong leading roles that includes the child as the lead actor as well as and also the use of scripted communication compared to authentic or improvised communication. Sometimes scripted communication that is not about the procedure can distract away from the main performance and can alter a child’s experience in a negative way.

7.5.1 Playing a Part – Opening Scene and Leading Roles

An opening scene in a theatrical performance is the first scene of a performance. The opening scene is integral and is meant to create a certain impact on the audience, providing the audience with information about the characters and what is going on. Opening scenes are important as they allow the audience to establish relationships and spark interest and arouse curiosity. In many of the observed X-ray procedures, there were only small windows of opportunity for an opening scene to be performed. With often only a short amount of time to build rapport with a child and their parent, opening scenes were often played out before entering the X-ray room, as children walked with the radiographer from the waiting room, along the corridor and to the X-ray room. This is reflective of the rise in tension the audience get in a theatre before the curtain rises and the performance begins. In the theatre, this is often signalled by an announcement to take your seats and the lighting changing, in an X-ray procedure this was often when the radiographer stood at the double doors of the waiting room and called a child's name to which they would then leave the waiting room and tension would build for them on the walk towards the X-ray room.

In some cases, opening scenes happened before children were positioned for the procedure or occurred when the radiographer asked when a child was ready to begin their procedure. Just as in a theatrical performance, the opening scene in a health procedure is influential on the scenes that follow. The opening scenes influenced the social process linked to a child being involved in the communication as the procedure progressed. Beginning the performance with a strong, inclusive and authentic opening scene helped gain the interest and trust of the child and by doing this, communication was opened up and children were provided with a chance and choice to be involved in it.

The interaction in the opening scene was important in putting children at ease at the beginning of their procedure. The opening scene helped prepare children for the unknown of the procedure and introduced them to the radiographer. Work by Harding and Davis (2015) highlights the importance of involving children as early as possible in a radiological procedure as a strategy to help

minimise their distress and anxiety. The importance of this initial interaction and the importance of introductory communication during health procedures can most prominently be identified in the “hellomynameis” campaign (Granger, 2014). The campaign seeks to remind and encourage health professionals of the importance of the initial interactions to put patients at ease and open up communication. The Society of Radiographers joined the campaign and contributed by conducting a survey to identify the barriers to patient communication to guide the organisation's work in this area, although it is not clear whether the radiographers involved worked with adults or with children. The results of the survey highlighted that only 79% of the radiographers reported introducing themselves to patients and 22% of radiographers reported that they either never introduce themselves or they do not introduce themselves often, although the graphic does not disclose how many radiographers took part in the survey (Society of Radiographers, 2020).

In the procedures where a child was involved, the performance commenced with radiographers adopting a temporary role as the director. The radiographer claimed this director role by initiating informative communication to and with the child. The directive communication included information about the procedure and what both the radiographer and parent would be doing during the procedure. This basic procedural information is highlighted in the literature as important in helping prepare and inform children for procedures (Bray et al., 2019; Jaaniste, 2007). During this opening act, radiographers directed the less dominant roles to children and their parents. When radiographers directed their questions to children rather than to their parents, this opened up communication and provided children with a chance and permission to enact their agency and they initiated conversation whilst limiting the role of the parent to an extra in the performance. Similarities to this director role have been noted in research within radiology that shows that children and parents valued direction and information from health professionals (O’Shea and Davis, 2015). Further to this, in their review of paediatric consultations, Howells and Lopez (2008) discuss the importance of opening up this communication early in the procedure. The authors state that the longer patients (children) are given to speak early in consultations, the shorter the overall consultation will be. Whilst

the duration of the procedure was not a focus of this research, this idea aligns with findings that suggest children are more likely to communicate effectively and about their feelings and the procedure when they have the opportunity to.

Aligning with a key point in literature that highlights the technical role of imaging children (O'Shea and Davis, 2015), the radiographers in these X-ray procedures led and directed the performance. They adopted the director role to progress the performance through key procedural points by providing information and communication throughout the positioning of a child and the movement of machinery.

However, outside of these 'technical' tasks, opportunities would open up for children to dominate communication and become the lead role. Although they lacked the power to be a director and change the procedure technically, the lead role had a prominent and dominant voice, yet it was always up to the director whether this lead role and the actors' choices impacted the performance and was played out or not. Children had some power to influence the interactions and enact their agency in small decisions such as signalling verbally or through using gestures when they were ready and comfortable for the radiographer to begin the imaging part of the procedure. Importantly, children could also communicate if they were not ready. Following the initial direction from the radiographer, some children remained involved and performed their lead role at points throughout the procedure. Existing literature shows that children like to be included in some decisions and choices about their health care and involving children in procedural interactions can help them feel listened to and valued (Kleye et al., 2020; Coad, 2007; Bray et al., 2019).

To feel involved children do not necessarily have to play the lead role in procedures, nor do they have to make big decisions or every decision, but my findings show that they like to have a choice in the level of involvement (the role) that they do have, these findings mirror recent work by Kleye et al., (2020) who suggest that to empower children during their procedures children need to be given opportunities to have as much influence as they wish over their own care. Although some children want to be involved and listened to, they do not always want to be the director or adopt the lead role in the procedure. Some

children prefer to defer the big decisions or lead role to their parents (Coyne & Gallagher 2011). Observations of practice that show minimal child-led communication should not be assumed to be poor providing this is the child's choice (Söderbäck and Coyne, 2011). An important finding in in this thesis and one that is not currently discussed in the literature is that some children appreciated feeling involved, but preferred not to be the main leader, instead they appreciated being a part of conversations and being listened to.

In the procedures where children were actively involved in communication, parents had a less prominent role. In these cases, a parent's role was not fully played out, likened to 'waiting in the wings', for when a radiographer or child prompted them to play their part. Calling upon parents to step out from the wings can be due to the need for particular knowledge about their child. Previous research and the findings show that parental presence is helpful to children, by parents providing reassurance, comfort or security for their child during an X-ray procedure (Bjorkman, 2014). Parent's roles were often not formally allocated; instead these roles were taken up in a more ad hoc way. If parents were not purposefully or verbally invited to join in the communication, they played a supportive role. They would scaffold children's decisions and follow their child's lead, responding to their needs and not interfering in the communication that was unfolding between their child and the radiographer. However, as with findings from Coyne (2013) there were no explicit conversations that occurred about the roles that parents would play in the procedure. Although parents were often observed playing the role of an 'extra' in the performance, this was in some cases reported as a purposeful decision as they felt it provided 'space' for their child to speak for themselves. This finding is important as it highlights how the interactions that happen during an X-ray procedure require the adults to be mindful of their assumed roles and how these roles impact on the actors around them.

7.5.2 Knowing the Lines: Improvisation and Scripted Dialogue

An abundance of verbal communication characterised the 'involved' procedures. This communication was identified as being either improvised or scripted. Improvised dialogue was described as often being more meaningful

to children as it was tailored to them or responsive to their communication. In contrast, the scripted communication from radiographers was, at times, described as superficial and generic to the procedure rather than tailored to the child. In theatrical performances, improvised communication is unplanned and created spontaneously by the actors without preparation, and unfolds in its purest form when responding and reacting to external factors rather than being constrained to a script. In contrast to improvisation, a script is used to ensure actors conform to one particular version of events and say exactly what is written down. Actors within a theatre will learn their lines and script and perform it identically within each performance. In many X-ray procedures, the radiographer demonstrated a reliance on a *quantity* of interaction to fill silences with superficial 'script like' communication. This rehearsed 'script like' dialogue was the same or similar across many of the observed X-ray procedures. The scripted dialogue could sometimes mean that children's communication was not always listened or responded to. There seemed to be a more natural flow in interactions where dialogue was less scripted, more improvised and led by children. Children in this study liked being a part of meaningful interactions and dialogue; this occurred when dialogue was mostly about the procedure and informed them of what different 'props' (machinery, lead aprons, boards, foam blocks, lead protectors) were for or what was going to happen.

This research contributes to existing evidence by adding children's views on the value of the opening act and being engaged in meaningful improvised communication about the procedure rather than the communication 'space' filled with superficial engagement and dialogue. This research supports Kada et al. (2019) who highlight that adults play prominent roles in sustaining children's involvement in an MRI procedure. In the procedures within this involved category, adults played specific roles that were responsive to children's needs. Children wanted the radiographer to tell them when things would happen in the procedure, especially things they would not necessarily be expecting to happen, although this relies heavily on radiographers understanding how children can feel at different points in the procedure and being responsive and attentive to their needs, as well as the information and preparation they have had. This research also contributes to a growing body of

literature related to children's health literacy and their desire to be appropriately informed about procedures (Fairbrother et al., 2016; Oulton et al, 2018; Bray et al., 2019). Previous research has demonstrated that gaining information and simple assurance from health professionals boosts children's confidence (Kada, 2019) and children who are supported through a procedure tend to have better experiences (Jaaniste et al., 2007; Bray et al., 2020). This research has shown that children report feeling more involved when communication is about the procedure or what will happen during the procedure rather than about football teams, school and other similar non-procedural topics of conversation.

The suggestion that radiographers sometimes use scripts and superficial communication does not intend to accuse radiographers of a lack of empathy in practice or robotic like interactions. Understanding how these scripted interactions are used expands on the existing understanding of communication in X-ray procedures. Health professionals working with scared and anxious children use these learnt behaviours to get the 'job done', sometimes to try and distract a child. However, flexibility is required to involve children meaningfully in communication and for them to feel involved in the procedure.

Despite the short procedural times and quick interaction, some of the procedures categorised as 'involved' demonstrated that beneficial communication can be achieved and this can promote children's agency through empowering them to engage in conversation about things important to them. This basic level engagement and empowerment has the potential to lead to children being confident and comfortable to make decisions for themselves in future procedures and reduce negative feelings afterwards (Bray et al., 2012; Lööf et al., 2019), although this is an area that would benefit from further research.

7.5.3 Being Centre Stage

The area of a theatre that a performance takes place on is the stage. There are a multitude of different parts to a 'stage' in a theatrical performance; this includes stage positions and stage components. A stage position often references the places on the physical space of the stage that performers can move in and out of, for example, if a performer is up stage, they are on the part

of the stage that is furthest from the audience, similarly if they are down stage they are on the part of the stage that is closest to the audience and if they are centre stage, they are right in the centre of the performance area.

The 'set', as in the physical nature of the X-ray room and the things within the room, had less influence on the communication that occurred in the procedures where children were involved in communication than when they were interrupted or ignored. This was despite all of the procedures having similar sets, happening in the same department, in similar rooms and using the same type of machinery and safety or positioning equipment. Parents were most often behind the protective screens rather than present with their child, yet in these involved procedures, the distance proved to be no barrier to communication, children were relaxed because of the information and interaction that had occurred in the opening act. The physical distance forced children to be 'centre stage' and away from their parent(s), the distance afforded a child a degree of freedom on the centre stage without the presence of others. 'Props' such as moveable safety screens or costumes such as lead aprons, although potential physical barriers, acted as a facilitator in these involved procedures with parents seeking to ensure children were aware of their presence and communicating more frequently with them about how they felt. The props, such as the foam blocks and lead aprons also became triggers for children to seek information and involve themselves as they asked questions from the radiographers about the purpose of these things in the procedure. Literature does suggest children's anxieties are often related to unfamiliar medical equipment (Bray et al 2019; Burns-Nader, 2017) and allowing children to play with medical equipment or simulate their procedures using similar props supports them in gaining information, becoming familiar with the treatments and desensitises them (Koukourikos, 2015; Delvecchio et al., 2019; Kleye et al., 2020). This research highlights how, as in a theatrical performance, props and costumes are significant to the performance and impact the audience, in this case, the child's response to the actions and interactions that happen.

7.5.4 The Interval

Like an interval in a performance, the purpose of this section within this chapter is to act as a break; a chance to provide an overview of what has happened thus far in this discussion prior to beginning the next act. This section began with important opening scenes, where radiographers utilised the earliest opportunities to communicate and engage with children. This research re-affirmed that there is value in genuine and often improvised communication, as opposed to scripted and over-rehearsed communication. However, using multiple methods to put children on the centre stage in giving their accounts and sharing their views, showed that children utilised the backstage opportunity of a private interview to share and disclose different feelings to those they performed on the frontstage during the procedure. This further supports the need for researchers to use multiple methods with children in research.

7.6 Communication where a child was ‘interrupted’

7.6.1 Opening Act

The main dramaturgical/theatrical concepts that were of most relevance to this category were ideas relating to the conflicting roles that caused disruption during the procedure, someone other than the lead actors stealing the show, and the inclusion and impact of props, such as lead aprons.

7.6.2 Playing a Part

Although children were involved in communication, radiographers and parents had unclear, undefined and sometimes conflicting roles in some of these procedures. Instead of there being one lead role, parents and radiographers sometimes picked up and dropped the lead role in an ad-hoc way leading to confusion about who should be communicating what and also what was being communicated. This confusion created an environment whereby communication was chaotic in most of the procedures, resulting in frequent interruptions and multiple voices speaking over other voices. The adults, who were prone to speak over or for children, dominated the communication. This appeared to undermine children’s ability to respond directly to communication and also impacted the flow of the procedure. The interruption was sometimes

not done with the intention of disrupting the procedure and sometimes happened unconsciously. However, on occasions it was the intention due to adult agendas such as wanting to return to work sooner, or not pay more for car parking or wanting to return the child back to school before their lunch break ended. These voices disrupted both the performance of the procedure and also the child's voice and their efforts to communicate their thoughts, feelings and wishes in the procedure. Despite a lack of literature directly addressing how children are interrupted, Boles, (2013) advocates and supports using only one voice to direct and guide children through a health procedures. The One Voice approach (Boles, 2013) is used to create less threatening environments for children undergoing health procedures and advocates a single consistent adult voice to talk with and to a child throughout a procedure. One Voice aims to reduce the 'noise' of multiple adults talking in the procedure; it focuses on one main adult voice, aligning to the 'director' who takes control.

Although the radiographers in these procedures often had more dominant and prominent roles than children and were the director, it was mostly the parents dialogue that replaced and interrupted their child's voice. The communication by parents often conflicted with communication by a radiographer. Radiographers tried to support children's communication by reaffirming rather than altering what a child had communicated.

7.6.3 Stealing the Show

Important to this category was how the interruption in dialogue caused children to struggle to have their voices heard in procedures. The interruption by adults speaking 'for the child', altered the course of subsequent communication and resulted in a degree of disruption to the procedure.

When children's communication was interrupted and overshadowed by adult voices, children did not get to deliver or say their own lines and this resulted in an alteration to the performance. This change of scene is similar to the action of a 'cut to' in theatre whereby one scene ends abruptly and there is a move to parallel action. In these procedures, it was as though children knew their lines and what they wanted to communicate, but adults who had more dominant or 'bigger' voices in the procedure, interrupted and stole the show. The action of

interruption is not often directly referenced in the literature as interruption, instead there is literature that discusses adults voices replacing children's and some work which examines turn-taking (Tates and Meeuwesen, 2000). Howells and Lopez (2005) highlight how sometimes children will say very little during a procedure and they generally take longer to respond, therefore it is important to be patient during a procedure as well as maintain proper non-verbal communication that maintains gaze with a child to open up the opportunity for them to respond. Howells and Lopez (2005) warn against looking to parents during the child's pause as this often results in an interruption.

Furthermore, the importance of listening to children is well documented within the literature advocating a culture where children can voice their views and have them respected and listened to at any time (McNeish and Newman, 2002; Wilson, 2016; Sharpe et al., 2018) and the importance of openness in adult-child communications (Tates and Meeuwessen, 2000). The findings of this PhD research support that there is value in making time to hear, listen and acknowledge a child's communication rather than quickly shutting it down, although recognising that in some cases children may value being interrupted if it is supportive of their voice and acknowledges their choices and how they felt.

The findings in this research showed that by interrupting a child, adults overrode the child's voice with their own. Despite adults thinking that they were communicating in helpful and supportive ways, some of the children's accounts suggested they were dismissive of what they wished to say. These interruptions constrained a child's agency and ability to be included as a valued actor in the performance of their procedure. This idea of constraining a child's ability to join in communication echoes a quote from a child in Koller (2007, p2263) whereby a seven and a half year old girl said "kids need to talk too..." demonstrating that children's voices should also be featured in procedures. There is more work to be done that investigates the impact and perceptions of interruptions within health care interactions and procedures. There is emphasis on parents having their voices heard in literature that focuses on turn taking in healthcare

interactions (Savage and Callery, 2007), but less attention has been paid to children having and being allowed their 'turn'.

7.6.4 Sets, Props, Front and Backstages

The smooth running of any performance is the ideal with the sets and props being ready and in the right place and the stages prepared. However, this was not always the case and some of the procedures observed did not always run smoothly. It is acknowledged that X-rays departments are often hectic, demanding and time-constrained environments (European Society of Radiology, 2009), and the procedures I observed rarely ran without some degree of interruption, such as equipment failures, positioning errors or other health care professionals joining the scene. Harding and Davis (2015) make reference to how technical omissions including an unprepared room can look daunting to children and can increase a child's anxiety and negatively impact on their procedure.

Some of the parents in the procedures in this category wore lead aprons and stood directly with their child instead of standing behind the protective screen. In these instances, the action of putting on a costume meant that parents became a part of the performance and stepped directly into the performance space rather than waiting in the wings (behind a screen) without the lead apron. The position of the parent to the child meant that these parents were in the direct vicinity of the direction of communication from the radiographer to the child. This space where the child was can be likened to the stage in a performance, not only because it is where the attention is focussed but also in a more literal sense, the rest of the X-ray room can appear quite dim, and the light from the machine that directs radiographers positioning of a child acts as somewhat of a spotlight. Once the parent entered this space and the spotlight was metaphorically also on them, they were no longer outside of the stage and the performance and so often intercepted a question or direction from the radiographer or their child. In these instances, the physical nature of being 'on set' rather than 'waiting in the wings' behind the screens, facilitated a parent's inclusion and always constrained a child's, as the child was interrupted by the parent or used the closeness of their parent to the performance to let them take

over and to answer on their behalf. This physical change in place and somewhat identity meant that parents acknowledged that they could be heard and would often work with their child to communicate, indirectly replacing their voices with their own or would openly interrupt their child's communication in a way that demonstrated their change in identity in the procedure.

The lead aprons in these procedures can be viewed as similar to a costume change in a theatrical performance. The change created a degree of separation and uncertainty for children that seemed to impact on the interaction; it altered the flow of the performance and also the children's expectations. This change in role and costume, likened to a 'quick change' in theatre, interrupted the procedure and seemed to indicate to the child that their parent was changing role from a parent to similar to the radiographer as the lead altered their identity in some way and also brought them physically and metaphorically closer to the performance or 'action'. There is some literature around clothing in hospitals and how it impacts children's experiences. Some studies have found that children fear hospital style uniforms and certain coloured uniforms can provoke negative emotions in children (Albert et al., 2013). However, Lilik Lestari, Wanda and Hayati (2017) suggest the opposite, their work with preschool age children found that wearing cartoon-patterned clothes (similar to the pattern of the lead aprons) reduced anxiety in children rather than exacerbated it. However, there has been limited work examining the impact of lead aprons on a child within an X-ray procedure. More work could be done to explore children's perceptions and experiences of other aspects of an X-ray procedure and how unique features such as parents being required to dress in lead impacts their experience.

7.6.5 The Interval

Procedures categorised as interrupted were depicted by children's communication and the flow of the X-ray procedure being frequently interrupted. These interruptions prioritised the adults' agendas such as getting back to work and children back to school or were focussed on completing the procedure as quickly as possible. Children's communications were overshadowed and shut down. The distance and closeness of being on set or

off set were important to the interrupted category as bringing a parent onto set; into the imaging area rather than having them backstage, resulted in them more frequently interrupting the communication between the radiographer and child.

7.7 Communication where a child was ‘ignored’

7.7.1 Playing a Part – Waiting in the Wings

The ‘wings’ are the areas just offstage, left and right, in a theatre, where actors who are not on stage get ready to enter and perform. I have previously discussed how waiting in the wings is often when parents are behind the safety screen. However, in this section waiting in the wings takes on a slightly different meaning. In an X-ray procedure, this is not before they enter the room but instead is metaphorical and refers to children, parents and radiographers being ‘outside’ of the dialogue and performance waiting for cues and opportunities to join in. The ‘wings’ in the X-ray room was both a metaphorical space and a physical space where adults were absent from the main space where the procedure was happening, for example, children would be under the machinery and parents would be positioned away and behind safety screens. In these instances, the wings became a separate space where a separate performance would take place and dialogue would happen without the child, aside from the performance of the actual X-ray procedure and the communication that it required to happen. Cues normally tell actors when to stop waiting in the wings and when it is time to enter the main stage. Until this cue they usually do not have active or important roles. In the procedures where children were ignored, there was a lack of cues or opportunities for children to get involved. Radiographers and parents were sometimes present ‘on stage’ in the performance yet their roles were not prominent or acted out, with a lack of information, leadership or interaction and children’s roles were mostly minor. These procedures lacked any substantial ‘director role’ and happened in a more ad hoc and sporadic way; it was as though every member was waiting in the wings for others to facilitate their role first. Although the radiographers gave instructions this was in a way that was disrupted and neither authentic nor responsive to others’ social cues. Both parents and radiographers lack of responsive communication meant that their role as a professional or as a

support was undermined and children were unable to use them to help them in the procedure because they were being ignored. Radiographers direct procedures through instruction but they expect that whilst they do the technical aspect of their role, parents will pick up the lead role in these procedures and the caring aspects are left to parents, highlighting the distinct differences in roles that parents and radiographers can have and their willingness to perform them.

7.7.2 Knowing the Lines

Some children reported that they wished to remain unheard in the procedures within the ignored category, similar to findings in Koller (2017) where some children preferred minimal involvement because they did not know what was best for them or because they were shy and so preferred it when their Mum spoke for them. However, others tried hard to join in communication and be heard during their procedure. Despite children expressing their feelings, their words were unheard and they reported being frustrated at being overlooked. Although part of the performance the children in this ignored category were not heard. In order for children to be and feel involved in procedures, they need to be more than just a presence in the procedure, waiting in the wings to be heard or spoken to. Their minimal role as an extra meant that adults disregarded their feelings and exerted their bigger presence and roles in the procedure. Children mostly valued being able to join in interactions, yet as this study and work by Bray et al., (2016) demonstrates, adults can often dominate a child's procedure. This can mean that children can make limited contributions and are often only involved in choices and decisions in relation to minor or trivial matters regarding their care (Carlsson et al., 2018).

Typically, short, closed scripts were common in the ignored category and these scripts served little to involve a child, similar to the findings in Koller (2017) who suggest that health professionals can fail to provide opportunities to children to join in communication. This was also seen in the findings of the scoping review chapter (Chapter 3) that highlighted closed communication and task-focussed exchanges were most common in children's X-ray procedures and lessened children's responses (Bjorkman et al., 2013; Harding and Davis. 2005). The

scripts in this category were different to the other categories, as they provided no space for children to respond. Scripts in other procedures provided some space for a child to join in or to acknowledge their role. In this ignored category, adults would communicate short scripts mostly to ensure that the child still knew that they were present, to provide reassurance. Yet there is a growing evidence base to suggest that children can find reassurance unhelpful (McMurtry et al., 2010) and such communication can marginalise their contributions in procedures (Bray et al., 2019). Despite widespread attention given to children's involvement and voices in healthcare procedures and healthcare research (Poku et al., 2019, Lambert et al., 2008), it is not enough to just direct communication *at* children. In procedures with children, their choice in communication should be considered, and this should influence the amount of communication that occurs, the things that are communicated and how they are communicated. The communication with them hinges upon appropriateness of the communication, everyday discourse and not scripted communication, active listening and supportive non-verbal communication that is non-threatening and neutral to the child.

7.7.3 The Show Must Go On

'The show must go on' is a well-established phrase that originated in circuses and is now used in theatre (Rogers, 1985). The meaning of this phrase is that whatever has been planned must be carried out and the performance must take place, regardless of any problems or disruptions. I found this phrase particularly poignant and relevant to the procedures whereby children's communication was ignored. Regardless of how children communicated a desire to stop or wait, on no occasion was a procedure stopped or paused. This finding was important to the 'ignored' category as it depicts that no matter what was happening or communicated, the show still went on.

Interaction in the 'ignored' procedures was minimal, especially with children. Radiographers used the physical barrier of the safety screen to retreat backstage into a more private backstage environment. Behind the screen radiographers could avoid being part of the main 'action' or 'performance' of the procedure or 'drop the act' and their communication would alter. The idea of

the environment and the location of communication being influential on the outcome is touched upon in Desai and Pandya (2013) who highlight in their work about communicating with children in health care settings, that communication failures can occur when there is something in the room to distract away from the focus of communication. In the case of an X-ray the screen provided a distraction that impacted upon effective listening, sometimes resulting in children being misheard and misunderstood.

Whilst the adults were at a distance and children were mostly alone, they were expected to just allow the 'show to go on' and the procedure to run despite their non-verbal communication often indicating them feeling fearful, overwhelmed or unsure of what would happen next. Radiographers and parents often missed these cues and missed the opportunity to play their role in supporting and informing the child, halting the performance or slowing the procedure down to meet the needs of the child.

The stage that was created through distance between parents and children in the procedure afforded parents with the opportunity to converse with the radiographer more easily than their child. As their child was at some distance from this interaction the parents had 'private' conversations that they considered could not be overheard on the frontstage or where the procedure was taking place, yet these 'private' conversations and interactions were public and audible to the child and me in these procedures. However, parents in these procedures were able to occupy a space distance from their child but in closer proximity to the radiographer that allowed them to have a separate interaction with the radiographer, especially as the radiographer was fixed to one location for a short period whilst they took the image.

On occasions, the ignored category was laced with a superior voice and role of the radiographer and this was noticed by children and sometimes by children's parents. The concept of the show must go on is discussed in a paper by Riley and Manias (2005) who draw on the idea of theatre in operating rooms to discuss the show having to go on for nurses even though the surgeons who were in more senior roles were more dominant and superior. The findings in this category align to this literature as it supports the idea of dominant roles and

how these different roles then influence how others feel and share their voices with others. Just like the nurses in Riley & Manias' (2005) study accepted that the show must go on despite a superior role overpowering their voice, children and sometimes also parents accepted that the radiographer, as the professional, had a higher position in the procedure than them and this resulted in them sometimes being ignored. This approach reverts back to some of the reasons for the absence of children's voices in research and in society whereby adults have traditionally been accredited with knowledge on subjects concerning children and there has been a perception that experience and power lie with adults and not children (Scott, 2000). When adults are in a position of power, this can sometimes negatively impact on children's best interests and children can lack the opportunity to challenge or contest adult voices and their voices can remain 'muffled' against health care professionals (Hendrick, 2008: p47).

7.7.4 The Interval

This interval refers to the communication in the category where a child was ignored. The 'show must go on' occurs when there is a lack of a 'cue' that facilitates any main role in the procedure. A lack of communication and interaction within the triad left each role waiting in the wings for the duration of the procedure with the show going on regardless of any problem or issue arising. Even in the short time period and the relatively confined spaces of the X-ray room, parents created private spaces where they could prioritise their agendas and discuss their own concerns to the radiographer instead of responding to their child's communication.

7.8 The Chapter Curtain Call: Summary of the Discussion

The curtain call in a performance is the part where the 'actors' return to the frontstage, come back on set, to be recognised by the audience for their performance. I was an audience member in the performance of X-ray procedures with children, exploring their communication and interactions with parents and radiographers. In this discussion, my role changed, I have acted as the narrator, taking you, the audience of this thesis, through acts and scenes of the performance of an X-ray procedure with children. On arriving at this final

part, I have, with you, met the curtain call. Similarly, this conclusion of the discussion chapter returns briefly to all acts and scenes of this discussion to conclude the points raised and highlight the original contributions to knowledge that this research makes.

In conclusion, using the theoretical framework of dramaturgy and the notion of performance, I have been able to generate an imaginative understanding of the different communication that occurs during a child's X-ray procedure. As such, theatrical metaphors applied to X-ray procedures provide a framework from which to think about, analyse and imaginatively present how children, parents and radiographers position and present themselves during the performance of a child's X-ray procedure.

Chapter 8: Conclusion

Strengths, Limitations, Recommendations and Original Contributions to Knowledge

In this chapter, I conclude this PhD thesis, present the strengths and limitations of the study, and consider recommendations for practice and further research. I also outline the original contributions to knowledge arising from this study.

8.1 Thesis Conclusion

Communication, as noted throughout this thesis, is more than just the spoken word and encompasses a multitude of different expressions, emotions and meanings. It is an important aspect of all health procedures and interactions. Communication is important to patient care and to the experiences that patients, including child patients, have whilst undergoing different procedures. Communication is important in shaping what happens during a procedure and how this makes a child and their parent feel. This study has addressed the research aim of exploring children's communication in X-ray procedures and children and parents experiences of the procedure and has provided a new, fresh insight into what communication looks like during children's X-ray procedures as well as elucidating how children and their parents can experience these procedures. The findings highlight the complexity of communication and the different views children and parents have of what is important to them. I have demonstrated that children experience X-ray procedures in unique and individual ways.

The findings provide an initial step in gaining a better understanding of X-ray procedures from the perspectives of children undergoing them and parents accompanying them. Whilst this research, in areas, echoes findings similar to those from research into children's experiences of other health care procedures, it also provides new insights and "imaginative understandings" (Charmaz, 2006) into the different actions and processes that occur between children, their parents and radiographers. The theoretical categories present the different types of communication that occur during an X-ray procedure. The

categories of children being involved, interrupted or ignored in communication during an X-ray procedure demonstrate the various ways children communicate and how adults respond to them and offer a deeper conceptual outlook grounded in the data.

The study demonstrates that some children are willing and able to initiate and lead communication and to voice their choices and wishes during an X-ray procedure. These children are able to make decisions such as when to begin the procedure or where they would like their parent to stand during the procedure. Some children asked questions about the procedure and what would happen, as well as about the machinery; they were intrigued by and interested in the procedure. When adults responded to these questions, it opened up opportunities for children to become involved during the procedure. However, some children reported they found it unhelpful when the adults made them join in communication and answer questions that were not of interest to them. Children described some of the communication, especially by radiographers, that was not about their procedure as unhelpful and inauthentic 'chit chat'.

Another important finding of this study was that during an X-ray, children's communication was frequently interrupted. They were often not able to fully communicate what they wished because of adults 'jumping in' and talking for them. This action of interruption aligns with the view that children need input from adults and that their voices are less powerful. Interruption was not always negative, despite often being frustrating for children, sometimes the interruption from parents helped by interpreting a child's request or question. Parents frequently justified their interruption by suggesting they were repeating what their child wanted to say, but were presenting it in a more understandable way. This finding highlights the need for radiographers to have strong social skills to help them understand the ways children communicate, what children or radiographers communicate and how to meet their needs.

This study demonstrates that despite the re-conceptualisation of childhood, the upsurge in children's involvement in research, and the spotlight on their voices, some children still lack a voice in their procedures. The ignored category of this

study showed that in some procedures children were overlooked and ignored whilst adult-centred communication occurred around and about them. However, contrary to how being 'ignored' may be perceived, this study has demonstrated that children may choose to be quiet and separate to the conversation and this can be their means of exercising their right to having a choice. These children chose to be a 'smaller' voice in the performance because they thought more communication would make the procedure last longer and they wished for it to end sooner.

Experiences were shaped by more than just the technical aspects of an X-ray procedure but also the meaningfulness of communication including, the and the dominant 'lead' roles and the less heard 'extra' roles, the presence of 'scripts, inclusion of 'props' and distinct front and backstages. All of which influenced the main plot and happenings of the X-ray procedure.

The three categories show the different aspects of communication that can influence the role children, their parents and the radiographer adopt and the ways they enact and experience their role through various frontstage, or public, performances that are acted out in front of others, and backstage performances that are acted out away from the 'public' view of the happenings of the main procedure as well as the use of improvised, natural communication or scripted, somewhat rehearsed communication. The core category identified that the concept of performance was central to the communication and this core category aligned with Constructivist Grounded Theory and Charmaz (2006, p127) ideas around interpretive theory, emphasising imaginative understandings of the studied phenomenon.

8.2 Strengths of the study

There are multiple strengths to this study such as the involvement of children throughout the research process, methodological innovation, the sample size, the novel reporting of findings and my outside perspective. These strengths will now be discussed.

8.2.1 Involvement of children throughout the research process

I have tried to hold children central throughout this research and to actively involve them – from PPIE consultation with the Young People’s Forum early within the design process of the study through to ensuring their accounts and words have been prioritised throughout the thesis. The voices of children have always been of most importance to me. A strength of this research has been the involvement of children throughout the process, this is especially important in radiography where children’s accounts are lacking.

Children in a PPIE group informed and commented on the study design and the methods proposed and their views and opinions were taken seriously. This consultation helped to shape how and when data were collected as well as informing the design of materials and their suitability for children in undergoing X-ray procedures.

Aligning to the Constructivist Grounded Theory methodology used, children were involved in the co-construction of knowledge by the observation notes recorded during their procedures being shared with them, and their thoughts and opinions on these helping me to understand what had happened or what was important to them during their X-ray procedure. Involving children throughout the different stages of research has been invaluable.

8.2.2 Methodological innovation

A key strength of this research was the use of a palette of methods (Wilkinson and Wilkinson, 2018) that ensured a thorough and detailed collection of data. The use of observations, interviews using activity booklets, face-to-face interviews and telephone interviews ensured that data collection was rigorous and was generated through different methods. Using multiple methods meant that any inherent weakness in one method was offset against the strengths of the other methods. For example, the interviews with children drew on the observation data and this meant that the data collected was not only what I viewed to be important in the procedure but also provided children with the opportunity to say what they thought was important. At the analysis stage, combining findings and ‘fusing’ interview data so that I could ‘map’ the accounts

of children and their parents to the specific observed events during the X-ray procedure added real value and depth to the co-construction of meaning.

The use of an activity booklet designed with children and young people enabled me to examine specific aspects of the procedure and prompted discussion and exploration of what mattered to children, which I believe would not have happened if only verbal interviews had been used.

8.2.3 Sample size

A further strength of this study is the sample size. Compared to other studies addressing children's experiences in health care, this study recruited 45 children and their parents for observations with 17 of these children and 9 of the parents also providing further data in interviews. This is a relatively large number of children and amount of data. Typically, other qualitative studies within this field have recruited smaller numbers of children, for example O'Shea and Davis (2015) recruited 18 children for a self-completion questionnaire and Björkman et al., (2012a) recruited 32 children for interviews only. My approach of theoretical sampling helped me to develop a rich conceptual understanding of what was going on.

8.2.4 My 'outsider' perspective

As a researcher without a health professional background my 'outsider' perspective meant I had few preconceived assumptions about what I would see or what would happen. I was essentially a stranger in the setting. This enabled me to develop new and interesting ways of thinking about and presenting the accounts of children's communication and experiences of X-ray procedures. This was supported by my chosen methodology as my thinking was informed by drawing on constant comparative techniques. I believe this outsider perspective enable me to question practices that may be considered routine or 'part of the job', I therefore consider my outsider perspective a strength to this research as I entered into a profession with minimal preconceived notions.

8.2.5 Novel reporting of findings

Using the dramaturgical lens to explore the findings is strength of this research as it offers a unique conceptual depth of understanding whilst remaining

accessible to those whom this research will inform and reach. The use of this frame helped with the conceptual development and has supported me in developing a core category that aligns with what Charmaz (2006) discusses as an interpretive theory and imaginative understanding and has helped me to move towards this, however I think further work in other radiological settings and different hospitals is necessary.

8.3 Limitations of the study

Whilst I firmly believe that my study has fulfilled the aim, I am aware that my study is not without limitations. I critically consider these within the following section of this chapter.

8.3.1 Interview sample

As highlighted throughout this thesis, children and parents had a choice in how much or how little they participated in this research. Being interviewed after the procedure was something not all participants were interested in doing, and only 17 of the 45 children and 9 parents chose to participate in an interview. I consider this a limitation, mostly because the depth of information children and their parents provided in the interviews was profound. The interviews enabled them to co-construct meaning with me and I was able to gain their thoughts and opinions, feedback and meanings about aspects of the observations. This added further insight to this research as well as providing me with opportunity to discuss my recordings and interpretations.

However, the use of multiple methods, and the interviews which were conducted, makes me confident that I have been able to provide a clear picture of how, what and why children communicate in an X-ray procedure and take account of both a child and their parents voices.

8.3.2 Recruitment sites

The research was based upon the experiences and communications children had within one department in one hospital, more specifically a specialist children's hospital. The fact that only one setting was used could be considered a limitation as the findings only represent what occurred within this setting and may not be transferrable to other settings. Other settings such as a general

hospital or another paediatric specialist centre may operationalise their X-ray procedures differently and may have different cultural influences, impacting on how children experience the X-ray procedures.

8.3.3 Exclusion of some groups of children

Whilst I have on every possible occasion tried to include children and their accounts, I am aware of two limitations. The first being that I excluded children who were unable to speak English and the second being children who were unable to verbally communicate their views and experiences. This was due to this research focusing on exploring perceptions and meanings. I understand that in setting these exclusion criteria I have ultimately limited the sample diversity and to some degree continued to silence children who may benefit most from having their views heard or who may find X-ray procedures particularly daunting.

8.4 Original contribution to knowledge

The rationale for this study arose from the scarcity of empirical work reporting children's accounts of their X-ray procedures and a lack of insight into the communication that occurs with children within this setting. Through collecting children's accounts, observing procedures and analysing them in a constructivist way, I have presented findings that provide new insight into children's communication during and experiences of X-ray procedures. The findings of this study shed light on children's thoughts, feelings and wishes and how they communicate these during their X-ray procedure. My original contributions to knowledge fall into five broad areas and I present these in the next section.

8.4.1 Evaluation of previous literature using a scoping review of children's communication specifically in X-ray procedures

As highlighted in Chapter 3, there have been no previous reviews conducted of the literature specifically about children's communication during an X-ray procedure or their experiences of undergoing them. By choosing to undertake a scoping review and using a systematic approach, this review presents a robust and detailed consideration of the available literature. The findings from

this review contribute new insights into this body of research and have shown that there is a lack of literature that discusses communication during a child's X-ray procedure and that their experiences of plain X-rays are rarely explored.

8.4.2 Exploration of communication between radiographers, parents and children in a UK based Radiology Department using observations and interviews

This study is the first of its kind within the UK to explore communication during a child's plain X-ray procedure. This study contributes new knowledge by drawing on robust observations of a child's X-ray procedure and then conducting interviews to discuss the events from their perspective. The interviews examined children's thoughts, feelings and experiences about their X-ray procedure and what happened, what they communicated and why. The children discussed their need for procedural information, their need for meaningful communication about the procedure and their need for their choices around support to be listened to. They also provided their perspective on how adults communicated with them. However, some found communication unhelpful and would prefer that the procedure was over quicker than time being spent communicating about things not of interest to them.

8.4.3 Utilisation and application of Constructivist Grounded Theory methodology with young children in a paediatric radiology study

Methodologically, this is the first time CGT has been used to co-construct meaning with children as young as 4 years old. The children in this study were clearly able to voice their ideas, contradict my ideas and thinking and add meaning and depth to my understanding of their procedures. Utilising a Constructivist Grounded Theory approach ensured that findings were grounded in the children and parents data and this supported me to co-construct knowledge with the children and their parents.

8.4.4 Fusing of findings using a novel mapping method

The use of datasheets to explore, fuse and present data is an original contribution to knowledge. To the best of my knowledge, no other published work reports the use of 'datasheets' to map children and parents interview

accounts of events onto the events of a procedure. I draw on the radiological term of 'fusing', meaning 'joining', to describe this process. The datasheets were created as a direct response to the difficulties I encountered in the early stages of understanding the data. Creating the datasheets helped to fuse together the different data I had collected and enabled me to obtain a better overview of the procedure and visualise the communication that occurred and the experiences children and their parents reported.

8.4.5 Presentation of a core category and imaginative understanding that demonstrates how children's X-ray procedures resonate with drama and theatrical performances

To the best of my knowledge, research findings in an X-ray setting with children have not previously been explored using a dramaturgical lens. As such, this study contributes new knowledge through the dramaturgical discussion of the findings in the context of a performance, with opening scenes, scripts, improvised communication, roles and the differences between the front (more public stage) and the backstage (where the act can be dropped). The framing of the findings in this way helps shed new light and perspectives on what may, by some, be considered as minor routine procedures. Using terms usually associated with the theatre conveys the drama of such 'routine' procedures revealing that, for the children, they are anything but routine. The dramaturgical lens also supports the presentation and dissemination of the research findings as it allows important issues to be presented in an engaging, understandable and accessible manner to both radiographers and to an academic audience. Therefore, this study contributes a theoretical understanding of communication during a child's X-ray procedure, aligning to the development of a constructivist grounded theory.

8.5 Recommendations for research

This study has demonstrated how children communicate and experience X-ray procedures in different and unique ways. Despite the original contributions to knowledge that I have made through this PhD, this research has also identified questions that warrant further investigation.

8.5.1 Exploration of the experiences of children undergoing an X-ray who are unable to communicate verbally

Future research should consider the communication within X-ray procedures of children with limited or no verbal communication due to special educational needs and disabilities (SEND). This research would use a qualitative approach and would be interview and observation based and would have children, parents and radiographers as participants. The researcher would need to have expertise in augmentative and alternative communication (such as Makaton) to ensure that children who do not communicate verbally are able to share their experiences and ideas.

8.5.2 Further exploration of communication in other non-urgent procedures using the three core categories developed in this study.

Further studies could explore children's communication during non-urgent procedures in settings other than a radiology department, focussing on whether the three core categories of communication with a child are evident in other procedures. Such studies could replicate the methodology presented in this study and contribute to a clearer understanding of how children's communication occurs within clinical procedures. By using both the palette of methods and the datasheet method used for analysis, such studies would add insight into the utility of these methods when working with young children.

8.5.3 Replication of this study across other settings

To take account of the limitation of the single setting within this study, future work should endeavour to recruit children from a range of different radiology departments. Recruitment should aim to reflect both different geographical settings (e.g. different cities across the UK) and different organisational settings (e.g., general hospitals, specialist paediatric tertiary services).

8.5.4 Further research that explores the different factors that can impact on experiences

I did not collect detailed demographic information about each child who took part in the study. Therefore, it is not possible to comment on how a child's

cognition, or other factors such as disability or previous experiences impacted on a particular finding. Further research to build on this study may consider collecting additional demographic details about children e.g. previous experiences, presence of disabilities acknowledging the diversity of childhood in a more focussed way with a bigger sample size.

8.6 Recommendations for practice

8.6.1 A more inclusive and participatory approach to communication that recognises children's individuality and choices

Radiographers should appreciate that communication with children during a plain X-ray procedure is complex and multi-faceted. There should be increased opportunities to understand a child's needs and preferences for communication during their procedure. This could be via additional checks in the 3-point check of a child's name, date of birth and address and could include what information they have had before the procedure and their preferences for communication and how much they wish to be involved in their procedure. A simple action allows the child a choice in what and how they choose to communicate without assuming that they want to be involved, it also demonstrates to parents and reinforces to radiographers that children may wish to be heard and may wish to communicate during the procedure and thus their interruptions should be minimal. A simple 'check-in' with children also opens up their opportunity to know and understand that their communication is welcomed during their procedure.

8.6.2 Co-creation of accessible pre-procedural child-centred information

Co-created child-centred information leaflets, booklets or animations should be available in every X-ray department as these could help to prepare and inform children about their routine procedure. This information would aim help children understand that they can communicate with both their parent and the health professional before, during and after their procedure. This pre-procedural information about routine procedures should include key information about

what the X-ray room will look like, who will be there, and details about the machinery and the lead aprons. The information should ensure that children are aware that X-rays are not painful, although positioning a child for an X-ray could be, about the machinery and equipment used and that the machinery will not touch them. It would also manage their expectations by being clear that they will not see a picture of their bones or have any results straight away.

8.6.3 Enhanced communication skills training and education for radiographers

Using the findings from this study, education and training resources could be developed using the dramaturgical approach to inform radiographers of the three core categories of communication. This could use scenarios to help radiographers become more aware of why some children actively become involved in communication and others do not and to show how they could adapt their communication accordingly to meet the needs of each individual child.

8.7 The final bow

This Constructivist Grounded Theory study has explored children's communication during and experiences of an X-ray procedure. It has demonstrated the complexity of children's realities when undergoing a procedure and has shed light on the different ways and reasons for their communication and how it is shaped and impacted by others.

In keeping with my commitment to putting the children centre stage, it feels appropriate that they are part of the final curtain call and it is their voices that the reader sees to conclude this thesis. It is difficult to think of a better way to conclude than to hand over to an 11-year old boy who said:

"I could talk to the nurse and she was listening but some doctors don't...they should listen even when I don't say the right thing, and I say the wrong thing, because its me who has broken my bones... it's me that is scared" (Boy, 11yrs)

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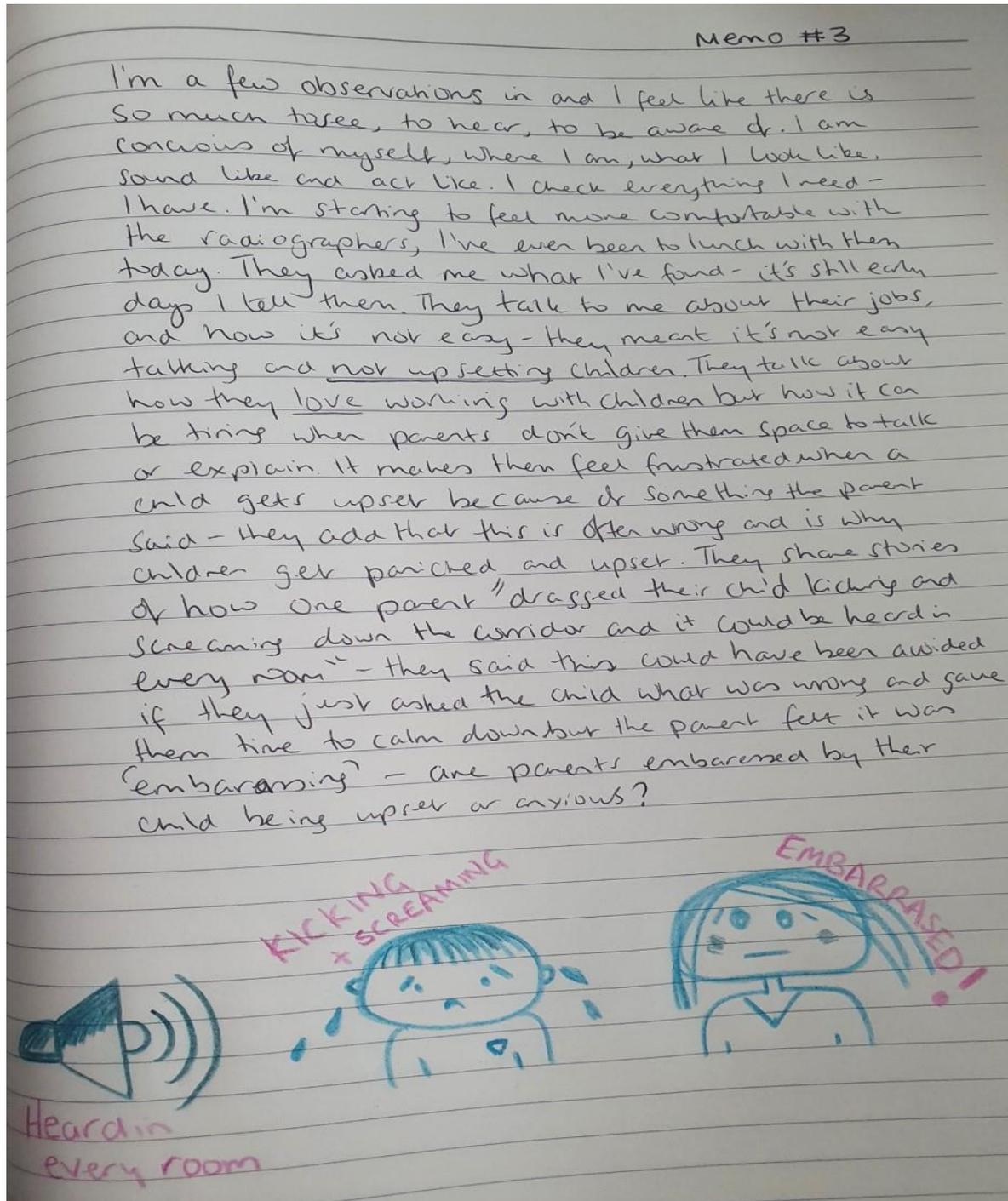
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Appendices

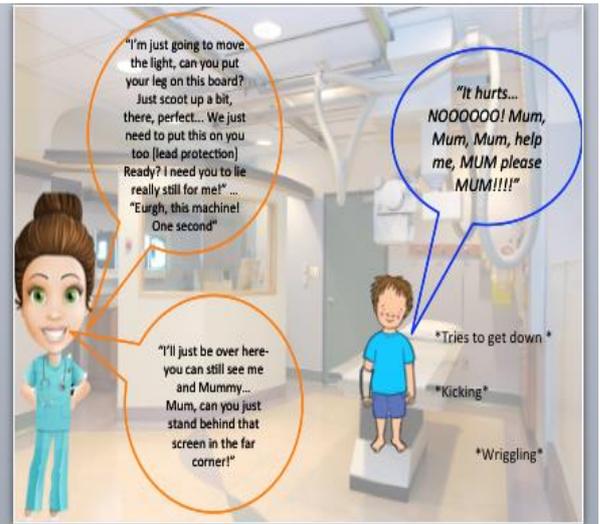
Appendix A Anecdotal Memo from time spent with Radiographer



Appendix B Example of observation comic strip



1



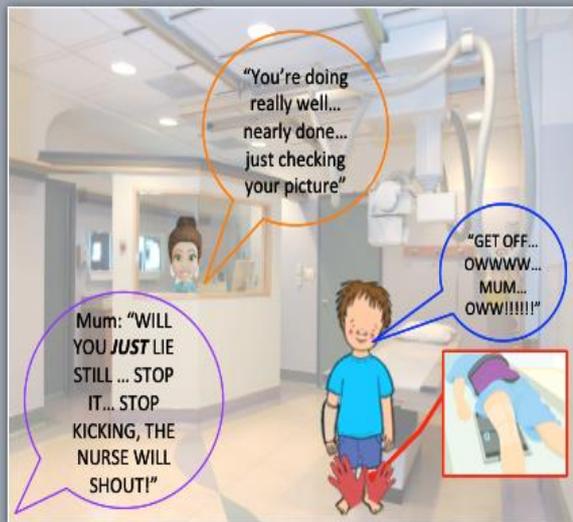
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3

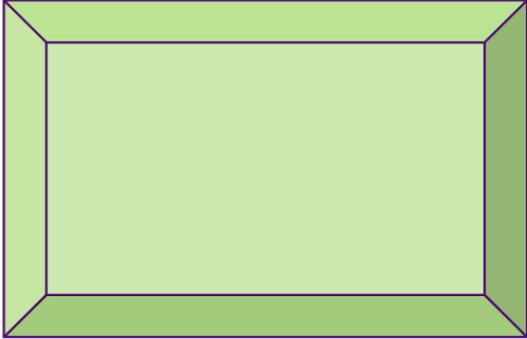


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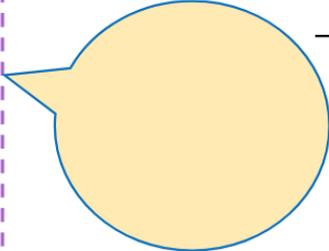


Appendix C Children's Interview Activity Booklet

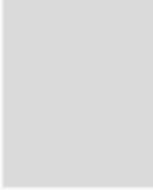
3. Who was helpful to you today? You can draw them or pick stickers



3. What did they say or do which was helpful?

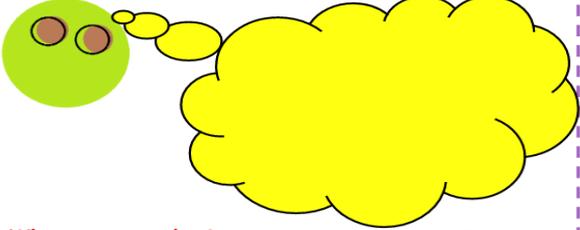


And YOU!
Draw yourself in the mirror

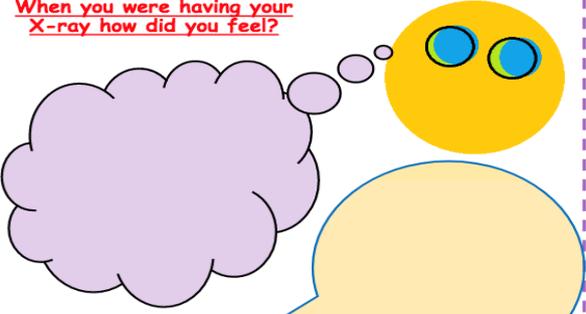



1. About your X-ray

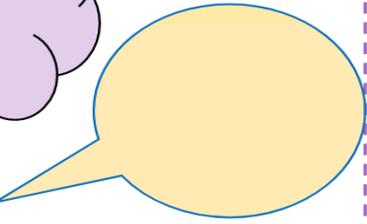
Before your X-ray how did you feel? (Use "emoji" stickers to chose the face or write some words in the bubble)



When you were having your X-ray how did you feel?



Can you remember anything you said?




Edge Hill University

Children's Communication in Hospital

Interview Booklet for Children 4-11 years old

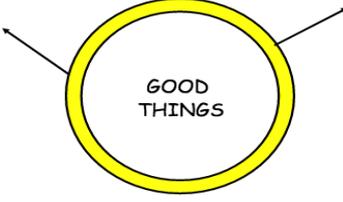


Pick a **special name** you would like to be called for this activity...

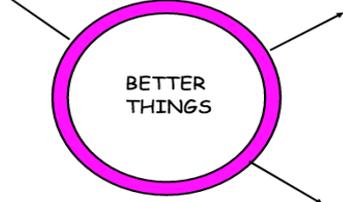
How old are you? Circle the number...

4 5 6 7 8 9 10 11

2. What were the good things about your visit? (you can draw or write answers)



3. What could have made your visit to the hospital better?



Children's Communication in Hospital Version 1 April 2017 (Children's Interview Booklet)

Appendix D Semi-structured interview schedule for children



Indicative Semi-Structured Interview Schedule for Children aged 4-11 years old

Pre-ample: Thank you for letting me watch your X-ray or scan. I'd really like to ask you a few questions on how it felt. Is that ok? If you don't want to answer a question, I will not mind, just let me know and we can move on. Would you like to use some activities in this book to help you answer?

Opening questions (Looking to identify the child's feeling before the procedure):

- 1) Before you came to your X-ray or scan today, how did you feel? (Using emoji stickers and thought bubble to write in to show an emotion as a prompt for discussion)
Discussion asks: Why? - Why did you feel scared/happy/sad?
Did anyone make you feel better?
Can you remember how they made you feel better?
- 2) Did you understand what was going to happen when you came to the hospital today? Did your "adult" help you to understand? How? Did the staff at the hospital explain what was going to happen? How? How did this make you feel?
- 3) Have you had an X-ray or scan before? How many times?

Main body questions (Exploring actions witnessed during the observation and identifying areas whereby assent or dissent was shown and actions that happened after this and how this made them feel):

- 1) At the start of your X-ray or scan, how did you tell or show the X-ray staff that you were/were not ready for it to happen? Can you remember what happened then?
- 2) How did you feel today when you had your X-ray or scan? (Using emoji stickers and thought bubble to write in to show an emotion as a prompt for discussion as to why the child felt that way)
- 3) Were there any good things that happened during your X-ray or scan? (Using the mind-mapping techniques in the activity booklet to help focus ideas)
Structured around:
 - When xxxxx (xxxxx= specific action) happened how did it feel?
 - When xxxxx happened could your parent or the X-ray staff done anything differently? ("What could have made it better?" mind-map activity in booklet)
 - During your X-ray or scan you said "xxxxx", can you remember what happened after this?
 - Can you remember anything else you said? (Using speech bubbles in the activity booklet as prompts)
 - What happened after you said "xxxxx" or did xxxxx? How did this make you feel? (Focussed on communication of dissent if any shown)
- 4) Do you remember your "adult" saying "xxxxx" or doing xxxxx? How did you feel after this? What did it make you think? What was it like having your "adult" there?

- 5) During your X-ray or scan an "adult" had to hold your arm/leg/hand, how did this make you feel? You said "xxxxx" when this happened or did xxxxx, what did you want to happen then? What did happen?
- 6) Where there any other times during the X-ray or scan that you wanted the X-ray or scan to stop? Can you remember how you told the "adults" this? Did they stop? How did this make you feel?
- 7) You went a bit quiet when you were having your X-ray or scan (if they did), can you remember why?
- 8) Do you feel like the X-ray staff and your "adult" listened to you when you weren't happy today? If yes, why do you think that? If no, what did they do instead? How did this make you feel?

Closing questions

- 1) Who was helpful today when you visited the hospital for your X-ray or scan? (Using stickers and drawings in activity book) Why were they most helpful?
- 2) What did they say or do which was helpful? (Using speech bubbles in activity booklet)
- 3) Do you think you will be less scared/ anxious/ upset (relating back to first emoji answer and question 1) if you have another X-ray or scan?
- 4) Do you have any questions for me?

Thank you so much for all your help, can I take a picture of your activity book? You can take it home or back to school with you. (Children will then be rewarded with small thank you gestures such as a certificate and "party bag" style gift)

The Dictaphone will remain on until the child leaves the designated quiet area. (An area separate from the waiting room and procedure rooms on the Radiology ward has been designated as the area where interviews will happen).

Appendix E Semi-structured interview schedule for parents



Indicative Semi-Structured telephone or face-to-face interview schedule for Parents/ Legal Guardians

Pre-ample: Thank you for letting me watch your child's X-ray or scan and for agreeing to talk to me about your experience.

(Prompts for interview: check consent, check recording, check aware of withdrawal of data timeframe)

Opening questions: Background and Introductory questions to gain a sense of child's "normal" behaviour and prior knowledge within hospitals and also before the procedure

- 1) Has your child had many, if any procedures done before at Alder Hey?
- 2) What do they normally behave like when/if they come to the hospital or visit for an appointment?
 - a. Was there behaviour today/on day of X-ray or scan, normally how they behave based on what you have said?
- 3) Did your child know they were coming to hospital for an X-ray or scan? (Yes/No)
 - a. Who told them?
 - b. How did you tell them?
 - c. How did they feel about this?
 - i. How did you know they felt this way?
 - ii. How did this make you feel?

Main questions: Relating mostly to what happened during the procedure, how the parent/ legal guardian understood their child's behaviour and the impact of the things they said or did on the assent/dissent/comfort or distress of their child

- 4) Did anyone explain to you what was going to happen during your child's X-ray or scan?
 - a. If yes, did they also explain this to your child?
 - i. How did this make them feel?
 - ii. How do you know they felt this way?
 - b. If no, what do you think about this?
 - i. Do you think it should have been explained to your child?
 - ii. How did this make you feel?
- 5) How do you think the X-ray went the other day? Why do you think this?
 - a. What could have made it better for you? What could have made it better for your child?
 - b. Did you find anything particularly challenging during or before the procedure?
- 6) Questions based on the observation data (note: "xxxxx" will be replaced with specific actions, words or phrases from the observations and may only may

be asked if events e.g clinical holding happen, if events did not happen then question will not be asked)

- a. Your child seemed really calm during the X-ray or scan, when you were saying "xxxxx" or doing xxxxx, do you think that helped them?
 - i. Do you know why you said/ did xxxxx?
- b. At one point your child got upset/ said "xxxxx" – I know you were trying to calm them down, do you think it helped?
 - i. When your child said "no/stop" (showed distress) what happened?
 - ii. You or the health professional said "xxxxx" or did "xxxxx" did this help?
 - iii. The procedure carried on despite your child being upset/angry/distressed, how did this make you feel?
- c. During the X-ray or scan your child said "yes/no/stop" and "cried/ was silent", how did you respond to this?
 - i. Is this how they normally protest things they do not like or want?
- d. During the X-ray or scan your child had to be held still, how did this make you feel?
 - i. Has your child had this done before?
 - ii. Your child responded by saying "xxxxx" and doing xxxxx, how did this make you feel?

Closing questions:

- 7) How do you think being there at your child's appointment helped them when they had their X-ray or scan done?
 - a. Do you think the things you said or did helped? How?
 - b. Would you act differently or the same with your child during their next procedure?

Thank you for your time. Do you have any questions that you would like to ask me?

(Close the interview by informing the participant of what will happen next, timescales for receiving findings and obtaining an address should they wish to receive them, and detailing the ability to withdraw their data from the study for up to 7 days from the date of interview).

Appendix F Ethics approval letter from University FREC

Edge Hill
University

Holly Saron

9th May 2017

Dear Holly,

Thank you for submitting your research ethics application '*Examining ways children communicate assent and dissent during clinical procedures*' (FOHS 172) to the Faculty of Health & Social Care Research Ethics Committee.

I have pleasure in informing you that the Committee recommended that your study is granted Faculty of Health & Social Care research ethics approval, subject to the following conditions:

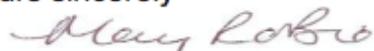
1. Ethical approval covers only the original study for which it is sought. If the study is extended, changed, and / or further use of samples or data is needed the Committee Administrator, Daniel Brown, must be contacted for advice as to whether additional ethical approval is required.
2. (NHS studies only) NHS Research governance processes must be adhered to. An application must be made to the HRA for approval for the research to be conducted in the NHS. All NHS R&D departments (in Trusts where data is being collected) will also need to be approached for Trust permission to proceed.
3. If the project requires HRA approval and/or NHS ethical approval, please forward evidence of the approval(s) to Daniel Brown (browdan@edgehill.ac.uk) before commencing the study
4. The Principle Investigator is responsible for ensuring that all data are stored and ultimately disposed of securely in accordance with the Data Protection Act (1998) and as detailed within the approved proposal.
5. The Principle Investigator is responsible for ensuring that an annual monitoring form and an end of study form, where appropriate, is sent to the Committee Administrator (browdan@edgehill.ac.uk). The form will be sent to you at the appropriate time by the Committee Administrator.
6. Ethical approval for this research will expire on 31/08/2019. Any extensions to this date will require additional approval from the committee.

The study documentation that has been reviewed and approved is detailed below:

<doc title>	<version no & date>
FOHSC Faculty Research Proposal 9 May 2017	V2, May 2017

Appendix A FOHSC Recruitment Flowchart	V1, April 2017
Appendix B FOHSC Children's Indicative Semi-Structured Interview Schedule	V1, April 2017
Appendix C FOHSC Children's Interview Booklet	V1, April 2017
Appendix D FOHSC Parents-Legal Guardians Indicative Semi-Structured Interviews	V1, April 2017
Appendix E FOHSC Information Sheet Children 4-6	V2, May 2017
Appendix F FOHSC Information sheet Children 7-11	V2, May 2017
Appendix G FOHSC Information Sheet Parents and Legal Guardians	V2, May 2017
Appendix H FOHSC Information Sheet Health Professionals	V1, April 2017
Appendix I FOHSC Children's Assent form 4-11 year olds	V1, April 2017
Appendix J FOHSC Consent form Parents and Legal Guardians	V2, May 2017
Appendix K FOHSC Consent form Parents for Children 4-11	V1, April 2017
Appendix L FOHSC Consent form Health professionals	V2, May 2017

Yours sincerely



Professor Mary O'Brien

Chair of Faculty of Health & Social Care Research Ethics Committee
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Appendix G Ethics approval letter from REC



Health Research Authority London - Surrey Research Ethics Committee

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Bristol
BS1 2NT

Telephone: 0117 342 1389

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

25 August 2017

Miss Holly Saron
PhD Researcher
Edge Hill University
Faculty of Health and Social Care, Edge Hill University
St Helens Road
Ormskirk
L39 4QP

Dear Miss Saron

Study title: Examining the ways children communicate assent and dissent during clinical (radiological) procedures
REC reference: 17/LO/1248
IRAS project ID: 228773

Thank you for your letter of 24 July 2017, responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

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 please contact hra.studyregistration@nhs.net outlining the reasons for your request.

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.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make 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 must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA Approval (England)/ NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk 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 management permissions from host organisations.

Registration of Clinical Trials

year olds]		
Participant consent form [Appendix J Consent form Parents and Legal Guardians]	2	05 May 2017
Participant consent form [Appendix L Consent form Health professionals]	2	05 May 2017
Participant consent form [Appendix L Consent form Health Professionals]	3	23 July 2017
Participant information sheet (PIS) [Appendix E Information Sheet Children 4-6 years]	2	05 May 2017
Participant information sheet (PIS) [Appendix F Information sheet Children 7-11]	2	05 May 2017
Participant information sheet (PIS) [Appendix H Information Sheet Health Professionals]	1	11 April 2017
Participant information sheet (PIS) [Appendix G Information Sheet Parents and Legal Guardians]	2	05 May 2017
Research protocol or project proposal [IRAS Proposal 30th June]	1	30 June 2017
Summary CV for Chief Investigator (CI) [CV Holly Saron]	1	06 July 2017
Summary CV for student [Holly Saron CV]	1	06 July 2017
Summary CV for supervisor (student research) [Catherine Wilkinson CV]	1	09 June 2017
Summary CV for supervisor (student research) [Lucy Bray (DoS) CV]	1	
Summary CV for supervisor (student research) [Bernie Carter CV]	1	
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Appendix A FOHSC Recruitment Flowchart1]	1	11 April 2017

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.

Feedback

You are invited to give your view of the service that you have received from the Research Ethics Service 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-assurance>

We are pleased to welcome researchers and R & D staff at our RES Committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

17/LO/1248

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Chrissie Lawson', written in a cursive style.

PP
Mrs Chrissie Lawson
Chair

Appendix H Ethics approval letter from HRA



Miss Holly Saron
PhD Researcher
Edge Hill University
Faculty of Health and Social Care, Edge Hill University
St Helens Road
Ormskirk
L39 4QP

Email: hra.approval@nhs.net

14 September 2017

Dear Miss Saron

Letter of **HRA Approval**

Study title: Examining the ways children communicate assent and dissent during clinical (radiological) procedures
IRAS project ID: 228773
REC reference: 17/LO/1248
Sponsor: Edge Hill University

I am pleased to confirm that **HRA Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications noted in this letter.

Participation of NHS Organisations in England

The sponsor should now provide a copy of this letter to all participating NHS organisations in England.

Appendix B provides important information for sponsors and participating NHS organisations in England for arranging and confirming capacity and capability. **Please read *Appendix B* carefully**, in particular the following sections:

- *Participating NHS organisations in England* – this clarifies the types of participating organisations in the study and whether or not all organisations will be undertaking the same activities
- *Confirmation of capacity and capability* - this confirms whether or not each type of participating NHS organisation in England is expected to give formal confirmation of capacity and capability. Where formal confirmation is not expected, the section also provides details on the time limit given to participating organisations to opt out of the study, or request additional time, before their participation is assumed.
- *Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria)* - this provides detail on the form of agreement to be used in the study to confirm capacity and capability, where applicable.

Further information on funding, HR processes, and compliance with HRA criteria and standards is also provided.

It is critical that you involve both the research management function (e.g. R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details and further information about working with the research management function for each organisation can be accessed from www.hra.nhs.uk/hra-approval.

Appendices

The HRA Approval letter contains the following appendices:

- A – List of documents reviewed during HRA assessment
- B – Summary of HRA assessment

After HRA Approval

The document “*After Ethical Review – guidance for sponsors and investigators*”, issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

In addition to the guidance in the above, please note the following:

- HRA Approval applies for the duration of your REC favourable opinion, unless otherwise notified in writing by the HRA.
- Substantial amendments should be submitted directly to the Research Ethics Committee, as detailed in the *After Ethical Review* document. Non-substantial amendments should be submitted for review by the HRA using the form provided on the [HRA website](http://www.hra.nhs.uk), and emailed to hra.amendments@nhs.net.
- The HRA will categorise amendments (substantial and non-substantial) and issue confirmation of continued HRA Approval. Further details can be found on the [HRA website](http://www.hra.nhs.uk).

Scope

HRA Approval provides an approval for research involving patients or staff in NHS organisations in England.

If your study involves NHS organisations in other countries in the UK, please contact the relevant national coordinating functions for support and advice. Further information can be found at <http://www.hra.nhs.uk/resources/applying-for-reviews/nhs-hsc-rd-review/>.

If there are participating non-NHS organisations, local agreement should be obtained in accordance with the procedures of the local participating non-NHS organisation.

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

IRAS project ID	228773
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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-assurance/>.

HRA Training

We are pleased to welcome researchers and research management staff at our training days – see details at <http://www.hra.nhs.uk/hra-training/>

Your IRAS project ID is **228773**. Please quote this on all correspondence.

Yours sincerely

Nabeela Iqbal
Assessor

Email: hra.approval@nhs.net

Copy to:



Appendix B - Summary of HRA Assessment

This appendix provides assurance to you, the sponsor and the NHS in England that the study, as reviewed for HRA Approval, is compliant with relevant standards. It also provides information and clarification, where appropriate, to participating NHS organisations in England to assist in assessing and arranging capacity and capability.

For information on how the sponsor should be working with participating NHS organisations in England, please refer to the, *participating NHS organisations, capacity and capability and Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria)* sections in this appendix.

The following person is the sponsor contact for the purpose of addressing participating organisation questions relating to the study:

Name:

Tel: 01

Email:



HRA assessment criteria

Section	HRA Assessment Criteria	Compliant with Standards	Comments
1.1	IRAS application completed correctly	Yes	No comments
2.1	Participant information/consent documents and consent process	Yes	No comments
3.1	Protocol assessment	Yes	No comments
4.1	Allocation of responsibilities and rights are agreed and documented	Yes	Statement of Activities will act as an agreement between the site.
4.2	Insurance/indemnity arrangements assessed	Yes	Where applicable, independent contractors (e.g. General Practitioners) should ensure that the professional indemnity provided by their medical defence organisation covers the activities expected of them for this

IRAS project ID	228773
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Section	HRA Assessment Criteria	Compliant with Standards	Comments
			research study
4.3	Financial arrangements assessed	Yes	No funding will be provided to the site as detailed in schedule 1 of the SOA
5.1	Compliance with the Data Protection Act and data security issues assessed	Yes	No comments
5.2	CTIMPS – Arrangements for compliance with the Clinical Trials Regulations assessed	Not Applicable	No comments
5.3	Compliance with any applicable laws or regulations	Yes	No comments
6.1	NHS Research Ethics Committee favourable opinion received for applicable studies	Yes	REC FIFO dated 25 th August 2017.
6.2	CTIMPS – Clinical Trials Authorisation (CTA) letter received	Not Applicable	No comments
6.3	Devices – MHRA notice of no objection received	Not Applicable	No comments
6.4	Other regulatory approvals and authorisations received	Not Applicable	No comments

Participating NHS Organisations in England

This provides detail on the types of participating NHS organisations in the study and a statement as to whether the activities at all organisations are the same or different.

This is a single site type study; all research activity will be conducted in accordance with the protocol.

The Chief Investigator or sponsor should share relevant study documents with participating NHS organisations in England in order to put arrangements in place to deliver the study. The documents should be sent to both the local study team, where applicable, and the office providing the research management function at the participating organisation. For NIHR CRN Portfolio studies, the Local LCRN contact should also be copied into this correspondence. For further guidance on working with participating NHS organisations please see the HRA website.

If chief investigators, sponsors or principal investigators are asked to complete site level forms for participating NHS organisations in England which are not provided in IRAS or on the HRA website, the chief investigator, sponsor or principal investigator should notify the HRA immediately at hra.approval@nhs.net. The HRA will work with these organisations to achieve a consistent approach to information provision.

Confirmation of Capacity and Capability

This describes whether formal confirmation of capacity and capability is expected from participating NHS organisations in England.

Participating NHS organisations in England **will be expected to formally confirm their capacity and capability to host this research.**

- Following issue of this letter, participating NHS organisations in England may now confirm to the sponsor their capacity and capability to host this research, when ready to do so. How capacity and capability will be confirmed is detailed in the *Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria)* section of this appendix.
- The [Assessing, Arranging, and Confirming](#) document on the HRA website provides further information for the sponsor and NHS organisations on assessing, arranging and confirming capacity and capability.

Principal Investigator Suitability

This confirms whether the sponsor position on whether a PI, LC or neither should be in place is correct for each type of participating NHS organisation in England and the minimum expectations for education, training and experience that PIs should meet (where applicable).

A local collaborator would be required and has been identified.

GCP training is not a generic training expectation, in line with the [HRA statement on training expectations](#).

HR Good Practice Resource Pack Expectations

This confirms the HR Good Practice Resource Pack expectations for the study and the pre-engagement checks that should and should not be undertaken

The study is undertaken by a University student, if they have no contractual arrangement with the NHS organisation then honorary research contract, occupational health clearance and DBS check would be required. This would be based on a research passport application.

Other Information to Aid Study Set-up

This details any other information that may be helpful to sponsors and participating NHS organisations in England to aid study set-up.

The applicant has indicated that they do not intend to apply for inclusion on the NIHR CRN Portfolio.

Appendix I Letter of access to the Children's Hospital



16th February 2017

Holly Saron

Dear Holly,

Letter of Access for Research

This letter confirms your right of access to conduct research through [redacted] NHS Foundation Trust for the purpose and on the terms and conditions set out below. This right of access commences on 16th February 2017 and will end 30th September 2019, unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at [redacted] Foundation Trust has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to [redacted] premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through [redacted] you will remain accountable to your employer, Edge Hill University, but you are required to follow the reasonable instructions of your Research Supervisor, Lucy Cooper, in this NHS organisation or those given on their behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with [redacted] policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with [redacted] in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and

others while on [REDACTED] premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (<http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf>) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

[REDACTED] will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely

[REDACTED]
HR Assistant
[REDACTED]

Appendix J Children's Participant Information Sheets

You don't have to take part in the project
It is your choice and you can say no, no-one will mind!

No one will know what you say to Holly unless you say something that makes her worried about you.

You can ask Holly questions if you need to...

- * Ask Holly at the Hospital
- * Get your adult to ring Holly on 01695 654 353 or
- * Get your adult to email Holly on saronh@edgehill.ac.uk after you get home



Thank you lots and lots for reading this!

Edge Hill University

Children's Communication in Hospital
Information for Children
7-11 years old



I am asking if you would like to take part in a project about what happens and what it is like for children to have an X-ray or scan in hospital.

Before you tell me if you want to take part you need to know why I am doing the project and what I will do.

Children's Communication in Hospital V2, May 2017 7-11 year olds

About the Project

The project wants to find out about what happens when you have your X-ray
I am interested in what you and the adult with you think about it

Who is doing the Project?



Hello, I am **Holly** and I am doing this project.
I go to Edge Hill University.

Why me and who else?

I am asking you and 45 other children because you are all about to have an X-ray or scan done.
I think you can tell me all about it and what it felt like.
The adult with you thinks it is ok for you to take part, but it is up to you!

What will happen?



1. If it is ok with you, I will watch you have your X-ray done and make some notes.
If it is ok, I will record what is said.



2. After you have had your X-ray, I would like to chat to you about what happened and what it felt like to you.
If it is ok, I will record the chat too. The chat won't take long.



3. If they want to, the adult with you can tell me all about your X-ray and how they felt! They can do this at the hospital or on the phone after your X-ray or scan.

Children's Communication in Hospital V2, May 2017 7-11 year olds

You can say no if you do not want me to watch your X-ray or scan, no-one will mind.

You can ask me questions ...

- at the Hospital the same day
- Or ask your adult to ring me on 01695 654 353
- or email me on saronh@edgehill.ac.uk after your X-ray or scan



Thank you lots and lots for reading this!

Edge Hill
University

Children's Communication in Hospital
Information for Children
4-6 years old



I am asking if you would like to take part in a project

This booklet will tell you all about it!

The Project

The project wants to find out what you think about having an X-ray or scan.

Who?



Hello, I am **Holly** and I am doing this project.

I want to find out what it is like for you to have an X-ray or scan.

I am talking to 45 children including you.

I think you can tell me all about having an X-ray or scan.

The adult with you thinks it is ok for you to take part but it is up to you.

What will happen?



If it is ok, I will watch you have your X-ray or scan.



After you have had your X-ray, I would like to chat to you about it.

The chat won't take long.



I will have a chat to your adult at the hospital or on the phone after your X-ray or scan.

Children's Communication in Hospital V2, May 2017 4-6 year olds

Appendix K Parent Participant Information Sheets

What are the possible benefits of taking part?
 I hope that you and your child will enjoy taking part in this project. The information that you share with me could help make things better for other children having X-rays and scans carried out in the hospital.

What happens when the research study stops?
 Once you have taken part in the study you will not need to do anything else. If you wish to withdraw your data you can do so up to 7 days after the date of your interview. I plan to have finished the study and have written all the reports by September 2019. If you would like, I will send you a short summary of the research study when it is finished, just let me know.

Will my taking part in this study be kept confidential?
 All the information that is collected during the project will be kept **anonymous** and you and your child's name and other details will not be shared unless something happens or is disclosed that makes me think your child is being harmed. All names and identifiable data will be removed in the final reports so that you cannot be recognised. The findings will be contained within the final PhD, may be shared at conferences and in journal publications and also used for future research but your information will remain confidential and anonymised.

Who has checked the study?
 This study has been reviewed by an ethics committee at the University and by the research committee within the hospital.

Whom can I contact for more information?
 If you have more questions you can ask Holly directly in the department on the day of your visit. You can also call her afterwards on **01695 654 353** or email saronh@edgehill.ac.uk.

If you have any concerns about the research you can contact [Lucy Brayonbray@edgehill.ac.uk](mailto:Lucy.Brayonbray@edgehill.ac.uk) or **01695 657 231** or if wish to speak to someone independent, please contact Clare Austin on austincl@edgehill.ac.uk

Edge Hill University

Children's Communication in Hospital Information for Parents/ Legal Guardians



I am asking if you would like to take part in a project about how children communicate during investigations such as X-rays in hospital.

Before you make your decision it is important for you to understand why the study is being done and what it will involve.

This booklet will tell you everything you need to know, but feel free to ask questions, if you are unsure of anything.

Thank you for your time!

Children's Communication in Hospital V2, May 2017 Parents/ Legal Guardians

About the Project

This project wants to look at what happens during X-ray procedures and how children communicate their Thoughts, wishes and feelings during the procedure.

I hope to watch forty-five procedures within the department and talk to forty-five children and their parents/ legal guardians about their experiences.

Who is doing the Project?



Holly Saron, a PhD student at Edge Hill University. I am supervised by Dr Lucy Bray, Professor Bernie Carter and Dr Catherine Wilkinson from the University.

Why me and my child?

I am asking you to take part as your child is having a X-ray or scan and is aged between 4-11 years old.

Do I have to take part?

No, it is up to you and your child.
 It will not **affect** the care your child receives.

What will happen?



If it is ok with you **and** your child, I will watch the X-ray procedure and record and make notes of the communication that happens during the X-ray or scan. I won't do anything but I will be in the room with you.



After the procedure your child will be asked if they would like to take part in a short interview about what happened and how they felt. This will be audio recorded, but notes can be made instead if you or they would prefer.

This will only take up to fifteen minutes.



After the X-ray or scan has finished and your child has been interviewed I would also like to ask you how you felt. I can either do this straight after the X-ray or over the telephone at a time agreed and suitable to you.

This will be recorded, if that is ok, and will take no longer than fifteen minutes.

Children's Communication in Hospital V2, May 2017 Parents/ Legal Guardians

Appendix L Radiographer Information Sheets



Edge Hill
University

Name of Researcher: Holly Saron

Information Sheet for Health Professionals

Children's Communication in Hospital

Thank you for reading this information sheet.

You are being invited to take part in a study which aims to highlight the ways children communicate their wishes and feelings during a radiological investigation at [redacted] Hospital. The study will involve children's radiological investigations being observed and then the child and their parents will be interviewed. This information sheet details how the researcher will be asking for your permission (consent) to observe the radiological investigation.

Before you make your decision it is important for you to understand why this study is being conducted and what it will involve. Please take your time to read the following information carefully. If anything is not clear to you or if you would like more information then please feel free to ask the researcher, whose details are at the end of this sheet. Please take time to decide whether or not you wish consent to take part in observations.

What is the purpose of this project?

The study wants to find out how children express their thoughts and feelings during their radiological investigations.

Why have I been chosen?

I am asking you to take part as you are a health professional working with children within the radiology department at [redacted].

Do I have to take part?

No, it is entirely up to you to decide whether or not you wish to be observed. If the researcher approaches you to take part and you do not want to, just let them know.

1

Information Sheet Health Professionals, Version 1, April 2017

What will happen to me if I decide to take part in the project?

The researcher will ask to observe radiological investigations with children aged 4-11 years old. This will only occur for investigations where the child and parent has also said it is okay to watch. The verbal interaction that occurs during the procedure will be recorded using a small audio recorder, where safe to do so, and notes will also be made.

How do I give consent to take part?

If you are willing to take part in this project you will be asked to sign a consent form. You will not be able to withdraw your consent or data after the procedure has been observed, as this would mean the child and parent's consent and data would also be withdrawn.

How much of a time commitment will this be for me?

The observations will take place during the normal scheduled investigations, so this will not take any additional time.

What are the possible disadvantages and risks of taking part?

There are no known disadvantages for you taking part in this project and great care will be taken of all information.

What are the possible benefits of taking part?

It is hoped that this study will help identify how children communicate their thoughts and wishes during investigations to inform practice.

What happens when the research study stops?

I plan to have finished the study and written all the reports by September 2019. The researcher can send you a short summary of the research study when it is finished and will come back to the department and talk about her findings.

Will my taking part in this study be kept confidential?

All the information that is collected during the study will be kept strictly confidential. All data will be stored on a secure University server. Your name and other details will not be shared in any reports, publications or presentations and we will make sure your identity is not revealed. If we see something

2

where someone is being harmed or illegal activity then this will be discussed with you and may need to be reported in line with professional guidelines.

What will happen to the results of the research study?

The results of the study will be shared within [redacted] conferences and in journal publications to inform professionals and academics. All findings will be contained within a final PhD thesis.

Who has reviewed the study?

The study has been reviewed by the Faculty of Health and Social Care Research Ethics Committee at Edge Hill University, by the National Research Ethics service (NRES) and by the Research Department within [redacted].

Who can I contact for further information?

If you would like further information on this study please contact the lead researcher, Holly Saron in the Faculty of Health and Social Care on 01695 654 353 or email saronh@edgehill.ac.uk or Lucy Bray (Director of Studies) on 01695 657231 or brayl@edgehill.ac.uk

If you have any concerns about the research and wish to speak to someone independent, please contact Clare Austin on austincl@edgehill.ac.uk

Thank you very much for your time in reading this information sheet and for considering taking part in the study.

Appendix M Radiographer Consent Form



Edge Hill
University

Consent form to participate in observation of radiological investigations: Health Care Professionals

Project: Children's Communication in Hospital

Name of Researcher: Holly Saron

Please initial box

I confirm that I have read and understand the Information Sheet (version number 1, April 2017) for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that when I have provided consent and the radiological investigation has been observed I will not be able to withdraw my consent or data.

I understand that the observation of the radiological investigation will be audio recorded with my permission and will form part of the data collection for this study

I understand that some of the things I say during the investigations with children may be quoted in the final report or any publications and I understand that these will be anonymised

I understand that the data collected during the study may be looked at by individuals from regulatory authorities or from the NHS Trust. I give permission for these individuals to have access to the records

I agree to take part in the above study.

I understand that data collected during the study, may be looked at by individuals from regulatory authorities or from the NHS Trust, where it is relevant. I give permission for these individuals to have access to my anonymised data.

Name of Participant

Date

Signature

Name of Researcher

Date

Signature

Consent form health professionals observation– version 2 – May 2017

Appendix N Parent Consent for Child Form



Edge Hill
University

Consent form for parents for their child to take part in radiological observation and an interview

Name of researcher: Holly Saron

Project: Children's Communication in Hospital

Please initial box

I confirm that I have read and understand the Information Sheet (Version number 2, May 2017) for the above study and have explained the study to my child and we have had the opportunity to ask questions.

I agree for my child to take part in this study if they want to. I understand that my child's participation is voluntary and that they are free to withdraw from the study up to one week after their interview, without giving any reason, without their legal rights or care being affected.

I understand that the researcher will be present and record and/or take notes during observation of the X-ray or scan

I understand the interview my child takes part in will be audio-recorded with their permission and will form part of the data collection for this study and my child can decide after the observation has taken place whether they are happy to be interviewed.

I understand that the typed up versions of the interviews and observation notes will form part of the data collection for this study and will be stored by the researcher and I agree for this to happen.

I understand that some of the things my child says during the interview may be used in the final report and any publications and I understand that their information will be anonymised.

I agree for my child to take part in the above study if they want to.

Name of Participant

Date

Signature

Name of Researcher

Date

Signature

Consent form for parents to consent for their child – Version 1 April 2017

Appendix O Parent Consent Form



Edge Hill
University

Consent form to participate in radiological observation and an interview: Parent/Legal Guardians

Name of researcher: Holly Saron

Project: Children's Communication in Hospital

Please initial box

I confirm that I have read and understand the Information Sheet (version number 2, May 2017) for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw up to one week after the interview has taken place, without giving any reason and without my legal rights or my child's care being affected.

I understand the observation and interview I take part in will form part of the data collection for this study.

I understand that if I am not interviewed on the day of the X-ray or scan, and wish to be interviewed at a later date, the researcher will require a telephone number to contact me on.

I understand that the observation and the interview will be audio recorded with my permission and that some of the things I say may be quoted in the final report or any publications and I understand that these quotes will be anonymised.

I understand that data collected during the study may be looked at by individuals from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to the records.

I agree to take part in the above study.

Name of Participant

Date

Signature

Name of Researcher

Date

Signature

Consent – Parent/legal guardian carer Version 2 May 2017

Appendix Q An example memo, exploring meaning behind

memo # 9

I've been observing procedures for 3 weeks and I have started comparing data - so far it is becoming obvious that there are ~~then~~ definitely some distinctions in procedures. These don't seem to be because of the age of a child - more just how the Radiographer communicates. There are a few procedures where they really try to involve the child, asking them the 3 q's trying to shut down conversation with parents and asking children when they're ready, if they're ok - if they're comfy, the children react positively to this - but some really don't like it - maybe it is more about choice and not so much about involvement. Will explore this further - do children not like being involved or is there more to it?

Appendix R- An example datasheet with observational data and child and parent data

Information: A four-year-old girl having a chest X-ray. Accompanied by her Mum and Nan in the waiting room. Appeared calm as she walked into the room, frustration shown very briefly when not able to reach the handles on the chest X-ray. Very short procedure. HP asked the child rather than instructing, parent instructed.



<p>Parent Interview</p>	<p>"No she's never had anything done at the ozzy, just born in one and not been back with her since but this cough, god it's driving me mad, it's been twelve weeks and I've had her up and down the doctors, now this... fingers crossed though!"</p>	<p>"I just told her we were going the hospital and that they were going to take a picture of her chest, I didn't know what to expect to be honest, I've never really had one so I just know what me Mum has told me about them!"</p> <p>"I told her to stay calm coz I could see her fretting a bit, she does this thing where she just stares at me, I think it's so I say something... Yeah she does it when her Dad shouts at her, she like looks at me to stop it"</p>	<p>"No, I don't think anyone told us... do you mean like when we got here or what?... "Oh... ozzy no ozzy one told us, the first thing was when she just said take your top off... she was good though, they're great here aren't they, it's better in a children's hospital than up at "named hospitals"... I think they know what they're doing more to be honest"</p>	<p>"I was fine, she was dead good, she just did as she was told, I've been telling her all morning to make sure she listens, she gets distracted by the smallest things, I just stood there to be honest, didn't I?"</p> <p>"I think she knew it didn't feel right and she wasn't straight on to the board so she asked her to stop didn't she? I'm glad she listened to her"</p>	<p>"Aww I know yeah, bless her, she is small for a four year old, her little arms... she had a bit of a paddy but it's probably coz I told her to do everything they tell her to... and trust me she's sneaky. She knows that if she cries that they'll probably let me stand with her she's had these a million times, she knows she goes in, lies on the bed, and it's straightforward as that but she's needy so she cries and gets exactly what she wants"</p>	<p>"She always wants me Mum, she's always asking after her, I probably should've let me Mum go in with her but I doubt she'd be much use... it's like they're best mates when they're together, Mum wouldn't have watched her getting it done."</p> <p>"Oh do they normally have to come back do they? I thought that'd be it..."</p> <p>"Oh, well she knows what to expect now doesn't she, so do I! She'll be fine!"</p>		
<p>Child Interview</p>	<p>How did you feel before your X-ray? "child chose the smiley emoji" "ozzy... I dunno" Mum: "You felt fine didn't you?" Child: "Ye." When asked who helped? "ozzy, Mummy and Nanny"</p>	<p>How did you tell them you were ready? "I didn't tell them" "The lady just told me she was going to take a picture of my chest." Mum: "Did you just do as you were told instead?" Child: "Ye, Mummy told me!"</p>	<p>Did you understand what was happening? "No and I didn't care- I didn't want to come here, Mum just said I was going the hospital but I thought she just meant to let the doctors not here, I've never even been here!"</p>	<p>How did you feel during your X-ray? "It was ok because Mummy was there" But you couldn't see Mummy could you? "No!" Where you still ok then? "Ye!" What about when you couldn't reach the handles? "I couldn't..."</p>	<p>Can you pick a sticker... how did you feel when you couldn't reach? "child chose a sad face" Is that face a sad one, why did you feel sad? "I wanted to reach" Could anything have made your x-ray better? "Nanny" What could Nanny have done? "ozzy... Gave me more cuddles" Mum: "Nanny gave you cuddles before you went in didn't she?" Child: "Ye."</p>	<p>Do you remember anything your Mummy said? "ozzy, no but Mummy said that I could see Nanny now" Mum: "She's just gone the shop, she'll be back in a sec" Do you remember anything else you said? "No." Do you think Mummy and the nurse listened to you? "Yeah! But they said it was a picture but I didn't get to see my picture"</p> <p>Will you feel better about next time you have an X-ray? "No" Really? Why not? "I don't like the hospital" Oh no, why? "It's too noisy" Oh Ok!</p> <p>What could have made it better for you? "My Nanny" Mum: "What about me?" Child: "Mummy!" "and Mummy!"</p>		
<p>Observation</p>								
<p>Action</p>	<p>HP Greeting</p>	<p>Question from HP Instructions from Mum</p>	<p>Child gestures compliance through raising arms to remove clothing Comment by Mum when nothing but calm was shown</p>	<p>Instructions from HP Mum moves</p>	<p>Child turns back on room, faces chest X-ray machine. Touch</p>	<p>Procedure happens- image taken</p>	<p>Conversing between parent and child</p>	<p>End of procedure Silent child Thanks given from child</p>
<p>Key verbal</p>	<p>C: I've had a paddy cough for weeks... what's your name? R: "can you...?" We're just going to take M: "Just do..." M: "...stay calm!" C: hang on R: "like you're giving the board a big hug, can you..." "Mum, can you move" R: "all done, let me check the image..." C: "I Can't reach" M: "Silent" M: "Keep still" and behave- we'll get some chocolate eggs M: "What do you say?" M: "Tra luv?" C: "Thank you!"</p>							
<p>Key non-verbal</p>	<p>C: Lack of eye contact looking at floor R: Talking direct to C M: Talking direct to C C: Raising arms in compliance C: Unable to see facial expressions due to direction of procedure C: Smiles M: Talking direct to R, back to C</p>							