The use of simulation in pre-registration nurse education.

A Qualitative Case Study

A thesis submitted to The University of Manchester for the degree of PhD in the faculty of Medical and Human Sciences.

2014

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Abstract of thesis submitted by Amanda Lorraine Garrow for the degree of PhD entitled:


In 2007 the Nursing and Midwifery Council (NMC) endorsed the use of simulation to replace up to three hundred hours of practice learning in the pre-registration nursing programme (NMC, 2007a). This decision was the impetus for this study as it raised questions regarding whether simulation could replace practice and whether simulated learning transferred to the practice setting.

For the first time, the NMC proposal to replace practice hours with simulation has been critically analysed and the implications of this decision explored. A literature review demonstrated a lack of robust evidence to support the use of simulation in this way. This informed the development of this study’s research question and aims. A qualitative collective case study was chosen as the optimum research design to facilitate in-depth exploration of the use of simulation at a selected university in the North West of England. The in-depth qualitative case study incorporated multiple models of simulation, student cohorts, nurse educators and key informants which provided the most comprehensive analysis of viewpoints in any published research in the UK to date. Deeper understanding of the case arose from the use of multiple data collection methods: documentary analysis, participant observation and interviews which enabled findings to be triangulated and corroborated. Most importantly, because the simulation models used were comparable to those used by other education providers in the UK; there is a possibility of the transferability of findings which could be used to inform the development of simulation in the under-graduate nursing curriculum.

This thesis develops an argument that there were three key assumptions made by the NMC when they endorsed the replacement of practice hours with simulation. The first is that there is a shared understanding in nursing regarding what simulation is. Secondly; that simulation is delivered in a ‘safe environment’ and finally that competence demonstrated in simulation transfers seamlessly to practice. This thesis has presented new knowledge and developed an argument for caution regarding the use of simulation in pre-registration nurse education. These findings challenge the assumptions made by the NMC and highlight issues for further consideration and exploration namely: the ambiguity regarding the concept of simulation, student safety during simulation, student perceptions of authenticity and finally the transfer of simulated learning to practice.
Declaration

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Acknowledgements

Many thanks to all of the participants of this study who gave their time and shared their thoughts regarding the use of simulation in pre-registration nurse education. The students were candid about their experiences and made the interviews illuminating and fun. The nurse educators who kindly allowed access to their teaching and were prepared to be interviewed. In addition, to the key informants who found time in their busy schedules to participate in this study.

I have been fortunate to have had the benefit of an excellent supervisory team: Dr Hannah Cooke, Dr Geraldine Lyte and Dr Linda McGowan. I have received on-going support, encouragement and guidance throughout the period of study. Many thanks.

Fellow PhD candidates, Elisabeth Boulton and Fiona McDuie have provided on-going support throughout the four years. Fiona has done an excellent job of providing constructive, and sometimes amusing feedback on my drafts. Thank you both.

Finally, to my lovely family who have had to fend for themselves on numerous weekends and have remained positive in their belief in me.

Thank you Keith and MillaMay.
Chapter One

Introduction

1.1 Introduction

The development of clinical skills is a central component of pre-registration nurse education as these skills are essential for the delivery of high quality healthcare (Stayt, 2011). Historically, the question of where and how these skills are developed has been much debated by education providers and the perceived competence of newly qualified nurses has been criticised (UKCC, 1999, NMC, 2005). Simulation is increasingly used in nurse education for the purpose of developing clinical skills. In 2007, the Nursing and Midwifery Council (NMC) endorsed the use of simulation to replace up to three hundred practice hours in this statement:

‘use up to a maximum of 300 hours of the 2300 hours practice component to provide clinical training within a simulated practice learning environment in support of providing direct care in the practice setting’. (NMC, 2007a)

This decision was the impetus for this study, as it prompted a number of questions. These included:

- What were the drivers for this decision?
- What is the evidence base for the use of simulation in nurse education?
- How effective is simulation?
- Can it be used to replace practice experience?
- Does simulated learning transfer to clinical practice?

This thesis addresses these issues and presents the findings of a qualitative collective case study. This study sought to explore the student experience of simulation in a pre-registration nursing programme delivered in a university in the North West of England. Student participants were selected from different fields of nursing and different programmes, who had experienced different models of simulation. Students’ perceptions of the impact of simulated learning on their practice in the clinical environment were also sought. A strength of using a case study approach is that multiple perspectives can be sought; thus, this study also includes nurse educators’ views on how simulation can be used to prepare students for practice.

This thesis will argue that there are a number of assumptions made by the NMC and in the nursing literature regarding the use of simulation. These are:

- That there is a shared understanding of what is meant by the term simulation.
- That simulation provides a safe environment for students.
- That simulated learning transfers to the practice setting.
Evidence is presented in this thesis to challenge these assumptions; in addition the consequences of these assumptions are explored using both the current literature and findings of this case study.

This chapter will introduce definitions of simulation and its attributes. The emergence of simulation in healthcare is discussed and in the final section an overview of this thesis is provided.

1.2 Defining simulation

This section will introduce the concept of simulation, critique current definitions and consider the attributes of simulation. There are numerous definitions of simulation in the literature. The Oxford Dictionary of English (Stevenson, 2010) defined the verb simulate as:

‘to imitate the appearance or character of’

This attribute is evident in a number of authors’ definitions of simulation in nursing, for example Medley and Horne (2005) defined simulation as:

‘the reproduction of the essential features of a real life situation’ (page 31)

This focus on terms such as reproduce, replicate and realistic is evident in the definitions of simulation provided by other authors (Moule et al., 2008, Meechan et al., 2011). Other definitions, such as the one used by Prescott and Garside (2009) suggest that:

‘Simulation is the promotion of understanding through doing’ (page 35)

This indicates that simulation is an approach which utilises active participation. It has long been recognised that nurses need to learn practical skills by ‘doing’ rather than simply observing them (Medley and Horne, 2005). The development of clinical skills has always embraced this approach to learning and teaching. In this way it has been argued that simulation is nothing new (Tanner, 2006).

Billings and Halstead (2005) defined simulation as:

‘A near representation of an actual life event; may be presented by using computer software, role play, case studies or games that represent reality and actively involve learners in applying the content of the lesson.’ (page 425)

This definition encompasses the features of replication and active participation and adds the integration of theory with practice within simulation. In summary, definitions of simulation in the nursing literature have suggested that this is an approach to skill development which is inter-active, replicates reality, and integrates theory and practice.
The concept of simulation and how it is understood and operationalised is a central theme of this thesis. The way that simulation is interpreted in the literature is presented in the literature review (chapter three), nurse educator participants’ perceptions are explored in chapter five. Finally, the implications of the lack of shared understanding of simulation are discussed in depth in chapter eight.

1.3 The simulation continuum

Simulation can be categorised as being of high, medium or low fidelity (Seropian 2004a). The Oxford English Dictionary (Stevenson, 2010) defined fidelity as:

‘the degree of exactness with which something is copied or reproduced’

In order to clarify the meaning of the term fidelity in nursing simulation the following definition is offered:

‘The term fidelity describes the accuracy of simulation: the higher the fidelity, the more realistic the experience’ (Baillie and Curzio, 2009a, page 298).

Fidelity in simulation is viewed as a continuum, to illustrate this table 1.1 outlines the types of equipment used and potential activities for each level of fidelity.
Table 1.1: Overview of the simulation continuum:

<table>
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<tr>
<th>Simulation Typology</th>
<th>Resources</th>
<th>Examples of Activities</th>
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<td><strong>Low Fidelity</strong></td>
<td>Models or mannequins used to gain competency in simple procedures</td>
<td>Preparing a salbutamol nebuliser, correctly positioning mask and administering medication.</td>
</tr>
<tr>
<td></td>
<td>Sphygmomanometer and stethoscope</td>
<td>Recording blood pressure on peers</td>
</tr>
<tr>
<td><strong>Medium Fidelity</strong></td>
<td>Models with basic features for example pulses and breathe sounds used.</td>
<td>As above incorporating role play, communicating with child and carer.</td>
</tr>
<tr>
<td></td>
<td>Mannequins and equipment as appropriate</td>
<td>Assessment scenarios in simulated ward environment</td>
</tr>
<tr>
<td><strong>High Fidelity</strong></td>
<td>Human Patient Simulator in realistic setting for example, a ward area.</td>
<td>Scenario presenting child with difficulty in breathing. Requires students to assess breathing and demonstrate decision-making and communication skills as well as correct interventions.</td>
</tr>
<tr>
<td></td>
<td>Service user involvement</td>
<td>Role play aimed to develop communication skills with service user</td>
</tr>
</tbody>
</table>

As table 1.1 demonstrates as the fidelity of the intervention is increased, so does the level of complexity associated with the equipment, environment and type of activity. For example, the low fidelity activity depicted in table 1.1 aims to develop a psychomotor skill only. In contrast, the high fidelity activity incorporates a range of skills including psychomotor, cognitive and affective skill development. All of the above simulation models require facilitation by nurse educators. The staff to student ratio will be determined by the simulation model used; low fidelity simulation will generally have a lower staff to student ratio (for example 1:12) compared with high fidelity simulation (for example 1:4). This use of resources is an important consideration when designing and developing simulation and is discussed further in section 3.5.5 (page 70).
In addition to low, medium and high fidelity simulation, the terms engineering and psychological fidelity are also used. Engineering fidelity refers to how realistic the physical setting is. By contrast, psychological fidelity refers to the degree of authenticity the student experiences in the simulated setting (Maran and Glavin, 2003). Here authenticity refers to how relevant the students perceive the activity is to their practice. The issue of authenticity is debated in the literature and it is suggested that students should perceive the simulation as authentic if they are to engage and learn (Pike and O'Donnell 2010). Jarzemsky and McGrath (2008) recommended that the level of fidelity in simulation should be appropriate to meet the learning outcomes. For example, if the learning outcome is to acquire a psychomotor skill such as Basic Life Support, a low fidelity mannequin would be appropriate.

It is apparent from this introduction to simulation that it has a number of attributes. These include active learning, skill development, replication of clinical practice, fidelity and authenticity. These definitions of simulation and its attributes will be discussed further throughout this thesis. The next section will consider how simulation has developed within healthcare.

1.4 The emergence of simulation in healthcare

High fidelity simulation was developed in industries which are hazardous and where safety is paramount, consequently training may be problematic. These include nuclear power, aviation and the military (Bradley, 2006). It is claimed that the purpose of simulation is to facilitate training in scenarios which occur infrequently in practice in a safe and controlled environment. One of the first proponents of simulation in healthcare was Gaba, an anaesthetist who also held his pilot licence and was aware of the Crew Resource Management (CRM) training techniques used in aviation (Bradley, 2006). CRM training was developed by the aviation industry in recognition that fatalities were not always a direct result of equipment failure but were sometimes a consequence of human error when faced with crisis (McConaughey, 2008). This training aims to develop participants’ non-technical skills, that is, leadership, communication and decision making skills. Gaba (2004) recognised the potential for these techniques to be used in the anaesthetic room and developed a patient simulator in order to adapt them (Bradley, 2006).

There is an element of doubt as to whether this approach can be directly transferred from aviation to healthcare, furthermore neither industry has carried out robust evaluation of these techniques (Kao and Thomas, 2008, McConaughey, 2008). Kao and Thomas (2008) presented a convincing argument which highlighted significant differences between the two industries; namely the complexity of both the healthcare system and the human body. A more cautious approach is advocated before universal application of these strategies is made (Kao and Thomas, 2008). In their book 'Beyond
the Checklist’, Gordon et al. (2013) argued that it is possible to adopt the approach used in aviation to healthcare. Gordon et al. (2013) suggested that there is comparability in the two cultures in that they are both hierarchical and dominated by one professional group, which is predominantly male. They proposed that developing what they labelled as ‘team intelligence’ was a means to address some of these issues. This is a multifaceted approach to training which goes beyond simply introducing simulation based training and it is suggested by the authors, has the potential to improve patient safety. The introduction of high fidelity simulation to healthcare was directly linked with these CRM principles. This may influence how users in healthcare perceive and use simulation.

The use of simulation in all its guises, not only high fidelity simulation, has increased rapidly in healthcare education (Seropian et al., 2004a). There are a number of reasons for this. Firstly, there has been innovation and development in simulation technology (Bland et al. 2011). High fidelity human patient simulators are now frequently used in healthcare education. This type of technology was not available universally ten years ago and costs of purchasing equipment are no longer prohibitive (Parker and Myrick, 2009).

A second reason is the increased focus on patient safety in healthcare. Two reports which have been influential in the development of simulation in healthcare are ‘To Err is Human’ (Kohn et al., 2000) and ‘An Organisation with a Memory’ (DoH, 2000). These reports exposed the number of fatalities due to medical error in the American and UK healthcare systems, and acknowledged that humans are fallible and therefore errors are inevitable. One method identified to reduce risk was to enhance the role of simulation laboratories. This is recognised in ‘Building a Safer NHS for Patients’ (DoH, 2001), the response document to the UK report; ‘An Organisation with a Memory’ (DoH 2000). As patient safety has become a priority in healthcare in recent years (Rall and Dieckmann, 2005), alongside increased patient acuity (Strouse, 2010) healthcare providers must be seen to be taking all necessary steps to ensure practitioners are competent and safe in their roles.

There is consensus that it is no longer ethical or acceptable practice for real patients to be used as ‘training commodities’ (Ziv et al., 2003, Kneebone et al., 2004, Berndt, 2010). In fact, Ziv et al. (2003) argued that it is an ethical imperative for those responsible for educating health care professionals to invest in the use of simulation. By developing skills in a controlled environment the risk to patient safety it is argued, is reduced (Ziv et al., 2003, Berndt 2010). It has been suggested that the investment in simulation equipment is potentially outweighed by malpractice costs (both human and financial) and the cost of wasted resources through poor practice (Ziv et al., 2000). Whilst this argument is rational, there is limited evidence that skills taught in
simulation transfer to clinical practice (Solnick and Weiss, 2007, Kao and Thomas, 2008).

A third driver, is the potential use of simulation to ensure learners have a consistent experience and exposure to events which occur infrequently in practice. There are limited opportunities in clinical practice for health care students to gain competence in clinical skills (McCausland et al., 2004). The reasons offered for this differ; the medical literature has cited the reduction of junior doctors’ hours and altered patterns of patient stay as the cause (Issenberg et al., 2005). In contrast, nursing literature has referred to a lack of quality placements for students as being problematic (Murray et al., 2008, Berndt, 2010, Sears, 2010). Whatever the reason, it is evident that it has become increasingly difficult to ensure that students have the exposure necessary to develop their clinical skills.

It is apparent that a number of external factors have affected the use of simulation in healthcare. These include improvements in technology, increased focus on patient safety and limitations of practice experience. The increased use of simulation has generated an interest in research regarding its effectiveness and efficacy. This has resulted in authors seeking to validate the use of simulation in nurse education, as opposed to its development being informed by a robust evidence base.

1.5 Overview of thesis

This chapter has introduced simulation, provided a definition of simulation and considered its attributes. It has also provided an overview of the emergence of simulation in healthcare education. This section will provide an overall guide to this thesis.

Chapter two discusses the historical context of pre-registration nurse education. This chapter demonstrates that nurse education is influenced by social and political factors. It documents the changes in nurse education and explores the central debates of clinical skill development and practice learning. In addition, this chapter provides a critical analysis of the drivers and events which resulted in the NMC circular which proposed using simulation to replace practice hours.

Chapter three presents a literature review which focuses on the use of simulation in pre-registration nurse education in the United Kingdom (UK) following the NMC proposal. This literature review is informed by broader literature from both international and multi-disciplinary sources. The search strategy is explained and the literature is presented in three themes: the concept of simulation, the outcomes of simulation and the transfer of simulated learning to practice.
Chapter four provides the rationale for the research design and approaches selected for this study. The case study is introduced and contextualised. A detailed account of the data collection methods and management of data is given. The issues of rigour and reflexivity in this study are considered.

Chapters five, six and seven presents the findings which evolved in to three major themes: the perceptions of simulation, the experience of simulation and the transfer of simulated learning to practice. In these chapters the perceptions of the participants are illustrated using verbatim quotes and within and across-case analysis is presented.

Chapter eight provides a synthesis of these findings and a discussion of their meaning and implications. In addition, pertinent issues for practice arising from this study will be discussed and questions regarding the use of simulation in pre-registration nurse education raised. The study’s strengths and limitations are also considered.

1.6 Summary

This chapter has introduced the topic and the structure of this thesis. The next chapter will explore the historical context of nurse education. A critical analysis of the development of simulation in nurse education and the events which preceded the NMC endorsement of its use will be provided.

Chapter 1
Summary:

- Introduced the NMC (2007a) circular proposing the use of simulation to replace practice hours.
- Defined simulation and its attributes.
- Presented an overview of the emergence of simulation in healthcare.
- Provided an overview of this thesis’ structure.
Chapter Two

Background

2.1 Introduction

This chapter provides a background on the historical and policy context of the development of nurse education in the UK. An analysis of the factors which have influenced this development is presented. Practice learning and skills acquisition are discussed and approaches used to promote this are considered. Simulation is introduced as one such approach and a detailed critical analysis of the NMC Simulation and Practice Learning Project is presented. The aim of this chapter is to contextualise the development of nurse education and provide a background to the political and educational drivers for the introduction of simulation in pre-registration nurse education in the UK.

2.2 Historical and Policy context of Nurse Education in the UK

2.2.1 Origins of nurse education: the apprenticeship model

This section will focus on the development of nurse education prior to the introduction of Project 2000 which shifted nurse education from an apprenticeship model to one which was theoretically focused. The apprenticeship model of nurse training introduced by Florence Nightingale in the late 19th century endured until the 1980’s, despite regular review and frequent re-organisation of the healthcare system. Nurses learned their skills at the bedside, under the supervision of the ward sister (Glen, 2009). Rafferty (1996) reported that Florence Nightingale viewed nurse training as a ‘moral process’ which aimed to develop a student’s character as well as their nursing skills. However, the apprenticeship model was not without its critics. The questions of where student nurses developed clinical skills, which clinical skills were needed and who taught and assessed them has been the focus of on-going debate throughout the history of nurse education.

The General Nursing Councils (GNC) for England, Scotland, Wales and Northern Ireland were created in 1919. Their remit was to maintain a nurse register, manage issues of misconduct and set standards for training. Traynor (2013) suggested that one of the drivers for the introduction of the GNC was the success of the self-regulation of medicine and an aspiration for nursing to improve its reputation as a profession.

Box 2.1 provides a timeline of the development of nurse education following the creation of the GNC up to the NMC circular which proposed the use of simulation to replace practice hours in 2007. Key reports, legislation and recommendations made are included.
### Box 2.1: Timeline of nurse education

<table>
<thead>
<tr>
<th>Year</th>
<th>Landmark</th>
<th>Comment</th>
</tr>
</thead>
</table>
| 1919 | General Nursing Councils established | To maintain nurse register  
Manage professional conduct  
Set standards for nurse training |
| 1947 | Wood Report | Recommendations included:  
Merge GNC and Central Midwives Board  
Supernumerary status for students  
Broader nursing curriculum  
Reduce student hours |
| 1948 | Creation of NHS | |
| 1949 | Nurse Act | Establishment of Area Nurse Training Committees  
Legislated for experimental training schemes |
| 1952 | GNC Revised syllabus | Specified minimum 300 hours classroom  
Taught in blocks, linking theory with practice |
| 1953 | Goddard Report | Reported that majority of nursing care delivered by students  
Minimum teaching by ward sisters  
Recommended clinical instructor role |
| 1964 | Platt Report | Recommendations included:  
Reform nurse education as practical training haphazard  
Minimum entry requirement – five O levels  
Separate nursing schools from hospitals  
Recommendations similar to those by Wood |
| 1966 | Salmon Report | Introduced new management structure in nursing |
| 1972 | Briggs Report | Recommendations included:  
Reform nurse education to meet needs of new NHS  
Link theory to practice in four areas  
Create new colleges of nursing  
Create a unified statutory body |
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>NHS Reorganisation Act</td>
<td>Created larger schools of nursing affiliated with new Health Authorities</td>
</tr>
<tr>
<td>1979</td>
<td>Nurses Midwives HV Act</td>
<td>End GNC, creation of UKCC, role was to: Regulate Education training (responsibility given to National Boards) Discipline of nurses, midwives and health visitors Maintain professional register</td>
</tr>
<tr>
<td>1983</td>
<td>UKCC established</td>
<td>First Code of Conduct published Statutory instrument introduced competency based education</td>
</tr>
<tr>
<td>1984</td>
<td>Griffiths Report</td>
<td>Introduce general management to NHS Nurses management role reduced</td>
</tr>
<tr>
<td>1985</td>
<td>RCN Report</td>
<td>Calls for nurse education to move to HEI</td>
</tr>
<tr>
<td>1986</td>
<td>UKCC: Project 2000: A new preparation for practice</td>
<td>Supernumerary status for students Produce the ‘knowledgeable doer’</td>
</tr>
<tr>
<td>1989</td>
<td>Working for Patients</td>
<td>Introduced the internal market to the NHS and created self-governing Trusts Working paper 10 re-structured the provision of nurse education and introduced market ethos</td>
</tr>
<tr>
<td>1999</td>
<td>UKCC: Fitness to Practice</td>
<td>Focus on practical skills using competency based outcomes</td>
</tr>
<tr>
<td>1999</td>
<td>DOH: Making a Difference</td>
<td>Emphasised the need for newly qualified nurses to be ‘fit for practice’ Realign balance between practice &amp; theory</td>
</tr>
<tr>
<td>2000</td>
<td>NHS Plan</td>
<td>Created Primary Care Trusts Created new regulatory bodies: Healthcare Commission and National Institute for Clinical Excellence</td>
</tr>
<tr>
<td>2002</td>
<td>Creation of NMC</td>
<td>End of National Boards as UKCC criticised</td>
</tr>
<tr>
<td>2005</td>
<td>Review of Fitness for Practice</td>
<td>Proposals included: Competence could be assessed in simulation Simulation and practice learning project Development of ‘essential skills clusters’</td>
</tr>
<tr>
<td>2007</td>
<td>Simulation and Practice Learning Project</td>
<td>Recommended that simulation be incorporated in pre-registration nursing curriculum</td>
</tr>
</tbody>
</table>
Sources: Hallet and Cooke (2011) and www.nhshistory.net

As demonstrated in box 2.1; nurse education has been, and continues to be under constant scrutiny by a number of stakeholders. Taylor et al. (2010) suggested that this is due to the high profile of healthcare as a political issue. Numerous reports have been commissioned to evaluate what skills a newly qualified nurse should have at that time and how nurse education can prepare them. For example, in 1947 the Wood Report aimed to answer these questions:

1. **What is the proper task of the nurse?**
2. **What training is required to equip her for that task?**
3. **How can wastage during training be minimised?**

These questions are still of relevance and the topic of debate today. The Wood Report (1947) made a number of recommendations, many of which were not implemented for forty years. One focus of this investigation was the high attrition rate of student nurses and to address this, a reduction in hours and improvement in working conditions was recommended. The GNC opposed this on the basis that the report offered limited evidence and argued that students need to experience the routine and repetition of practice (Hallett and Cooke, 2011). It is clear that the nursing body at that time deemed practice learning to be central to student nurse training. Other recommendations included supernumerary status for students and the merger of the GNC and the Central Midwives Board. These will be discussed further, later in this section.

The 1949 Nurses act aimed to reform nurse education but did not introduce many of the recommendations made by Wood (1947). It did however make allowance for flexibility and innovative practice in training programmes. This resulted in a number of new approaches which Hallett and Cooke (2011) noted laid the foundations for nurse education in the future. It was not until 1952 that the GNC specified that a syllabus should provide a minimum 300 hours of classroom learning. This introduced a more structured approach to the theoretical component of nurse education, which the GNC recommended should be aligned with students’ placements.

This was problematic as students were included in the workforce; in fact in 1953 the Goddard Review found that the majority of nursing care in hospitals was delivered by students (Goddard 1953). Ultimately, students were placed according to service needs rather than their learning needs. The issue of aligning the theoretical component of
learning with placement learning was raised in the Platt Report (1964) which noted that practical training was ‘haphazard’. Student status was also a recurrent criticism; but as students accounted for a large percentage of the workforce, change would have been problematic. Awarding student status would have had significant financial implications and consequently was not introduced until 1986 with the implementation of Project 2000.

As shown, throughout this period increased focus on students theoretical and practice learning led to a number of changes which pre-empted the implementation of Project 2000. Another of these changes related to who was teaching the students in practice. Historically, the ward sister was responsible for students’ training. However, in 1953 the Goddard review reported that ward sisters spent over half of their time doing administrative tasks and that minimal time was spent teaching students. Goddard (1953) recommended the introduction of a ‘clinical instructor’ role; which developed during the 1960’s despite not being legislated for. Nurse Teacher roles were also developed and regulated during this period (Hallett and Cooke 2011).

The Briggs Report in 1972 is described by Traynor (2013) as a ‘major landmark’ for the nursing profession. This report identified six problems with nurse education including the dual roles of the students as learner and worker and of placement as the provider of care and education. Numerous recommendations were made including supernumerary status for students and the alignment of theory and practice in four areas: medicine, surgery, psychiatry and community. A final recommendation was the creation of a single statutory body for nursing to replace the four General Nursing Councils in existence at that time. This proposal was embodied in the Nurses, Midwives and Health Visitors Act 1979; and resulted in the creation of the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC) in 1983. The responsibilities of the UKCC were the maintenance of a register of qualified nurses, guidance for the registrants and handling of professional misconduct. Simultaneously, four National Boards were created whose remit was to quality assure nurse education in England, Scotland, Northern Ireland and Wales.

This section has shown that nurse education was gradually transformed during the sixty years of regulation by the GNC. The issues of student status, theory and practice learning and the organisation of nurse education underwent regular review. The next section considers the impact of the new professional body; the UKCC and the subsequent implementation of Project 2000.

2.2.2 Project 2000: Nursing in the 21st Century

In 1986 the UKCC published their proposal for nurse education which would lead nursing into the 21st Century: ‘Project 2000: A new preparation for practice’ (UKCC,
There was a shift towards a more theoretical emphasis in nurse education, with both the introduction of Project 2000 and the move of nursing schools from the hospital setting to Higher Education Institutes (HEI) (Glen, 2009). Project 2000 was perceived to embody the shift from the apprenticeship model to one which was education-led (Watson and Shields, 2009). As discussed in section 2.2.1 the structure of nurse training had already undergone a number of changes.

Project 2000 introduced an 18 month common foundation programme which all students undertook, followed by an 18 month period in branch. This could be Adult, Child, Mental Health or Learning Disability (UKCC, 1986). Upon registration, students were registered according to branch and awarded an academic qualification of diploma or degree depending on the academic programme followed.

‘Project 2000: A new preparation for practice’ (UKCC, 1986) considered where nurse education should be delivered but did not reach any conclusion, nor make any recommendations. The UKCC suggested that this decision should lie with the National Boards. Two options were considered; the creation of large colleges of nursing and midwifery as advocated by the Briggs Report (1972) or a move to higher education as recommended by the RCN Commission (1985). Once agreed, the transition into higher education was rapid, from 98% of all nurse education being delivered within schools of nursing in 1989, to being fully integrated into HEI by 1995 (Burke, 2006). In placement, students were no longer part of the staffing complement but had supernumerary status, which in itself caused a shift in how students were perceived. Skill mix in practice was altered as the grade of Enrolled Nurse was gradually phased out and replaced by unregistered and frequently untrained health care assistants (Traynor, 2013). This was a disappointment as the UKCC had aimed to replace the majority of Enrolled Nurses with Registered Nurses (Hallett and Cooke, 2011). In addition, experienced Registered Nurses were needed to fulfil the newly developed role of practice mentor, to supervise students and assess practice learning.

The media response to Project 2000 was negative and it was reported that the implementation of a more academic curriculum and increased focus on theoretical aspects of nursing was at the cost of caring, compassion and clinical skills (Meerabeau, 2004). This is evidenced by news headlines such as those cited by Meerabeau (2004) in 1999; ‘How the college girls destroyed nursing’ (Phillips 1999) and ‘Bring back the bedpan brigade’ (Sewell 1999). Meerabeau (2004) argued that headlines such as these epitomised the public view that nurses could be academic or caring but not both. The shift to higher education was perceived to introduce an all graduate workforce, yet this was not introduced until 2011 (NMC, 2008). The Willis Report (2012) noted that the majority (85%) of nursing students in 2012 qualified at diploma, not degree level.
Watson and Shields (2009) argued that one of the challenges for the development of nurse education was the powerful external influence of public perception and the subsequent government response. They suggested that the National Health Service (NHS) is the ‘jewel in the crown’ of the UK welfare system. Consequently, the public’s perception of nursing is influential upon the government and this can impact directly on curriculum development. An example of this external influence on curriculum development was evident in 1999 when questions were raised about the clinical competence of newly qualified nurses (O’Driscoll et al., 2010). In response to these concerns and the findings of several studies (Luker et al., 1997, Carlisle et al., 1999), the government and the UKCC commissioned investigations. Their findings were published in two reports, ‘Making a Difference’ (DoH, 1999) and ‘Fitness to Practice’ (UKCC, 1999).

A number of authors (Watson and Shields, 2009, Taylor et al., 2010, Borneuf and Haigh, 2010) argued that these claims lacked empirical evidence that students were less competent on registration than their predecessors. For example, Watson and Shields (2009) suggested that the evaluations of Project 2000 were ambiguous and could be interpreted in a number of ways. As Meerabeau (2001) argued, there were a number of benefits of Project 2000 identified, these included the supernumerary status of students and the 'academic currency' gained. Nonetheless, these reviews of nurse education were commissioned. The author of the UKCC report, Sir Len Peach commented that Project 2000 had been the right solution, and that ‘Fitness for Practice’ was complementary to these principles (Meerabeau, 2001).

The government report; ‘Making a Difference’ (DoH, 1999) emphasised the need for newly qualified nurses to be ‘fit for practice’. The key messages were partnership with practice and a focus on developing clinical skills. Hallett and Cooke (2011) suggested that this demonstrated the government at that time wanted to increase control of nurse education. The resulting ‘Making a Difference’ programme had a shortened common foundation of 12 months, and an increased emphasis on placement learning and clinical skills development (DoH, 1999). In addition, the UKCC proposed a new curriculum which placed clinical competence as a central focus of learning and emphasised its importance in nurse education (Koh, 2002). The ‘Fitness for Practice’ Report recommended the use of clinical skill laboratories in order to develop students’ practical skills. Whether the claims regarding the competency of newly qualified nurses were justified or not, they led to a review of nurse education and the focus shifted from theory to practice learning once more.

2.2.3 Review of Fitness for Practice

The Nursing and Midwifery Council (NMC) replaced the UKCC and the National Boards in 2002. The primary goal of the new professional regulator was to protect the public.
In addition, the quality assurance function of the National Bodies was also incorporated in the NMC’s remit. Therefore, the NMC were expected to establish and review effective arrangements to protect the public from registrants who were unfit to practice or lacked competence (NMC, 2005).

The Review of Fitness for Practice in 2005 was prompted as concerns were once again raised about the perceived variation in competence of newly qualified nurses. It should be noted that once again no empirical evidence was provided to support these claims. However, in response to these concerns the NMC undertook a consultation on proposals arising from a review of fitness for practice at the point of registration. Phase one involved an independent policy review; ‘Assuring fitness for practice’ (Moore, 2005). Moore (2005) reviewed the mechanisms used by other health professional regulators and nursing regulators overseas to assure fitness for practice on qualifying. The report was submitted in July 2005 and identified five key recommendations for the NMC to action. These were:

- Improving the evidence base
- Clarifying existing standards
- Strengthening assessment policy and practice
- Improving the clinical learning environment
- Easing the transition from student to accountable professional

This review was followed by focus groups which explored these issues with stakeholders including practitioners, education providers, service users and commissioners (NMC, 2005). One theme which emerged from the focus groups was reported as the need for a ‘thorough skills rehearsal and testing in both simulation and practice’ (NMC, 2005, page 7). It was reported that feedback also identified a need for flexibility in the use of practice hours and the potential for skills laboratories to be used as an alternative. It is difficult to ascertain where these views originated from, as no detail regarding the participants of these focus groups was provided. It would appear that the NMC already had an interest in using simulation in pre-registration nursing; the conclusion of the consultation document (NMC, 2005) proposed future work to focus on how practice learning was structured and how simulation may support this.

In the second phase of the consultation on fitness for practice the NMC commissioned an independent research company to conduct a survey (NMC, 2005). Questionnaires were posted to a random sample of registrants and data were collected in December 2005. The aim was to gather views regarding five generic proposals, these were:

- essential skills and competencies
- assessing competence
- signing off safe and effective practice
• ensuring fitness for practice at the point of registration
• support of new registrants

Each proposal had a number of statements which participants were asked to either agree or disagree with, if the participant disagreed they were asked to make qualitative comments. Section B focused on the assessment of competence, the statements focused on ways to support mentors in the assessment of students. One of the statements focused on the use of simulation to assess competence:

\[B2 \text{ 'Most of the assessment of competence should be undertaken through direct observation in the practice setting rather than in simulation.' (NMC, 2005, page 12)}\]

The majority of respondents (85%) agreed with this statement. This indicates that that there was a lack of support for a shift in the way competence was assessed. However, there was a difference between the individual respondents (86%) and those representing NMC approved organisations (61%). This indicates that the approved education institutes (AEIs) were more receptive to the possibility of using simulation as an alternate method of assessment of competence than the individual respondents. There is no evidence that the public consultation addressed the issue of replacing practice hours with simulation. The consultation process had sought opinion on the use of simulation as a means to assess competence only.

Following this consultation, the 2006 ‘Standards to support learning and assessment in practice’ stated that whilst students were expected to demonstrate competence in practice; it was permissible to use simulation for this purpose (NMC, 2006). The document specified that this was only allowed if there was limited opportunity to demonstrate skills in practice; such as Basic Life Support or case conferences. The NMC required these assessments to be carried out by the mentor or practice teacher ‘wherever possible’. The use of simulation in this way has since become established, as shown in the current NMC guidance to education providers (NMC, 2011).

As this section has demonstrated, the need to assure fitness for practice upon registration had become a central issue for the government, the NMC and providers of nurse education. Before discussing the next steps taken by the NMC with regard to the use of simulation in pre-registration nurse education; it is relevant to explore the issue of competence further.

2.3 Competence

The move towards a competency based framework was the subject of critical debate at the time of its introduction and this debate continues to the present day. For example, in 1991, Ashworth and Morrison (1991) criticised the UKCC for encouraging
a competency based framework arguing that it was ill-conceived. The premise of their argument was that the concept was ill-defined, the application of competencies to nursing was problematic and that the assessment of competence risks being subjective (Ashworth and Morrison, 1991). These arguments have been re-iterated by authors more recently (Watson et al., 2002, Cowan et al., 2005, Garside and Nhemachena, 2013). In a systematic review of clinical competence assessment in nursing, sixty one papers were reviewed and categorised (Watson et al., 2002). Categorisation was twofold; first the focus of the paper was classified and secondly the methods used. Papers primarily focused on, concept clarification (n=35), the assessment of competence (n=8) and discussion papers (n=22). A quality assessment tool was not applied, but the authors noted that the majority of papers (n=22) had not used an identifiable method (Watson et al., 2002). The authors concluded that there was a lack of clarity about the concept of competence and that assessment tools lacked reliability and validity. The authors considered that the evidence base to support a competence based framework was limited and of poor quality. This is interesting as the NMC is not the only nurse regulator to use a competency based framework. In the policy review, Moore (2005) reported that all twenty nurse regulators reviewed utilised a competency or outcome based framework in nurse education programmes. The issues of defining competence, the assessment of competence in nursing and influencing factors will be explored in depth in the following sections.

2.3.1. Defining competence

Whilst this emphasis on competency may seem desirable, it can be problematic without a clear definition and understanding of what is meant by the term competence (Watson et al., 2002). The UKCC (1986) did not define competence, but suggested that competency frameworks should be developed locally (DoH, 1999). Nor were the clinical skills which newly qualified nurses were expected to be competent in identified. The ‘Making a Difference’ curriculum focused on proficiencies, which have recently been re-named as competencies (NMC, 2010).

The NMC have since defined competence in the new ‘Standards for pre-registration nursing education’ document (NMC, 2010) as:

‘the overarching set of knowledge, skills and attitudes required to practice safely and effectively without direct supervision’ (NMC, 2010, page 145)

This definition reflects the holistic conceptualisation of competence advocated by Cowan et al. (2005). In this paper the authors argued that nursing requires a variety of knowledge, skills, values and attitudes depending upon the practice context. Whilst this definition is broad, the NMC do specify four domains of competency:
• Professional values
• Communication and interpersonal skills
• Nursing practice and decision making
• Leadership, management and team working.

Within these domains, both generic and field competencies are provided which detail the knowledge, skills and attitudes required for each field (previously branch) of nursing. These differ from the previous domains of: professional and ethical practice, care delivery, care management and personal and professional development. Whilst the previous domains emphasised the role of the nurse, the new competencies focused on individual attributes.

The NMC have now clarified which skills should be assessed, with the introduction of the Essential Skills Clusters (NMC, 2007c). They are grouped into five categories:

• Care, compassion and communication
• Organisational aspects of care
• Infection prevention and control
• Nutrition and fluid management
• Medicines management

The NMC stated that these skills clusters were for guidance and should be incorporated into all pre-registration nursing programmes. Whilst they were applicable to all fields of nursing (NMC, 2010), programme providers were able to determine locally how this was achieved. This framework provided programme providers with a set of competencies on which student nurses should be assessed at three progression points in the programme. These progression points were usually at the end of each year, the third and final progression point being for entry to the register (NMC, 2010). Ultimately, this means that nurse education is centrally controlled as education providers must adhere to these strict requirements (Traynor, 2013).

The notion of progression in competence currently embedded in the programme reflects the seminal work done by Benner (1984). Benner applied the Dreyfus and Dreyfus (1980) model of skill acquisition to nursing practice. Dreyfus and Dreyfus (1980) identified five stages of skill acquisition: novice, competent, proficient, expert and master. This model of skill acquisition was initially developed to demonstrate the inability of computers to make intuitive decisions. Benner (1984) adapted this model and labelled the five stages as: novice, advanced beginner, competent, proficient and expert. Benner used this framework to analyse data and proposed that as a nurse progressed through these stages their focus of attention, involvement in the situation and perception of responsibility will shift. This shift reflects their level of developing competence and expertise. Central to Benner’s model is the premise that theoretical knowledge informs practice, this in turn will be influenced by the nurses’ clinical
experience. By defining competence as a continuum, Benner’s work raised awareness and acceptance that newly qualified nurses can only be expected to be at the advanced beginner, or competent stage. Cowan et al. (2005) highlighted that competent is the mid-range of Benner’s continuum with the implication that ‘competent’ is not a high standard. Watson (2002) also questioned the standard of competence expected and suggested there is a risk that ‘a lack of incompetence’ is the true measure of assessment.

Watson et al. (2002) stated that the concept of competence was poorly defined and there was a lack of valid assessment tools. However, it is evident that the most recent standards for pre-registration nurse education (NMC, 2010) continue to stipulate a competency based framework. Recently, Pijl-Zieber et al. (2014) concluded that competence is likely to remain a central issue in nurse education and called for stakeholders to develop a universal definition and approach to assessment.

2.3.2 The assessment of competence

The assessment of competence is not a straightforward process. It requires clarity regarding what is being assessed, a competent assessor and a valid and reliable assessment tool (Watson, 2002). Most assessment of competence in nursing is done by direct observation by the practice mentor (McCready, 2007). Research has demonstrated that this can be problematic as it is a subjective measure which may be influenced by the student’s relationship with their mentor (McCallum, 2007).

Currently, there is no national assessment tool to assess students’ fitness for practice, and some skills may be easier to assess than others. For example, the assessment of a psychomotor skill may be easier to assess than student competence in communication. This was the finding of a study by Fitzgerald et al. (2010) who collected data from 17 second year student nurses and their practice mentors. Students’ Continuous Assessment of Practice (CAP) documents were reviewed and summative scores were compared with formative feedback given by their mentors. In addition, the mentors were asked to complete a questionnaire about students’ skill development during their placement. Fitzgerald et al. (2010) found inconsistencies between scoring and formative feedback documented in the CAP, and apparently more honest and critical comments given anonymously in the questionnaires. In particular, mentors gave congruent scores and feedback on psychomotor skills, in contrast with conflicting scores and feedback for professional values and behaviours. The authors concluded that it appeared mentors found it difficult to give critical feedback on professional values and to support students to develop these skills (Fitzgerald et al., 2010). A limitation of this study is the data collection method, as interviews could have facilitated exploration of these issues in greater depth. However, the study’s findings indicated that these mentors appeared to find it challenging when students
did not perform as expected. Whilst this study had a small sample size their findings resonate with other research studies; the authors concluded that their findings supported those of Duffy (2004), that mentors were ‘failing to fail’. The authors suggested that mentors need to be prepared to challenge students’ professional values and behaviours and give constructive feedback and support (Fitzgerald et al., 2010).

In the UK, the NMC have taken steps to ensure assessors’ competency to make these judgements of students’ practice. ‘The Standards to support learning and assessment in practice’ (NMC, 2008) made it a requirement for nurse mentors to be suitably prepared and undergo annual updates. Whilst the NMC have taken steps to provide a competency framework and ensure mentors are prepared for their role; there is still a lack of a standardised, reliable and valid assessment tools (Pijl-Zieber et al., 2014).

2.3.3 Factors which influence perceived competence

A number of factors may influence competence, one of these, according to Bandura (1986), is students’ self-efficacy beliefs. Bandura (1986) defined self-efficacy as:

‘people’s judgements of their capabilities to organize and execute courses of action required to attain designated types of performances’ (Bandura, 1986, page, 391)

Students are more likely to engage in activities if they believe themselves to be competent in the activity and likely to succeed (Bandura, 1986). Therefore, Bandura (1986) argued, in order to succeed students need to have self-efficacy belief as well as the appropriate knowledge and skills. Bandura (1997) described four sources of information from which self-efficacy beliefs are constructed. These are mastery experiences, vicarious experiences, verbal persuasion and physiological and emotional states. Enactive mastery experiences which, Bandura suggested, are the most influential sources of self-efficacy beliefs, involve performing a task or behaviour and the resultant success in this. In general, successful outcomes increase self-efficacy beliefs and unsuccessful outcomes decrease them. Mastery experience can be achieved when practicing clinical skills, whether this is in the university or practice setting. In contrast, vicarious experience involves observing others performing tasks. In nurse education this may occur when students are on practice placements and observe their mentors performing clinical skills. It is argued that vicarious experiences are not as strong as mastery experiences in creating self-efficacy beliefs (Bandura, 1986, Bandura, 1997).

Self-efficacy beliefs are also created as a result of the verbal persuasions an individual receives from others. Verbal persuaders are those which communicate confidence and faith in the individuals' abilities. Telling a person that they can succeed in a given task
improves their belief that they can achieve it and self-efficacy beliefs are raised. Verbal persuasion may be given by facilitators, mentors or peers. The final source of self-efficacy beliefs are physiological and emotional states. Therefore, whilst learning may increase with the development of self-efficacy, anxiety may act as a barrier to learning (Bremner et al., 2006). Individuals may interpret their physiological state in a stressful situation as signifying a likelihood of not succeeding. Perceived self-efficacy has been found to contribute to higher levels of performance and motivation. It is clear that a range of established activities can promote student self-efficacy. These theories of the development of competence and the influence of self-efficacy beliefs have influenced the teaching approaches adopted for skill acquisition in nurse education.

It has been suggested by Perry (2011) that confidence is another factor which may influence competence and that levels of uncertainty in learning may have a negative impact on confidence. Thus, Perry argued that nurse educators should aim to promote student confidence and self-efficacy beliefs in order to enhance competence. Roberts and Johnson (2009) proposed that whilst nurse education focuses on the assessment of competence, the promotion of confidence may be of equal importance. A lack of confidence may be perceived by others as a lack of competence. This may not be the case and equally perceived confidence does not automatically equate to competence. The authors proposed that confidence may be central to learning and nurse educators should explore possible approaches to promote student confidence (Roberts and Johnson, 2009).

This section has presented some of the issues related to the assessment of competency in nurse education. In summary, it has demonstrated that competence is a difficult concept to define and the assessment of competence is challenging. There is a need for valid assessment tools and support for mentors in the assessment of students’ competence. This section has also shown that the concept of competence is complex as both students’ self-efficacy beliefs and confidence are believed to impact on its development. The next section will present a detailed critical analysis of the simulation and practice learning project and its impact on nurse education.

2.4 The Simulation and Practice Learning Project

2.4.1 The drivers for the Simulation and Practice Learning Project

As presented in section 2.2.3 (page 29) one theme which emerged from the focus groups conducted in the first phase of the review of fitness for practice was the use of simulation and flexible approaches in the use of practice hours (NMC, 2005, page 7). Consequently, the Nursing Task and Finish Group were assigned a project in December 2005 which would develop standards for simulation to replace up to 10% of programme hours. This project was undertaken concurrently with the second phase of
the review of Fitness for Practice. It was anticipated that these standards would assure safe and effective practice at the point of registration (NMC, 2007b). This project was assigned prior to the Final Report on the Consultation which was submitted in February 2006. This demonstrates that the NMC were keen to explore the use of simulation to replace programme hours, but not explicitly practice hours.

The Simulation and Practice Learning Project (NMC, 2007b) was initiated in response to stakeholder feedback which supported the use of simulation in place of practice hours. This issue had been raised by the Council of Deans (CD) and the Nurse Directors’ Association (NDA) during a Council meeting held in June 2004. For the purpose of this study, the minutes of this meeting and related documents were acquired and analysis of these is presented next.

There has been increasing pressure on AEIs to identify quality clinical placements for student nurses (Traynor et al., 2010). Murray and Williamson (2009) stated that increased student numbers corresponded with decreased availability of placements. In addition, a lack of qualified mentors limited the number of students each placement could accommodate. This pressure would appear to have been one driver in the decision to use simulation to replace practice hours by the NMC. The minutes of the Council meeting (NMC, 2004a) record that concern was raised regarding the availability of quality placements; the discussion that followed raised the possibility of a more flexible interpretation of the practice component of the curriculum. The use of skills laboratories was, it was proposed, an alternative to practice hours. Two papers are available which give insight into the viewpoints presented; one which is based on a letter from the NDA to the President of the NMC, and the second, a discussion paper written by the then Head of the Council of Deans, Professor Frost (2004).

Frost (2004) argued that simulation may enhance skill development whilst complementing traditional placements. It was proposed by Frost (2004) that simulation should be considered as an alternative method to developing student clinical skills; as finding adequate quality placements for students was problematic. The NDA also raised concern regarding the quality of practice learning and proposed the use of simulation as a way forward. The paper proposed that Council members explored ways in which simulation may be used to enhance skills and whether these hours could be counted as practice hours. Both the COD and the NDA appeared to be advocating a shift in the use of practice hours and both cited placement pressure as a driver for this change (Frost, 2004, NMC, 2004a).

Frost (2004) cited nursing regulators in Australia and North America to illustrate that the number of practice hours to ensure competence at the point of registration can be at the discretion of the Regulatory Body. The NDA also gave Australia as an example where simulation had successfully been implemented in the pre-registration
programme to replace a small percentage of practice hours. The comparison with the international community made by both the NDA and COD is problematic in that there are a number of differences between these programmes of nurse education. Firstly, at that time nurse education in both countries was regulated not at national but state level. Therefore nationally, there was wide variety in programme delivery, which was evidenced by national surveys (Nehring, 2008, Arthur et al., 2011). The focus of both of these surveys was the use of simulation in nurse education provision, but they also demonstrated a wide variation in all aspects of programme delivery. Secondly, neither of these countries were committed to the EU Directive 2005/36/EC. These requirements aimed to standardise nurse education throughout Europe to facilitate migration. They require education providers to deliver programmes of 4600 hours, of which the duration of clinical training must be a minimum of 50%. As these countries do not have to meet these standards, each school has a variable amount of clinical hours in their programme. Some programmes in non-EU countries have only 1250 practice hours over three years (Reilly and Spratt, 2007). In these countries therefore, simulation is used predominantly to prepare students for practice and as an adjunct for more traditional learning and teaching methods. It has not been endorsed for use to replace practice hours, but Arthur et al. (2011) reported that 57% of survey respondents indicated that they would consider its use in this way because of difficulties finding quality clinical placements.

The minutes of the Council meeting (NMC, 2004a), documented that the quality of clinical placements was the main driver for considering a change in the use of practice hours. It was highlighted that the EU directive on practice hours in 1977 preceded the introduction of simulated laboratories. This observation indicates a perception that technology had overtaken legislation and there was now the possibility of simulating clinical training. Yet, the current EU directive (2005) is unequivocal and clearly states that clinical training should provide students with ‘direct contact with a healthy or sick individual or community’. Whilst a note of caution was raised by members regarding the replacement of practice hours with simulated learning, this is what was ultimately proposed. Finally, the discussion paper noted that a moderate amount of practice hours used in this way would result in a ‘significant reduction in the number of assessor hours required by each AEI’ and 300 hours were proposed as a nominal figure (Frost, 2004). This discussion paper and the minutes of this meeting demonstrate that the Council considered the use of simulation to replace practice hours as a potential solution to the problems of finding quality placements for students. It is suggested then that these papers are the origins of the alignment of simulation with practice learning; as it was driven by the need to address the problem of providing sufficient quality clinical placements for students. This alignment with practice learning may be problematic as it could impact on the expectations of simulation.
A number of outcomes were agreed at this Council meeting, these included holding a seminar on this issue and the development of a standard for skills laboratories (NMC, 2004a). The decision to undertake a research project looking at the use of simulation in pre-registration nurse education is not documented in these minutes (NMC, 2004a). It is difficult to ascertain when this decision was made, but it is evident that there was a strong impetus from both the COD and NDA to use simulation to replace practice hours.

In the nursing literature at that time, there was a growing evidence base to support the use of simulation to develop clinical skills. In particular, a paper reported findings of an empirical study which took place at the University of Hertfordshire was published in 2006 by Alinier et al. This study used a pre-test/post-test experimental approach involving 99 pre-registration student nurses; the findings suggested that simulation was useful to equip students with skills before going into practice. Pressure on placements is cited by the authors as one of the drivers for the introduction of simulation in nurse education in their establishment. The authors argued that their findings could support the recognition of simulation as counting towards practice hours. Alinier et al. (2006) acknowledged that this in turn could assist in the issue of placement shortages which correlated with the stance adopted by both the COD and NDA.

It would appear that in 2006, support was gathering for the replacement of a percentage of practice hours with simulation within some AEIs, the Nurse Directors’ Association, the Council of Deans and the NMC. The consultation process only proposed that simulation could be used as a tool to assess competence and as demonstrated this proposal received a cautious response. 85% of respondents felt that the assessment of competence should be done through direct observation in practice. In the meantime, it seems that the replacement of practice hours as a means to ease pressure on placements was actively being explored by the NMC and its partners. These drivers resulted in the Simulation and Practice Learning Project being commissioned in 2007.

2.4.2 The Simulation and Practice Learning Project

The Simulation and Practice Project commenced in April 2006 and concluded in December 2007, it was undertaken jointly with the NMC and Council of Deans for Health. Thirteen pilot sites were selected by the project team across 17 HEIs and data were collected over a period of 12 weeks (September 2006 to January 2007). Each study site was asked to demonstrate how standards for the use of simulation could be applied to the pre-registration nursing programmes. Providers were allowed to use up to seven days of practice time for simulation.
An evaluation tool was developed in order to audit simulation in practice. This was based on the NMC Fact Sheet C-2004 UK Practice Principles (NMC, 2004b) which included five principles for practice learning. These principles provided a framework to assess the quality of practice learning across the UK. This framework was already in use to audit practice learning environments and was subsequently adapted by the project team for the purpose of evaluating the project. The five principles were:

- Maintaining partnerships for simulated practice learning
- Managing simulated practice learning safely and effectively
- Promoting competence through simulated practice learning
- Learning through simulated practice
- Enhancing quality of simulated practice learning

The resulting evaluation tool contained these five principles plus thirty seven indicators which closely correlated with the existing guidance. Those which were deemed irrelevant were omitted and eight indicators which focused specifically on simulation were added. Respondents were asked to mark on a scale 1-5 whether they were fully achieved (5) or not achieved (1). The evaluation also collected qualitative data, and participants were invited to submit supportive evidence where possible.

In the final report the NMC claimed that the results were ‘overwhelmingly positive’ and stated that since both the quantitative and qualitative data reached the same conclusions, there should be confidence in both the methods and results. In addition the large sample size of the study (n=6,361) was considered by the NMC to be a strength. Representation of students from each branch and year of study were included and all four countries in the UK were involved. A diverse range of resources, activities and fidelity of simulation were encompassed. Data submitted was analysed by the Council of Deans.

The findings suggested that simulation:

- Helps students achieve clinical learning outcomes
- Provides students with clinical opportunities not possible in clinical settings
- Helps improve student confidence in approaching clinical situations.

(NMC, 2007b, page 3)

It would appear then that the NMC concluded that simulation was effective in helping students to prepare for practice. This stemmed from simulation being able to provide standard opportunities for learning to all students. What is not evidenced is whether this confidence and skill are transferred to clinical practice.

The report made two recommendations:
• Simulated learning should be incorporated in the pre-registration nursing curriculum, as a blend of theory and practice and not merely ‘bolted on’ to the existing curriculum.

• The NMC should determine how simulation could be used to provide clinical training within the simulated practice environment to provide direct patient care.

(NMC, 2007b, page 4)

A direct outcome of this report was the NMC circular (NMC, 2007a), which pre-empted the publication of the final report by one month. The circular proposed that education providers could replace up to 300 hours (the same figure proposed by Frost in 2004) of the practice component in pre-registration nurse education with simulated learning – representing 13% of the total practice hours. This effectively shifted what had previously been an equal split between theory and practice in nurse education to a greater number of hours being spent away from the practice setting; despite current EU requirements. This circular also introduced the principles for simulated practice learning and stated that education providers must audit the simulated practice learning environment regularly (NMC, 2007a).

2.4.3 Critique of the Simulation and Practice Learning Project

The project report presented the quantitative and qualitative data separately. Analysis of the quantitative results shows that in response to whether the indicators had been (5) fully achieved or (1) not achieved, all respondents scored every indicator partially achieved (3) or above. No respondent indicated 1 or 2 ‘not achieved’ for any of the indicators. Scrutiny of the wording of these indicators (see Appendix 2, NMC, 2007b) shows that it would be very difficult for any HEI to score less than three unless it was willing to appear to fail. This is known as social desirability bias; that is participants report what they believe the researcher is expecting.

For example, principle one: ensuring partnerships for learning has three indicators to demonstrate effective partnerships amongst all programme providers:

• Shared commitment from programme providers, stakeholders and commissioners in ensuring the quality and enhancement of practice learning.
• Lecturers/practice educators and practice colleagues contribute jointly to programme delivery
• Appropriate involvement of users, lay people and other professionals

The data were presented in a number of charts, sixteen sets of responses gave a maximum score (5=fully achieved) of 80. It is apparent that for indicator one, all sets of responses are included giving a maximum score of 80. In contrast it would appear
that two sites did not respond to indicator three. Those that did, gave a lower score. If all respondents were calculated, the overall percentage would be 78.75% rather than the 90% reported. Presenting the data in this way, that is excluding non-respondents, results in detection bias. Consequently the lowest overall score is 73.85% and the majority of scores are over 90%.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total score</th>
<th>Score available</th>
<th>Score %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>77</td>
<td>80</td>
<td>96.25%</td>
</tr>
<tr>
<td>2</td>
<td>72</td>
<td>75</td>
<td>96%</td>
</tr>
<tr>
<td>3</td>
<td>63</td>
<td>70</td>
<td>90%</td>
</tr>
</tbody>
</table>

The qualitative data reported good collaboration with practice at both strategic and operational levels. However, a number of challenges were also reported; such as difficulties releasing staff from practice and the need to support clinical staff in a teaching role. What is also clear from the qualitative data is that whilst the NMC equated simulation with practice learning and appeared to anticipate it being delivered in the practice setting; the majority of respondents did not. Analysis of the qualitative data shows that 16 of the 18 respondents reported using clinical skills laboratories or simulation suites. The majority of simulation was facilitated by academic staff and whilst 13 of the 18 respondents cited practitioner input, this was of varying levels. In three sites, practice staff involvement was limited to an advisory role for example, in the development of scenarios. Two sites reported joint appointments to enable clinician facilitation of the simulation and one site reported difficulties in releasing staff from the clinical area.

This difference between the qualitative and quantitative data suggests that respondents did not accurately reflect these challenges when self-scoring their achievement of these indicators. This is a limitation of quantitative data but a strength of using mixed methods for data collection. Other indicators which were reported on included evidence based practice, risk management and meeting student needs; all of which would be deemed desirable.

The use of the existing audit tool for practice learning as a template for the evaluation tool indicates that the NMC perceived the use of simulation to equate with practice rather than the theoretical component of the programme. The method of data collection used a self-reporting mechanism which has been shown as susceptible to bias. Using an external organisation to collect data could have minimised this. In addition using a specific evaluation tool, which was developed for the project, may have elicited a less collegial response.
The quantity and quality of the qualitative evidence submitted by each site varied (see Appendix 2, NMC, 2007b), another source of information is the reporting of these projects in the literature (Moule et al., 2008, Prescott and Garside, 2009, Baillie and Curzio, 2009a, Rush et al. 2010). These papers provide further insight into the individual projects and a detailed analysis of these is presented in the next chapter (see section 3.4, page 51).

2.4.4 Discussion

The NMC pilot project had a number of limitations which led me to question the internal and external validity of this study. That is, whether this study was conducted in a way that was free from bias and its generalizability. As discussed, the evaluation tool was adapted from a previous audit tool of practice rather than being designed specifically for simulation. The data were analysed by the Council of Deans who clearly had an interest in the outcome of this project as they had lobbied the NMC to interpret practice hours more flexibly. In addition the project was done rapidly; this was a problem referred to by a number of sites, who cited this as a reason for not meeting all of the indicators. Consequently, it can only provide a snapshot of simulation in nurse education. This is a limitation of the research design which could have been avoided if a longitudinal research study had been conducted. Whilst this may have provided additional data regarding the long term impact of simulation on students’ clinical practice, it would have been costly. An example of a longitudinal study is a current five year project undertaken by the National Council of State Boards of Nursing in the United States (Kardong-Edgren, 2012). This project aims to explore the role and outcomes of simulation in pre-licensure nurse education. It is a national, three phase study, which follows student nurses through their nursing programmes and into their first year of clinical practice as newly registered nurses (https://www.ncsbn.org/2094.htm).

The findings from the Simulation and Practice Learning Project have directly impacted on subsequent policy development; the NMC circular (2007a) proposed the use of simulation to replace practice hours. Analysis of the qualitative data submitted (NMC, 2007b) shows that only two of the eighteen sites referred to the use of simulation in this way, and that there was a lack of consensus regarding this issue. In addition, the possibility of students being assessed in the simulated environment is evident in the supporting document for the current ‘Standards for Pre-registration Nursing Education’ (NMC, 2011). This demonstrates that the original goal of using simulation to assess competence in student nurses is now embedded in the professional body’s legislation and guidance.

The final recommendation of the NMC stakeholder group was that guidance for the use of simulation should be provided (NMC, 2007b). This group consisted of
representatives from the NMC, CD, the NDA and professional bodies in Scotland, Wales and Northern Ireland. Six years later the NMC have still not produced this guidance. In the 2010 standards for pre-registration the NMC offered this definition:

‘simulation allows the student to learn or practice skills in a safe situation that imitates reality’ (NMC, 2010, page 9)

It would appear therefore that the key attributes of this definition are that simulation is about skill development, which takes place in a safe environment and that there is a replication of reality. Whilst these key attributes are evident in those definitions presented in section 1.2 (page 16), there are additional attributes that are not included in the NMC definition. These include the inter-active nature of simulation, the need for authenticity and facilitation or guidance. These will be explored further in the next chapter.

The lack of national guidance for the use of simulation is not just an issue in the UK, internationally, both the US State Board and Israeli Ministry of Health have also failed to produce standard guidelines for the implementation of simulation in the nursing programmes (Kardong-Edgren et al., 2008). However, this is problematic in the UK as the NMC (2007a) have taken a step further than the international community by endorsing the use of simulation as a teaching and learning methodology to replace practice hours. Therefore, guidance to support this decision would be helpful. This lack of clarity may have repercussions for the implementation of simulation in the curriculum and consequently for students’ learning. In addition, this may result in simulation being developed in an ad hoc fashion, dependent upon local resources and staff motivation (Kneebone, 2009). These issues will be explored in greater depth in the next chapter.

2.5 Summary

In summary, this chapter has contextualised the development of nurse education in the UK and provided a historical background. This demonstrates that nurse education has been influenced by external factors including the government and the public. It also demonstrates that the debate regarding how student nurses are prepared for practice and develop clinical skills is on-going.

The use of simulation in pre-registration nurse education has been influenced in the same way by a number of drivers. Public scrutiny and government pressure has led to a focus on the assessment of competence in pre-registration nurse education to ensure fitness for practice at registration. Concurrently, the CD and the NDA both raised the issue of pressure on placements and lobbied the NMC to consider alternative approaches. What is not evident is a robust evidence base to support the use of simulation to replace practice hours. The Simulation and Practice Learning
project (NMC, 2007b) whilst providing some evidence to suggest that simulation was perceived positively by students and educators; does not provide any to demonstrate the transfer of simulated learning to practice. This thesis aims to provide insight into the student experience of simulation at one HEI and how they perceived simulated learning transferred to their practice.

The next chapter will present a literature review, the purpose of which is twofold. Firstly to establish how simulation has been implemented in the UK following the NMC proposal (2007a) and secondly, to establish the gaps in the current knowledge base.

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Chapter 2

Summary:

- Nurse education has been influenced by external drivers such as government and the public throughout history.
- There has been ongoing debate regarding students’ placement learning and competence.
- Competence is ill defined and nursing lacks a valid and reliable tool with which to assess student competence.
- There has been increasing pressure on education providers to identify quality clinical placements for students.
- The Simulation and Practice Project (NMC 2007a) provides a weak evidence base for the endorsement of the use of simulation to replace practice hours.
Chapter Three

Literature Review

3.1 Introduction

Following the analysis of the NMC project presented in chapter two, two main research questions were developed as the focus of this review of the literature. Firstly, the NMC suggested that simulation helps improve student confidence and therefore the evidence regarding the outcomes of simulation is considered. Secondly, the NMC suggested that simulation helps students to achieve clinical outcomes; therefore it is important to review the evidence-base regarding the transfer of simulated learning to practice. This is of critical importance if simulation is to be used to replace practice hours, as proposed by the NMC (2007a).

The development of simulation is not confined to the field of pre-registration nurse education in the UK. It has been developed in a number of disciplines within healthcare at undergraduate and post graduate level. For this reason the literature review, whilst mainly focussing on pre-registration nurse education is also informed by publications which are both international and drawn from other health disciplines. The purpose of this chapter is twofold; 1) to provide a broad and critical narrative on the emergence and use of simulation in healthcare and 2) to help frame the use of simulation in pre-registration nurse education in the UK currently. Gaps in the evidence base will be highlighted; these gaps informed the development of the specific research question and aims used in this current study.

Section 3.2 provides a rationale for the use of a narrative review and section 3.3 describes the search strategy in detail. Section 3.4 introduces the core UK papers and the following sections; 3.5, 3.6 and 3.7 present the three themes identified by the literature search. These include: the concept of simulation, the outcomes of simulation and the transfer of simulated learning to clinical practice. Each of these sections presents a discussion of the current evidence base in the UK relating to pre-registration nurse education. Subsequent exploration of the international healthcare literature is then presented to contextualise these themes.

3.2 Rationale for narrative review

In all aspects of healthcare the volume of published research is increasing and professionals are overloaded with information which has the potential to inform their practice (JBI, 2001). This observation is certainly true of the use of simulation in healthcare, recently the number of articles published has increased exponentially (Issenberg et al., 2005, Bland et al., 2011). There are now several journals dedicated to simulation, for example in the last decade ‘Simulation in Healthcare’ was launched
in 2006 and 'Clinical Simulation in Nursing' in 2008. When selecting evidence, it is important as a researcher to be aware that not all research is of a high quality and primary studies may be methodologically flawed or biased. For this reason it is important that researchers are discriminating in their choices and judgements when selecting and appraising research (Parse, 2001).

Reviewing the current literature allows researchers to evaluate the current knowledge and evidence base (Gillham, 2000). This aids in understanding and conceptualising the topic, identifies the gaps in current research and, as a result clarifies the feasibility of the proposed study (Polit and Hungler 2004). There are a number of approaches to literature reviews (Norman and Griffiths, 2014), with the two most dominant being systematic reviews and narrative reviews.

A systematic review aims to appraise and synthesise all relevant studies, identify gaps in the current literature and answer a specific research question (JBI, 2000, Petticrew, 2001). Systematic reviews are valuable as they can provide authoritative guides to practice which identify all available evidence. They are considered more rigorous using only the highest quality studies. However, in Cochrane-style reviews, this can result in the exclusion of other, relevant research (Dixon-Woods et al., 2006, Norman and Griffiths 2014). This can be restrictive and is considered a limitation to this approach; in that they are highly selective using mainly high quality studies such as randomized controlled trials. Consequently, Cochrane-style systematic reviews tend to be applied to enquiries regarding the effectiveness of an intervention and are not appropriate for all research questions (Dixon-Woods et al., 2006).

There are however, studies where it is important to critically assess a more complex body of literature. A narrative review allows broader topical discussion and assessment of various methodologies, and are especially useful in studies which lack a specific hypothesis (Petticrew, 2001, Dixon-Woods et al., 2006). In order to understand how simulation is used in healthcare, and particularly in nurse education, it was necessary to consider a wide range of research methodologies across several disciplines. While narrative reviews are occasionally perceived as being less systematic or robust than a systematic review, this is generally due to a lack of sufficient detail of how and why the selected studies were ultimately included (Petticrew, 2001). However, if the author applies the rigorous principles of a systematic review and presents conclusions based up on the literature reviewed, rather than expressing opinions, the narrative review can facilitate the development of a study’s aims by producing a comprehensive overview of the topic (Norman and Griffiths, 2014).

The narrative style review was selected as the most appropriate method of conducting an in-depth analysis of the vast amount of literature available. The literature review identified a third theme, which is the labelling of simulation, as it was noted that there
was inconsistency in the use of terminology applied. These three themes will be discussed in depth as the primary themes to emerge from the literature search with particular focus on a number of studies conducted in the UK. The UK is the only country thus far to employ simulation in pre-registration nursing to replace practice hours, however, an exploration of the international healthcare literature will aid in contextualising these themes. In order to demonstrate the systematic nature of the approach used, details of the search strategy and selection process are presented in the next section.

3.3 Search Strategy

The search strategy aimed to gather literature from a range of health disciplines but had a specific focus on the topic of interest; the use of simulation in pre-registration in the UK post-2007. For this reason the search was conducted on two levels. First a broad search of international studies across healthcare, followed by a second more focused search. These informed each other as depicted by Figure 3.1 below:

Figure 3.1 Diagram of search strategy
With such a large volume of literature available, it was necessary to apply search parameters. The search was focused on the topic of interest which derived from the NMC proposal and its impact on nurse education. Therefore, only studies that occurred after the NMC proposal in 2007 were considered. For practical reasons the search was limited to English language publications. This comprehensive search strategy identified pertinent studies through frequent searches run in multiple databases.

Database searching began with the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus (see Table 3.1 as an example of strategy) and the British Nursing Index which contain the majority of nursing papers. To ensure capture of an extensive range of research on the use of simulation in education in healthcare, the search was broadened to include other disciplines which may use simulation via other relevant databases including: Medline, PubMed, ASSIA, ERIC, PsychInfo, the Cochrane Library and Web of Science. These search engines include English language papers from a variety of disciplines including: medicine, nursing, midwifery, physiotherapy, allied health, psychology and education. Searches were conducted on a regular basis throughout the period of study. The first was undertaken in April 2011 and the final search in June 2014. Table 3.1 provides an example of the search strategy as applied to CINAHL PLUS. This search was modified and applied to other relevant databases.
Table 3.1 Example of Search strategy

<table>
<thead>
<tr>
<th>Set#</th>
<th>Searched for</th>
<th>Database</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Simulat*</td>
<td>CINAHL Plus</td>
<td>15,378</td>
</tr>
<tr>
<td>S2</td>
<td>Simulat* AND education AND nurs*</td>
<td>CINAHL Plus</td>
<td>3,132</td>
</tr>
<tr>
<td>S3</td>
<td>Simulat* AND education AND pre-registration OR pre-licensure OR undergraduate</td>
<td>CINAHL Plus</td>
<td>10,199</td>
</tr>
<tr>
<td>S4</td>
<td>Simulat* OR high fidelity simulators OR high fidelity mannequin AND nurse education</td>
<td>CINAHL Plus</td>
<td>3,266</td>
</tr>
<tr>
<td>S5</td>
<td>Nurse education AND student AND pre-registration OR pre-licensure OR undergraduate</td>
<td>CINAHL Plus</td>
<td>7,433</td>
</tr>
<tr>
<td>S6</td>
<td>S4 AND S5</td>
<td>CINAHL Plus</td>
<td>250</td>
</tr>
<tr>
<td>S7</td>
<td>Clinical skills</td>
<td>CINAHL Plus</td>
<td>3,630</td>
</tr>
<tr>
<td>S8</td>
<td>S5 AND S7</td>
<td>CINAHL Plus</td>
<td>41</td>
</tr>
<tr>
<td>S9</td>
<td>Inter-professional OR multi-disciplinary AND education</td>
<td>CINAHL Plus</td>
<td>752</td>
</tr>
<tr>
<td>S10</td>
<td>S4 AND S9</td>
<td>CINAHL Plus</td>
<td>7</td>
</tr>
</tbody>
</table>

In this example, the abstracts resulting from S6, S8 and S10, a total of 298 were reviewed and papers selected which met the below inclusion criteria were then obtained. The inclusion criteria were:

- Primary research studies including qualitative, quantitative and mixed methods
- Focus on outcomes of simulation
- Focus on transfer of simulated learning to practice
- Focus on undergraduate education in healthcare
- Focus on pre-registration nurse education in the UK

As this search involved a complex and extensive amount of literature, these exclusion criteria were applied:

- Use of virtual and computer simulation
- Focus on postgraduate education

In addition, as the focus of this study was the use of simulation in pre-registration nurse education in the UK, an additional stage of screening of the selected papers was applied. This had to be conducted by hand as not all papers had UK in the abstract or title. This hand search resulted in fourteen papers which explored the use of simulation in pre-registration nurse education in the UK post 2007.
Two further search strategies were also applied. Firstly, the references of the selected papers were scrutinised; this method aimed to identify additional relevant papers. This was particularly useful when applied to the Systematic Reviews identified as they included empirical research pre-2007. This approach also identified key influential papers which were cited frequently. Secondly, the table of contents of journals which focus on simulation were hand searched and alerts set during the course of the study.

The volume of literature reviewed included papers from the UK, America, Canada and Australia. A wide range of health disciplines were represented in the studies including nursing, medicine, midwifery and physiotherapy. Much of the literature presented developments in the use of simulation or evaluative studies. It became evident that researchers were interested in demonstrating outcomes of simulation and the question of whether simulated learning transfers to practice was often raised. Furthermore, much of the language relating to simulation was used indiscriminately and interchangeably by different authors. Terms such as simulation, high fidelity simulation, high fidelity patient simulation, clinical skills and skills training were applied. Therefore, this is presented as an additional theme to contextualise and clarify this research study.

Three main themes are presented in this literature review: simulation as a concept, the outcomes of simulation and the transfer of simulated learning to practice. Ultimate, 14 papers which explored the use of simulation in pre-registration nurse education in the UK post 2007, were selected for evaluation, and the analyses of these is presented in the next section.

3.4 Core UK papers

The fourteen papers selected represent ten HEIs across the UK, four of which were included in the Simulation and Practice Learning project (NMC, 2007b) analysed in chapter 2 (section 2.4, page 36). The study characteristics are summarised and compared in Table 3.2.
<table>
<thead>
<tr>
<th>Author &amp;Year</th>
<th>Research Aims</th>
<th>Research Design</th>
<th>Participants</th>
<th>Results</th>
<th>Overall Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hutton, Coben, Hall, Rowe, Sabin, Weeks &amp; Woolley 2010</td>
<td>Test the efficacy of a computer-based assessment of students’ medication calculations compared with outcomes from calculations in a simulated practical setting</td>
<td>Pre &amp; post-test On-line assessment tool OSCE style practical</td>
<td>Third year student nurses n=9 Computer laboratory and Simulated clinical situation</td>
<td>• Computerised assessment of medication calculations as effective as those done in a practical setting.</td>
<td>Strength • Valid &amp; reliable on-line tool Weakness • Small sample size</td>
</tr>
<tr>
<td>Meechan, Jones &amp; Valler-Jones 2011</td>
<td>Evaluate perceived levels of confidence &amp; competence re: Essential Skills Clusters. Examine student perceptions of transferability of clinical skills</td>
<td>Quantitative Questionnaire &amp; OSCE</td>
<td>First year student nurses Adult (n=177) Mental Health (n=36) Child (n=14) 60% response rate n=140</td>
<td>• Students rated selves as confident and competent in skills. • Some ambivalence noted regarding transfer of skills</td>
<td>Strength • Two cohorts recruited Weakness • Convenience sample • No control group • Self-reporting</td>
</tr>
<tr>
<td>Shepherd, McCunnis &amp; Brown 2010</td>
<td>Compare two groups performance within cognitive, motor and affective domains when using two types of simulation model</td>
<td>Comparative quasi-experimental study Self-assessment using validated tool</td>
<td>Third year student nurses n=28 No detail of response rate</td>
<td>• No difference found in cognitive and motor performance. • Significant difference in affective performance</td>
<td>Strength • Validated assessment tool • Two sites utilised Weakness • Convenience sample</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Research Aims</td>
<td>Research Design</td>
<td>Participants</td>
<td>Results</td>
<td>Overall Evaluation</td>
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<tr>
<td>Moule, Wilford, Sales &amp; Lockyer 2008</td>
<td>Pre &amp; post-test knowledge and skill following simulation Evaluate student experience of simulation Mentors views on use of simulation</td>
<td>Mixed Methods Pre &amp; Post-tests, vignettes and OSCEs Interviews with mentors</td>
<td>1st and 3rd year student nurses on Adult and Child n=69 Mentors n=6</td>
<td>• Positive evaluation by both students and mentors</td>
<td>Weakness • Under powered study</td>
</tr>
<tr>
<td>Baillie &amp; Curzio 2009</td>
<td>Evaluation of simulation and student and facilitators perceptions of its application to clinical practice. Comparison of perceived levels of preparation and confidence with and without simulation</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>Pre-registration student nurses representing all years and fields Simulation n=178 No simulation =88 Total n=267 Facilitators n=?</td>
<td>• Positive evaluation • No perceived difference in confidence, conclude that simulation is at least as effective as placement hours</td>
<td>Strength • Large number of variables in student cohort and models of simulation Weakness • Convenience sample</td>
</tr>
<tr>
<td>Prescott &amp; Garside 2009</td>
<td>Evaluation of simulation</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>2nd Year Adult student nurses 75% response rate n= 45</td>
<td>• Widespread agreement that simulation is a productive learning strategy. • Simulation supports practical learning</td>
<td>Weakness • Convenience sample • Self-reporting</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Research Aims</td>
<td>Research Design</td>
<td>Participants</td>
<td>Results</td>
<td>Overall Evaluation</td>
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<tr>
<td>Hope, Garside &amp; Prescott 2011</td>
<td>Evaluation of simulation to explore relationship between simulation, theory and practice</td>
<td>Mixed Method Data from questionnaire directed Focus group interviews</td>
<td>Pre-Registration student nurses, all stages Adult Questionnaires n=500 Focus group n=35 Final year students</td>
<td>• Students respond positively to simulation. • Simulation can enact the integration of theory and practice in a controlled environment. Students felt prepared for practice</td>
<td>Strength • Purposive sample</td>
</tr>
<tr>
<td>Traynor, Gallagher, Martin &amp; Smyth 2010</td>
<td>Evaluation of how students perceive simulation impacted on their clinical practice</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>Third year student nurses n=90</td>
<td>• Perceived increased confidence and preparedness for practice</td>
<td>Weakness • Convenience sample • Self-reporting</td>
</tr>
<tr>
<td>Stewart, Kennedy &amp; Cuene-Grandidier 2010</td>
<td>Evaluation of inter-professional simulation aimed at management of sick children</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>Fourth year medical students n=46 Third year student nurses n=49 100% response rate Total n=95</td>
<td>• Positive evaluation from both student groups. • High fidelity simulation is effective in delivering inter-professional teaching</td>
<td>Weakness • Convenience sample • Self-reporting • Statements removed from final analysis with no rationale</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Research Aims</td>
<td>Research Design</td>
<td>Participants</td>
<td>Results</td>
<td>Overall Evaluation</td>
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<tr>
<td>McCaughey &amp; Traynor 2010</td>
<td>Evaluation of high and medium fidelity simulation in preparing students for practice</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>Third year student nurses 60% response rate Total n=93</td>
<td>• Students valued authentic and positive experience which had enhanced safety</td>
<td>Strength • Questionnaire had Construct validity Weakness • Convenience sample • Self-reporting</td>
</tr>
<tr>
<td>Nickless 2011</td>
<td>Evaluation of simulation aimed at addressing perceived deficit in acute care skills</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>Third year student nurses n=143</td>
<td>• Student reported increased knowledge, confidence and competence following simulation. • Caution raised regarding transferability</td>
<td>Weakness • Convenience sample • Self-reporting • No detail of search strategy • Data from second year students not presented</td>
</tr>
<tr>
<td>Rush, Acton, Tolley, Marks-Maran &amp; Burke 2010</td>
<td>Evaluation of simulation as a learning and teaching strategy and to identify its relationship to practice learning</td>
<td>Mixed method case study Questionnaire Focus groups Field diaries Digital recordings Participant and non-participant observations</td>
<td>First and third year student nurses First year questionnaires n=37 Third year questionnaires n=148 No detail focus group</td>
<td>• Conclude that student experience of simulation had an impact on student perceptions of learning</td>
<td>Weakness • Lack of detail regarding search strategy, sampling strategy and data analysis</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Research Aims</td>
<td>Research Design</td>
<td>Participants</td>
<td>Results</td>
<td>Overall Evaluation</td>
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<tr>
<td>Pearson &amp; McLafferty 2011</td>
<td>Evaluation of the use of simulation to demonstrate and assess non-technical skills</td>
<td>Mixed Methods Questionnaire collecting quantitative and qualitative data</td>
<td>Third year student nurses n=187</td>
<td>• Students agreed that this was an effective approach to learning non-technical skills</td>
<td>Strength • Three cohorts included Weakness • Changes made to simulation model in final delivery • Convenience sample • Self-reporting</td>
</tr>
<tr>
<td>Pike &amp; O’Donnell 2010</td>
<td>Explore the impact of simulation on students self-efficacy beliefs</td>
<td>Qualitative Pre &amp; post-test Themes from post-test directed focus group</td>
<td>Pre-registration student nurses n=9</td>
<td>• Low levels of self-efficacy in communication skills • Need for authenticity in simulation to reduce theory practice gap</td>
<td>Weakness • Convenience sample • Small sample size</td>
</tr>
</tbody>
</table>
As shown in table 3.2 the aims of these studies included:

- evaluation of the simulation model used
- measure outcomes of simulation such as knowledge and skills, competence and confidence
- gain insight into the perceived outcomes of simulation
- gain insight into how students perceived simulation had prepared them for practice
- gain insight into how students perceived simulation had impacted on their practice

Critical appraisal is of great importance when using research; it requires the reader to make a judgement about the quality of the research (Dixon-Woods et al., 2006). There are a number of tools available to provide a framework for this work; such as those developed by the Critical Appraisal Skills Programme at Oxford Regional Health Authority (CASP, 2010) and the Joanna Briggs Institute (JBI, 2000). These tools, have been developed to act as a guide when appraising a specific research methodology such as randomised controlled trial (RCT), cohort studies or systematic review. Whilst these tools are useful, this focus can be problematic when evaluating a heterogeneous sample. As no single tool is suitable for appraising a heterogeneous sample, the CASP tool for qualitative research (CASP, 2010) has been modified to demonstrate that a critical approach to the evidence base has been applied. Furthermore, not all of the studies used a qualitative approach but the questions were considered to be broad enough to apply to other methodologies. As a result, only one question has been excluded; question 2 asks whether a qualitative methodology was appropriate? This analysis is presented in table 3.3
Table 3.3 Quality assessment of the core UK papers

<table>
<thead>
<tr>
<th>Author</th>
<th>Was there a clear statement of the aims of the research?</th>
<th>Was the research design appropriate to address the aims of the research?</th>
<th>Was the recruitment strategy appropriate to the aims of the research?</th>
<th>Was the data collected in a way that addressed the research issues?</th>
<th>Has the relationship between researcher &amp; participant been adequately considered?</th>
<th>Have ethical issues been taken into consideration?</th>
<th>Was the data analysis sufficiently rigorous?</th>
<th>Is there a clear statement of findings?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hutton et al. (2010)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Meechan et al. (2011)</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Shepherd et al. (2010)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Moule et al. (2008)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Baillie et al. (2009)</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Prescott &amp; Garside (2009)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No detail</td>
<td>Yes</td>
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<tr>
<td>Hope et al. (2011)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Traynor et al. (2010)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<td>No detail</td>
<td>Yes</td>
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<td>Stewart et al. (2010)</td>
<td>Yes</td>
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<td>McCaughey et al. (2010)</td>
<td>Yes</td>
<td>Yes</td>
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<td>No</td>
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<tr>
<td>Nickless (2011)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No detail</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Author</td>
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<tr>
<td>Rush et al. (2010)</td>
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<tr>
<td>Pearson &amp; McLafferty (2011)</td>
<td>No</td>
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<td>No</td>
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<tr>
<td>Pike &amp; O'Donnell (2010)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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</table>
As shown in table 3.2, the number of participants varied from nine (Pike and O'Donnell, 2010) to the largest sample of two hundred and sixty seven (Baillie et al. 2009a). Students from all three years of the programme and all fields of nursing are represented. Two of the studies included nurse educators, Baillie et al. (2009a) included the simulation facilitators and Moule et al. (2008) interviewed six practice mentors. Little detail is provided regarding the sampling approaches adopted and the majority have used convenience sampling, only one study used purposive sampling (Hope et al., 2011). Convenience sampling is considered to be the weakest approach to sampling (Robson, 2011) due to lack of representativeness of the general population. In addition, the characteristics of those who did not volunteer are not provided. Generalizability is limited as all of the papers evaluate the particular model of simulation used and are single site studies.

Within the included studies, three used quantitative approaches (Hutton et al., 2010, Shepherd et al., 2010, Meechan et al., 2011) but only one collected qualitative data only (Pike and O'Donnell, 2010). Nine of the papers utilised mixed methods; the majority of which used questionnaires that incorporated an adapted Likert scale to collect quantitative data and open questions to collect qualitative data. For example, Traynor et al. (2010) invited students to complete a twenty item questionnaire using a five point Likert scale ranging from 1: strongly disagree to 5: strongly agree. One open question asked students to comment on the simulation experience. Most of these questionnaires were distributed at the end of the simulation session or during the evaluation following placement (McCaughey and Traynor, 2010). Relying on self-reporting data can be problematic as this is essentially subjective in nature. The self-reporting nature of the data is a limitation as results have an inherent risk of distortions of the respondents whether this is conscious or sub-conscious (Polit and Hungler, 2004). However, qualitative research values individual perceptions as this can provide insight into their views of the phenomenon studied.

Objective data were sought in four studies. Hutton et al. (2010), Moule et al. (2008) and Meechan et al. (2011) used objective structured clinical examination (OSCE) and pre and post-tests to compare student knowledge and competence before and after simulation. By contrast, Shepherd et al. (2010) used a validated assessment tool which had been developed internally and thus was not a nationally recognised tool. Furthermore, they used no control group which would have allowed comparisons to be made of the results.

Baillie et al. (2009a) collected data at two points; following the simulation and following the students’ clinical placement. This allowed data to be gathered on how students’ perceived simulation had impacted on their practice. In addition, the facilitators of the eight sub-groups were also asked to complete an evaluation
questionnaire. This data is presented alongside the student data and it is not clear how many facilitators participated in this study. The questionnaire gathered the same data from facilitators and students, therefore no questions focused specifically on the facilitators’ expectations of simulation. However, the authors concluded that facilitators and students alike evaluated simulation positively and felt that it was beneficial to student learning.

Four of the studies collected data using direct interviews. Moule et al. (2008) interviewed six practice mentors which provided useful insight into their view of simulation. Student focus groups were used by Hope et al. (2011) Rush et al. (2010) and Pike and O’Donnell (2009) to explore their perceptions of simulation. Pike and O’Donnell used a focus group to explore nine students’ self-efficacy beliefs following simulation (2010). Rush et al. (2010) presented a case study which utilised a mixed methods approach that included a questionnaire, focus groups, field diaries, digital recordings and both participant and non-participant observations. There is little detail presented of the research process in this paper and in particular of the number of participants in the focus groups. This has been noted by Robson (2011) who argued that it can be difficult to assess the trustworthiness of reports on interviews, as they can lack detail and focus more on content and interpretation. This criticism is applicable to this paper as findings are presented in broad themes with minimum detail.

Limited reference is made in the published articles to the reflexivity of the authors. The researchers tend to be academic members of staff carrying out the research in their own higher education institutes. Examples of good practice include using other members of staff to collect data (Meechan et al., 2011), independent data analysis (Baillie and Curzio, 2009a) and independent review of the research process (Prescott and Garside, 2009). These authors acknowledged that there was a risk of bias as they were involved in the delivery of simulation and therefore have taken steps to minimise this. The dual role as researcher and academic is discussed by Bradbury-Jones and Alcock (2010) who argued that nurse educators may unknowingly wield power which may be used to persuade students to participate in research. They suggested that there is the potential for nursing students to participate in research for altruistic reasons, that is ‘I’ll do it if it helps’, and advised nurse educators to be aware of this when inviting students to participate.

These fourteen UK papers are utilised as a focus for the exploration of the three central themes in the following sections. Since the included studies are mostly evaluative in nature and descriptive in their presentation, it is critical that the wider evidence base is used to inform and contextualise this discussion. This is not only a feature of the evidence base in the UK. Rourke et al. (2010) reported that a review of
international nursing research into the use of high fidelity simulation was largely descriptive and evaluative, these authors questioned both the quality and applicability of the current evidence base.

The following section will present the evidence which demonstrates the issue of the lack of consensus and then go on to show how simulation has been implemented in the published UK sites.

3.5 Simulation

An emerging theme from the literature regards the labelling of simulation and which activities were considered to be simulation. This is an important consideration as this study focuses on the use of simulation in the UK pre-registration nursing curriculum. This section will present evidence to demonstrate the lack of consensus in the labelling of simulation and establish how simulation has been implemented in the published UK sites.

3.5.1 Simulation as a concept

The term ‘simulation’ has been adopted from other industries and introduced to healthcare without any strategic vision or guidance; it is not surprising that implementation has been ad hoc and uncoordinated. Simulation is a social construct, that is, its meaning may alter dependent upon the society or circumstances of its use. Therefore, simulation may be understood to have different attributes by different groups.

Tanner (2006) argued that simulation is not new in nursing. Nurses have developed practical skills away from the clinical environment and used methods such as ‘role play’ (acting out a given scenario) or using ‘task trainers’ (basic mannequins or models of body parts used for skills practice) for a number of years. Previously, this approach was known as ‘clinical skills training’. Tanner (2006) suggested that what is new is the technology to facilitate high fidelity simulation training. This raises the question of whether simulation includes the previously labelled ‘clinical skills training’ or refers only to ‘high fidelity simulation’.

It is evident that some authors incorporated clinical skills training on low fidelity models and mannequins within the umbrella term of simulation; and others see them as separate. For example, Alfes (2011) and Blum et al. (2010) referred to ‘traditional’ skills training using task trainers, whilst other authors defined these activities as ‘low fidelity simulation’ (Baillie and Curzio, 2009a, Meechan et al., 2011). Both authors described using either task trainers or models to develop students’ clinical skills but label them differently. This difference in the labelling of activities aimed at developing clinical skills is problematic when comparing the evidence base.
Rall and Dieckmann (2005) when discussing the role of medical simulation, stated that not all training using a simulator is simulation. This indicates that for these authors simulation is something very specific. They added that using a simulator as a skill trainer is not normally considered to be simulation (Rall and Dieckmann, 2005). The authors do not specify who would not view this as simulation, but it is evident that in their view simulation excludes skills training. Equally, they argued that high fidelity simulation does not always require a simulator and used role play as an example of an alternative approach.

This ‘blurred line’ between clinical skills and simulation is also seen in three studies which focused on clinical skills. Baillie and Curzio’s (2009b) paper which focused on the development of blood pressure measurement in clinical skills, introduced and defined simulation, yet, the term is not used elsewhere in the paper, nor is simulation a keyword for the paper. By contrast, they fail to define the terms clinical skills or clinical skill laboratories but use these terms frequently throughout the paper. Thus, it seems the terms simulation and clinical skills are used interchangeably. Interestingly, these authors were involved in the Simulation and Practice Project (NMC, 2007b), so it is surprising to see this lack of clarity in their presentation of the concept of simulation. The same type of activity; that is developing clinical skills such as observations in a skills laboratory, is defined by these authors as simulation in a separate paper (Baillie and Curzio, 2009a). This lack of clarity is not unique to these authors and can be found in other studies.

Meechan et al. (2010) used simulation to develop a range of clinical skills including basic life support, aseptic technique, observations, medicine management and injection technique (see table 3.4, page 71). Throughout this paper the authors referred to clinical skills acquisition in a simulated environment and a questionnaire gathered data on student perception following ‘education preparation’, yet one of the aims is to examine student perceptions of the transferability of clinical skills acquisition from the simulation learning environment. Similarly, Houghton et al. (2012) whose paper presented the findings of a case study which sought to gain insight into staff and students’ perceptions and experience of teaching and assessment in the Clinical Skills Laboratories. Again, the term simulation does not appear in the introduction to the study, but in the background the author described simulation as one of several approaches to teaching utilised in the laboratory. Other activities used in this study included standardised patients, OSCEs and audio-visual recording, all of which could be included within the umbrella term of simulation, and indeed other authors have described these as simulation (Rush et al., 2010, Shepherd et al., 2010, Meechan et al., 2011). Yet, the focus of Houghton et al.’s study is teaching and assessment in Clinical Skills Laboratories, not simulation. The study evaluated the approaches used but gives little detail of which model was delivered. Nor has the
The author defined the term ‘clinical skills’ which means that it is difficult to ascertain what activities have been evaluated. In the discussion the author then referred to scenario based simulation, but reverted back to the term ‘clinical skills laboratories’ when discussing findings.

This lack of consensus regarding the term simulation has been noted by Harder (2010) who discovered considerable inconsistency regarding the use of the term simulation in a systematic review which examined the effectiveness of simulation as a teaching tool in healthcare. This review focused specifically on high fidelity simulation studies and this indicates that whilst there may be inconsistency and ambiguity regarding simulation as a broad concept, there is consensus in the literature regarding high fidelity simulation. Both medical and nursing literature articulate high fidelity simulation as the use of high technology mannequins that can simulate physiological responses to intervention in a realistic environment. Tanner (2006) suggested that while simulation is not new to nursing, the technology to facilitate high fidelity simulation training is. This raises the question of whether simulation includes the previously labelled clinical skills or refers only to high fidelity simulation.

A recent project funded by The National League of Nursing (NLN) in America that aimed to evaluate the potential growth of the NLN – Jeffries Simulation Framework (Jeffries, 2012) which will be presented in section 3.5.3 (page 67). Groom et al. (2013) also reported a lack of clarity and consistency in terminology used. The International Nursing Association for Clinical Simulation and Learning (INACSL) membership also identified language as problematic and this resulted in the publication of a glossary of terms in 2011 (INACSL, 2011). Groom et al. (2013) concluded that the use of standardised terminology and the framework would enhance reporting, comparison and the standardisation of simulation activities.

There is clearly a lack consensus about what can be defined as simulation, that is, it is not clear whether skills training is, or should be considered simulation. This lack of clarity regarding clinical skills and simulation is problematic for a number of reasons; it indicates that there is a lack of consensus regarding the concept of simulation in the nursing literature reviewed. This makes comparison of the evidence base problematic and ultimately, may impact on students’ perceptions of simulation and their learning. So, it is important to explore this issue to gain further insight into how simulation is understood and operationalised in nursing. For this purpose two pieces of work are presented in the following section. Firstly, a concept analysis of simulation (Bland et al., 2011) and secondly, a framework for simulation (Jeffries, 2007).
3.5.2 A concept analysis of simulation

Bland et al. (2011) undertook a concept analysis of simulation as a learning strategy in the education of undergraduate nursing students. Significantly, this paper focused on pre-registration nurses in the UK. The authors stated that despite the limited evidence base, the use of simulation within nurse education had increased and that the published literature was, in general, uncritical of this approach.

Their analysis was based on Walker and Avant’s framework (1995) which proposed using an eight step systematic process in order to study a concept:

- Select a concept
- Identify the aims of the analysis
- Identify the uses of the concept
- Determine the defining attributes
- Develop a model case
- Construct additional cases
- Identify antecedents and consequences
- Define empirical referents

Bland et al. (2011) used the search term simulation, and then refined the search using additional terms including nursing, medicine and health. This means that whilst the aim was to review the use of simulation as a learning strategy for pre-registration nurses, this concept analysis was developed from a broad range of healthcare literature. By reviewing the selected literature, recurring features were identified and themes developed. It is difficult to assess the validity of this process as little detail is provided regarding the number of papers selected, or the role of each author. For example, good practice would dictate that each author should work independently to theme findings and then discuss these with the co-authors to reach a consensus (JBI, 2001). The authors acknowledged that the results of any concept analysis are only tentative and should be considered a work in progress.

Walker and Avant’s (1995) approach to concept analysis has been criticised by Risjord (2009) who argued that there is a lack of detail regarding the justification of the selection of the defining attributes. Walker and Avant’s approach to concept analysis was an adaptation of work originally presented by Wilson (1963) who advocated developing cases to highlight differences in the use of a concept. Consequently, the cases were the evidence of the concept analysis. Walker and Avant’s method was
aimed towards theory construction and Risjord (2009) argued that this approach means that the models are used to illustrate the attributes rather than providing evidence (Risjord, 2009). This can be seen in the application of Bland et al.’s work, who used the model case to illustrate the critical attributes. However, Bland et al. (2011) did not aim to construct theory but to ‘interrogate the concept of simulation as a learning strategy in the education of undergraduate nursing students’ (page 665). Whilst limitations of this work have been identified, its relevance to this study is that it focused on the use of simulation specifically in the pre-registration curriculum, so it may provide a useful framework to conceptualise simulation.

Bland et al. (2011) explored a number of features of simulation, however, it is not made explicit why these particular five were presented as the critical attributes of simulation:

- Creating a hypothetical opportunity
- Authentic representation
- Active participation
- Integration of theory and practice
- Repetition, evaluation and reflection

In addition, the authors proposed this definition of simulation:

‘A dynamic process involving the creation of a hypothetical opportunity that incorporates an authentic representation of reality, facilitates active student engagement and integrates the complexities of practical and theoretical learning with opportunity for repetition, feedback, evaluation and reflection’.

(Bland et al., 2011, page 668)

This definition is useful and can be applied to different models of simulation. For example, the model case used by Bland et al. (2011) to demonstrate the critical attributes of simulation is delivered in a simulated ward environment. The hypothetical opportunity is a patient with spinal injury requiring log rolling; the simulation follows a lecture and links the theoretical component to the scenario. All students have the opportunity to move the mannequin and ask questions and receive feedback on their performance. It can be seen that all five critical attributes are represented. This definition is comparable to those discussed in chapter one. This concept analysis will be discussed in chapter five when the participants’ perceptions of the critical attributes of simulation are explored.
3.5.3 A simulation framework

The National League for Nursing proposed a framework for simulation in nursing, based on theoretical and empirical literature (Jeffries, 2005). The framework aimed to guide the development, implementation and evaluation of simulation in nursing. It has five major components: teacher, students, educational practices, design characteristics and outcomes. The original work has since been modified and a more recent version is shown in figure 3.2 below:

**Figure 3.2 The NLN/Jeffries Simulation Framework**

![The NLN/Jeffries Simulation Framework](image)

(Jeffries, 2007)

This model contains five different components as shown: facilitator, participant, educational practices, outcomes and simulation design characteristics. Each of these components has elements which are presented in box 3.1 below:
Box 3.1 Elements of the NLN/Jeffries Simulation Framework:

<table>
<thead>
<tr>
<th>Component</th>
<th>Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitator</td>
<td>• Demographics</td>
</tr>
<tr>
<td>Participant</td>
<td>• Program</td>
</tr>
<tr>
<td></td>
<td>• Level</td>
</tr>
<tr>
<td></td>
<td>• Age</td>
</tr>
<tr>
<td>Educational Practices</td>
<td>• Active learning</td>
</tr>
<tr>
<td></td>
<td>• Feedback</td>
</tr>
<tr>
<td></td>
<td>• Student/Faculty interaction</td>
</tr>
<tr>
<td></td>
<td>• Collaboration</td>
</tr>
<tr>
<td></td>
<td>• High Expectations</td>
</tr>
<tr>
<td></td>
<td>• Diverse Learning</td>
</tr>
<tr>
<td></td>
<td>• Time on task</td>
</tr>
<tr>
<td>Outcomes</td>
<td>• Learning (Knowledge)</td>
</tr>
<tr>
<td></td>
<td>• Skill Performance</td>
</tr>
<tr>
<td></td>
<td>• Learner Satisfaction</td>
</tr>
<tr>
<td></td>
<td>• Critical thinking</td>
</tr>
<tr>
<td></td>
<td>• Self-Confidence</td>
</tr>
<tr>
<td>Simulation Design Characteristics</td>
<td>• Objectives</td>
</tr>
<tr>
<td></td>
<td>• Fidelity</td>
</tr>
<tr>
<td></td>
<td>• Problem Solving</td>
</tr>
<tr>
<td></td>
<td>• Student Support</td>
</tr>
<tr>
<td></td>
<td>• Debriefing</td>
</tr>
</tbody>
</table>

This framework focused on the experiential nature of simulation and the importance of collaboration. In Jeffries’ (2012) opinion the facilitator is key to any learning and teaching approach and therefore must have adequate skills in developing and delivering simulation. It is acknowledged that the learner or participant will each bring different expectations to the simulation depending on their age, stage of learning and prior experience. The elements of the educational practice must be taken into consideration when designing simulation if learning is to be achieved. It is important that the learning outcomes are agreed and made explicit at the beginning of the simulation. Jeffries (2012) suggested that these five simulation design characteristics are essential when developing simulation and proposed that using this framework will facilitate research which measures the effectiveness that these variables have in a systematic way. This tool appears to have utility, as a number of nurse educators...
have reported applying this framework when developing simulation in their nursing curriculum with good effect (Howard et al., 2011, Eaton et al., 2011, Gore et al., 2011). In 2010, the National League for Nursing (NLN) reviewed these five components with the aim of refining and defining the concepts. Some of the language used in the framework was amended as a result of this work; for example, teacher and student became facilitator and participant respectively (Jeffries, 2012).

Whilst this could provide a useful framework for the development and delivery of simulation, LaFond and Van Hulle Vincent (2013) identified only sixteen studies that had applied the framework. The authors concluded that the use of Jeffries framework for simulation could standardize and enhance the development of simulation in nursing. They also highlighted aspects for future research, in particular, further investigation into the components of facilitator and participant which have not, to date, been tested. This finding is mirrored by those of a systematic review done by Kaakinen and Arwood (2009) which examined the use of learning theory to guide the development of simulation in nurse education. Findings suggested that the majority of studies (104 out of 120 reviewed) do not support the use of simulation with appropriate learning theory or theoretical frameworks. Rourke et al. (2010) reached a similar conclusion in a separate review, these authors noted that only 10% of twenty empirical reports assessed, made adequate use of theory.

An example of the application of the NLN/Jeffries simulation framework in nurse research can be found in a paper by Kardong-Edgren et al. (2008). They reported that some nurse educators required clarification about the use of simulation and that this framework had been useful in its development. In summary, whilst a theoretical framework for the use of simulation has been developed and evaluated; it is not being utilised by many nurse researchers to develop research questions or guide the development of simulation.

3.5.4 Simulation standards

Recently INACSL (2011) responded to their membership and nurse leaders’ request to develop standards for simulation. Seven standards were developed:

- Terminology
- Professional Integrity of Participant
- Participant Objectives
- Facilitation Methods
- Simulation Facilitator
- The Debriefing Process
- Evaluation of Expected Outcome
These standards were developed via consensus of both board members, which consisted of senior nurse academics, and membership of the organisation. Views were gathered via an on-line survey and oral feedback when the standards were presented at conference (Sando et al., 2011). A more rigorous approach would have been to carry out a systematic review of the evidence base, but this has been shown to be limited. However, the use of a systematic approach for the retrieval and appraisal of the evidence base, may have resulted in a more robust guide to practice. It is evident from this, that nurses internationally have sought clarity and guidance regarding the development and implementation of simulation.

It is apparent, from the lack of clarity and consensus regarding the use of simulation in nurse education, and the divergent approaches to the labelling of clinical skills, that the evidence base is playing catch up with the development and implementation of simulation in nurse education. Nurse educators and researchers are in need of guidance (Kardong-Edgren et al., 2008, INACSL, 2011). This increased focus on simulation has led to a concept analysis (Bland et al., 2011), the development of a simulation framework (Jeffries, 2007) and standards for simulation (INACSL, 2011). The next section will present an overview and critique of how simulation has been interpreted and implemented in the UK.

3.5.5 Models of simulation

As shown the term simulation is interpreted in a variety of ways in the literature. In light of the decision by the NMC (2007a) to endorse simulation to replace practice hours, and the lack of a universal definition or guidance regarding what is meant by this term; it is relevant to review how simulation has been interpreted and operationalised in the UK post 2007. Table 3.4 provides a summary of how the selected UK studies defined simulation (or not), implemented simulation and which skills it has been used to develop. These studies utilised a variety of simulation models but, it is important to note that five of the fourteen studies have not defined simulation. This is surprising considering it is a relatively new approach and, as demonstrated, there is a level of ambiguity regarding the terminology used.
<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Participants</th>
<th>Definition of simulation</th>
<th>Simulation Model</th>
<th>Targeted Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hutton, Coben, Hall, Rowe, Sabin, Weeks &amp; Woolley 2010</td>
<td>Third year student nurses n=9</td>
<td>None provided</td>
<td>• Computer programme and • Students performed the same calculations in simulated practical environment and assessed using OSCE</td>
<td>• Medication calculations</td>
</tr>
<tr>
<td>Meechan, Jones &amp; Valier-Jones 2011</td>
<td>First year student nurses Adult (n=177) Mental Health (n=36) Child (n=14) 60% responded n=140</td>
<td>Simulation offers opportunity to teach clinical skills to students in a realistic environment. Students can practice skills without fear of harming patients</td>
<td>• Practical sessions in simulation suite • OSCEs</td>
<td>• Basic Life Support • Aseptic Technique • Observations • Medicines Management • Injection Technique • Drug calculations</td>
</tr>
<tr>
<td>Shepherd, McCunnis &amp; Brown 2010</td>
<td>Third year student nurses n=28</td>
<td>A near representation of an actual life event; may be presented by... that represent reality &amp; actively involve learners in applying the lesson content (Billings 2005)</td>
<td>• High Fidelity Mannequin • Compared with service user role playing patient</td>
<td>• Patient assessment • Vital signs • Communication skills</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Participants</td>
<td>Definition of simulation</td>
<td>Simulation Model</td>
<td>Targeted Skills</td>
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</tbody>
</table>
| Moule, Wilford, Sales & Lokeyer 2008 | 1st and 3rd year student nurses on Adult and Child n=69 Mentors n=6         | Simulation is intended to replicate clinical & social practice through a variety of delivery methods | • Five simulation sessions  
• Students worked in groups on scenarios related to topic areas to make practice decisions and deliver care  
• Debrief  
• Final day assessment and evaluation  
Labelled: Simulation | • Basic Life Support  
• Manual handling  
• Infection control  
• Clinical decision-making  
• Managing violence and aggression |
| Baillie & Curzio 2009          | Pre-registration student nurses representing all years and fields n=267       | 'activities mimicking the reality of clinical environments' Jeffries 2005               | • Five days replacing practice hours  
• Low fidelity manikins and models  
• Students role played patients  
Labelled: simulation | • Psychomotor skills including; Pre & Post-operative, naso-gastric insertion, assessment and medicine administration.  
• Communication skills  
• Management skills |
| Prescott & Garside 2009        | 2nd Year Adult student nurses 75% response rate n=45                        | A near representation of an actual life event; may be presented by... that represent reality & actively involve learners in applying the lesson content (Billings 2005) | • Group size 3-5  
• Participate once and observe two other groups in each session  
• 10 x 2 hour sessions  
• Debrief  
Labelled: simulation | • Assessment skills with acutely ill adult  
• Decision making skills  
• Care management |
<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Participants</th>
<th>Definition of simulation</th>
<th>Simulation Model</th>
<th>Targeted Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hope, Garside &amp; Prescott 2011</td>
<td>Pre-Registration student nurses, all stages Adult Questionnaires n=500 Focus group n=35</td>
<td>A near representation of an actual life event; may be presented by… that represent reality &amp; actively involve learners in applying the lesson content (Billings 2005)</td>
<td>• Manikin • Role play • Rote learning</td>
<td>• Psychomotor skills include • Hand washing • Medicine administration • Cognitive skills include • Clinical reasoning and decision making</td>
</tr>
<tr>
<td>Traynor, Gallagher, Martin &amp; Smyth 2010</td>
<td>Third year student nurses n=90</td>
<td>None provided</td>
<td>• High fidelity clinical scenarios • Group size 6 for 4 hour session • Two participate while four observe rotate through 3 scenarios • 20 minute debrief</td>
<td>• Clinical Assessment of Acutely ill adult • Management of Acutely ill adult • Communication skills • Team work</td>
</tr>
<tr>
<td>Stewart, Kennedy &amp; Cuene-Grandidier 2010</td>
<td>Fourth year medical students n=46 Third year student nurses n=49 Total n=95</td>
<td>None provided</td>
<td>• High fidelity clinical scenarios • Group size 3-4 inter-professional students • Peers observed • Debrief</td>
<td>• Clinical assessment of sick child • Management of sick child • Communication skills • Team work</td>
</tr>
<tr>
<td>Author &amp; Year</td>
<td>Participants</td>
<td>Definition of simulation</td>
<td>Simulation Model</td>
<td>Targeted Skills</td>
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<tr>
<td>McCaughey &amp; Traynor 2010</td>
<td>Third year student nurses 60% response rate Total n=93</td>
<td>the provision of facsimiles of healthcare settings, which contain hospital artefacts to provide students with 'mock' experience through which to practice clinical nursing activities (Wellard 2007)</td>
<td>No detail</td>
<td>No detail</td>
</tr>
</tbody>
</table>
| Nickless 2011 | Third year student nurses n=143 | None provided | • Small groups plan care  
• Low and medium fidelity mannequins to simulate interventions such as hypovolaemic monitoring and naso-gastric care  
Labelled: simulation | • Pre and post op care  
• Assessment of acutely ill patient  
• Basic Life Support |
| Rush, Acton, Tolley, Marks-Maran & Burke 2010 | First and third year student nurses n=187 | The creation of a safe and supportive practice setting using role players, which mimics real practice environments. | • Group size 2-3  
• Work collaboratively to plan care  
• Service users role play patients  
• Debrief  
Labelled: simulation, role play | • Critical thinking  
• Decision making  
• Team working |
<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Participants</th>
<th>Definition of simulation</th>
<th>Simulation Model</th>
<th>Targeted Skills</th>
</tr>
</thead>
</table>
| Pearson & McLafferty 2011 | Third year student nurses n=187                  | None provided            | • Group size 6-8 work as team  
• Ward scenario 3-hour session  
• Five actors and one high fidelity manikin  
• Plan and deliver care  
• Debrief  
Labelled: simulated ward scenarios | • Non-technical skills including  
• Decision-making  
• Communication  
• Team working  
• Leadership |
| Pike & O’Donnell 2010 | Pre-registration student nurses n=9              | A teaching and learning strategy which aims to replicate real-life experience (Leigh 2008) | No detail                                                                 | No detail                                             |
As demonstrated in table 3.4 the UK papers utilised a variety of simulation models. These are described as: the use of OSCE and practical skills sessions in a simulated environment, role play using high fidelity mannequins, service users and actors and high fidelity ward scenarios. In the UK, simulation has been used to develop a variety of clinical skills including psychomotor skills, team working skills and critical thinking skills. Simulation is also being used as an assessment tool in OSCE’s (Moule et al., 2008, Hutton et al., 2010, Meechan et al., 2011). An outline and critique of the ways in which simulation has been operationalised in the selected core UK papers is provided next.

3.5.5.1 Skills sessions

Skills session provide students with the opportunity to handle equipment and attempt manoeuvres before delivering the skill in a real situation. Basic models or part task trainers are used which could be considered to be low fidelity simulation. These types of sessions focused primarily on developing psychomotor skills and were delivered to mainly first year student nurses (Moule et al., 2008, Baillie and Curzio, 2009a, Hutton et al., 2010, Meechan et al., 2011). For example, Moule et al. (2008) delivered five simulation sessions used to replace the equivalent of six days practice hours. These sessions included basic life support, infection control and manual handling. This model is similar to that used by Meechan et al. (2011). By contrast, Baillie et al. (2009a) delivered the majority of simulation in clinical practice, (seven of the eight sub-groups) which was facilitated in conjunction with clinical staff and utilised five days of practice hours. A variety of approaches were employed which aimed to develop psychomotor, communication and decision-making skills, using low fidelity mannequins and models. A strength of this approach is that students can familiarise themselves with basic equipment and procedures. However, these sessions can be resource intensive with large student numbers requiring high staff to student ratios (Oberleitner et al., 2011). In addition, a large amount of consumables are required if students are to perceive the experience as authentic.

3.5.5.2 Role play

Unsurprisingly, it has been reported that students communicate better with ‘real’ people than mannequins (Shepherd et al., 2010). Therefore, role play is interpreted and integrated into nursing programmes in a number of ways. Approaches include using actors (Shepherd et al., 2010), service users (Rush et al., 2010), staff and students’ role playing patients (Baillie and Curzio, 2009a). For example, Rush et al. (2010) reported utilising ‘lay’ people to role play patients, and students worked in small groups collaboratively to plan patient care. These sessions had a clear focus, such as communication, and were delivered to small groups. However, preparation of
‘lay’ people to role play patients and give appropriate feedback to students, can be challenging and requires commitment of both time and resources (Speed et al., 2012).

Another use of role play is its delivery in a simulated ward environment with students being allocated roles within the nursing team (Traynor et al., 2010, Stewart et al., 2010). For example, Pearson and McLafferty (2011) used this simulation model to develop non-technical skills such as team-working and decision-making in a simulated ward environment. This use of role play is somewhat more complex with multiple skills being developed and thus, is used with more senior students. A limitation of this approach is that students may struggle to adopt other roles, or that the allocated role may not maximise on the learning opportunities (Pearson and McLafferty, 2011).

3.5.5.3 Medium fidelity simulation

Medium fidelity simulation is the use of mannequins which have limited responses. Nickless (2011) used this form of simulation to develop skills such as naso-gastric care and hypovolaemic monitoring in a session aimed at developing students’ skills in pre and post-operative care. These mannequins are a cheaper alternative to high fidelity models which allows more to be available for students to practice skills (Arthur et al., 2011). This is the least reported model of simulation and a national survey in Australia found that medium fidelity simulation use was not optimal (Arthur et al., 2011). The benefit of using medium fidelity simulation is suggested to be cost-related (Arthur et al., 2011), but this approach can still be resource intensive requiring a high student to staff ratio.

3.5.5.4 High fidelity simulation

High fidelity simulation was used in several studies to develop assessment and decision-making skills in a simulated cubicle using high fidelity mannequins (McCaughey and Traynor, 2010, Traynor et al., 2010, Stewart et al., 2010). These mannequins simulate physiological responses such as breath sounds, pulse and blood pressure. For example, Traynor et al. (2010) described three realistic scenarios which involved the assessment of an acutely ill adult patient. These were used to develop student nurses’ clinical assessment, decision-making, team working and communication skills. This model evaluated well and was also delivered to an inter-professional group of medical and nursing students by Stewart et al. (2010). It would appear then that in the UK, high fidelity simulation is being used to develop students’ cognitive skills for practice in the later stages of their training. This reflects the stance of Handley and Dodge (2013) who proposed a spiral curriculum, this develops both the complexity and fidelity of simulation as the student progresses through the programme.
However, there is some debate regarding the necessity of using high fidelity simulation. While high fidelity simulation is often evaluated positively by students, it can be costly to purchase and maintain equipment (Murray et al., 2008). In addition, staff may require support and training to develop skills to enable them to facilitate these sessions (Valler-Jones et al., 2011). It is argued that lower fidelity simulation can achieve learning outcomes as effectively (Jarzemsky and McGrath, 2008).

How simulation has been implemented in the UK since the NMC endorsement of its use to replace practice hours is central to this thesis. Analysis of the use of these models of simulation shows that the pattern of use in the pre-registration curriculum in the UK, develops simulation from low fidelity, which focuses on psychomotor skills, to high fidelity focusing on cognitive skill development, reflecting the recommendation made by Handley and Dodge (2013). Nevertheless, there remains a lack of consensus and clarity regarding the use of simulation in the nursing literature. Reviewing the concept analysis, framework and nursing standards allows development of the understanding of this approach to learning and teaching. Furthermore, this analysis has raised the issue of the understanding of simulation and demonstrated how it is currently being used in pre-registration nurse education in the UK. The next step is to review the outcomes of simulated learning.

### 3.6 Outcomes of simulation

A large number of studies aimed to measure the outcomes of the use of simulation as an approach to learning and teaching. Different methodologies have been used and different measures evaluated in medicine, nursing and allied health. In addition a number of papers present inter-professional learning which have utilised simulation. This section will critique the evidence base on the reported outcomes of simulated learning. The core UK papers presented in section 3.4 (page 51) are the focus of this section and the broader literature is used to inform and develop the discussion. The outcomes which have been measured include student confidence and competence; knowledge and skills. The next section will review the evidence base on confidence and competence.

#### 3.6.1 Confidence and competence

A number of the UK papers evaluated student levels of confidence and competence (Baillie and Curzio, 2009a, Traynor et al., 2010, Meechan et al., 2011, Nickless, 2011). The authors do not define these concepts and as shown in section 2.3.1 (page 32) these terms lack clarity. All of these UK studies reported that the students perceived raised levels of confidence and competence which is positive, however the majority of these studies collected data using questionnaires. The limitation of this data collection method is that this merely collects self-reported views of confidence.
and competence with no objective mechanism to assess these levels. Self-reporting confidence levels can be unreliable and it has been noted that confidence does not necessarily equate to competence (Owen et al., 2006, Andreatta et al., 2011). However, whilst competence can objectively be assessed, confidence can only be self-reported.

Meechan et al. (2011) aimed to compare self-reported confidence with objective assessment of competence using OSCEs. A convenience sample of 227 students from two cohorts were invited to participate. Sixty per cent (n=140) of students completed the evaluation tool, which used a four point Likert scale. This tool aimed to gather student perceptions of their confidence, competence, preparedness for practice and the assessment process. Students were assessed using OSCEs in skills at the end of their first year including: Basic Life Support (BLS), aseptic technique, observations, medicine management, injection technique and drug calculations. The authors reported that 95% of the sample were competent to pass their OSCE at the end of the first year and concluded that simulation facilitated student acquisition of clinical skills. Correspondingly, students recorded improved levels of confidence following the simulation. What is interesting is that a significant number of students took two attempts to pass the OSCE, for example 46 students needed a second attempt at the drug calculation OSCE. None of the five skills achieved 100% pass rate at the first attempt. No detail is provided as to whether additional support or intervention was given to those students, to enable them to pass on their second attempt. Of note is that students indicated that the summative assessment was a driver for them to engage in clinical skills in practice; suggesting that they were assessment driven. It would be more reassuring if students had reported engaging with skills due to increased confidence and competence.

In contrast to the positive findings reported by Meechan et al. (2011); Baillie and Curzio (2009a) in a comparable study, were unable to demonstrate any significant difference in perceived confidence levels when comparing a simulation group with a traditional learning group. As demonstrated by table 3.4 comparable models of simulation were used in both these studies; that is low fidelity skills training. Nickless (2011) reported that 60% of students (n=143) strongly agreed that the skills taught had increased confidence. This was lower than levels of agreement to statements related to the simulation experience; the author acknowledged that reported findings in the literature were inconsistent. One student commented that the simulation had decreased their confidence as it had identified gaps in their knowledge base.

The limitation of these approaches to data collection is that there is no opportunity for researchers to explore student responses in depth. In the only qualitative study included in the UK core set of papers, Pike and O’Donnell (2010) sought to explore
students’ self-efficacy beliefs following simulation. Self-efficacy beliefs are understood to influence student confidence and performance (section 2.3.3 page 35). A convenience sample of nine students were interviewed in a focus group and demonstrated that self-efficacy beliefs of their communication skills were reported to be low but were enhanced by simulation. Pike and O’Donnell (2010) do not give any details of the simulation model used to develop communication skills and therefore it is difficult to evaluate these findings. Other findings from this study are presented in section 3.7 (page 88) as they relate to the theme of transferring simulated learning to practice. In general, robust evidence to suggest that simulation can improve students’ confidence and competence is lacking. Several systematic reviews have explored the outcomes of simulation, including confidence and competence, these will be presented in section 3.6.4 (page 83). The next section considers the UK evidence base regarding the outcomes of knowledge and skills.

3.6.2 Knowledge and skills

Moule et al. (2008) focused on knowledge and skills as outcomes using objective measures. Students underwent pre and post-tests, vignettes and OSCEs to establish whether simulation could support the development of clinical skills. In this study simulation replaced six placement days, on the final day they were assessed in BLS, manual handling, infection control, clinical decision-making and managing violence and aggression. No pass mark was set, and student performance was reported as variable. However, the authors concluded that simulation can support the development of knowledge and skills for practice. As there was no comparison group in this study it is difficult to establish that simulation was the cause of this perceived improvement in knowledge and skills.

Two studies in this core set of papers do compare different learning and teaching strategies and how they impacted on students’ skills (Hutton et al., 2010, Shepherd et al., 2010). Hutton et al. (2010) used two approaches to assess students’ skills in medication calculations. One model used a computer based assessment and this was compared with an OSCE in a simulated environment. Students undertook both pre and post-testing. The computerised assessment was reported to be as effective as the OSCE. Whilst the authors found that there was a high level of congruence between the two results, there were additional learning opportunities identified in the simulation assessment. For example, the administration of the incorrect dose due to air in the syringe could not occur in the computer assessment. So, while the authors concluded that the computerised assessment was as effective in assessing skills; they observed that technical measurement skills should be assessed in practice. This study was a pilot for a larger study.
Shepherd et al. (2010) compared two simulation models and the impact on the development of students’ cognitive, motor and affective skills. This involved the use of a service user role playing a patient compared with a high fidelity mannequin. Students were assessed using a validated tool and no difference was found in cognitive and motor skills between the models. However, the mannequin was reported to be less effective in developing the affective domain as students struggled to communicate with the mannequin.

Pearson and McLafferty (2011) used an evaluation tool to collect student perceptions regarding the development of their non-technical skills using simulation. The evaluation tool used a five point Likert scale and included closed questions with free text allowed for students to elaborate on their responses. These were distributed and collected at the end of the simulation week. All of the students who attended the simulation event completed the evaluation (n=187). Students evaluated the simulation positively and agreed it was an effective method to develop these skills.

All of the authors in the UK studies concluded that participants viewed simulation positively. More specifically, Moule et al. (2008) found that perceived benefits included shared learning with students from another branch, whilst Prescott and Garside (2009) reported that students valued simulation as it made links between theory and practice. A benefit identified by Rush et al. (2010) was that students valued the safe environment provided in simulation.

With these primary studies consistently using mixed methodologies in their research it is difficult to come to clear conclusions. Nevertheless, analysing such studies is useful to identify areas which need, and can be improved upon. To date, there have been no high quality studies such as Randomised Controlled Trials (RCTs) and only a single qualitative study, which used a small sample size. This lack of high quality evidence in support of the outcomes of simulation in the UK, made it important to review the wider evidence base. This included a number of RCTs in nursing, medicine and physiotherapy which sought to measure the impact of simulation on these outcomes.

3.6.3 Randomised Controlled Trials

Quantitative studies which aimed to explore learning outcomes tend to focus on a particular skill, for example, medication administration (Sears, 2010). Sears (2010) conducted an RCT (n=54), which is considered by its proponents to be the ‘gold standard’ in research (Robson, 2011), to test whether simulation could increase safety in medicine administration of American student nurses. Students were randomly selected and assigned to either an experimental group, who received simulated learning in place of clinical hours or the control group, who fulfilled their clinical allocation. Students were observed performing medicine administration in practice by
the author following the intervention. The experimental group had significantly fewer medical errors than the control group (only 7 errors from 24 nurses compared with 24 errors in control group of 30, p < 0.05). It was concluded that a larger sample size was needed for further validation of findings. Other factors which must be considered in this study are extrinsic influences on the results such as lack of reliability resulting from facilitation by different clinical tutors; different approaches in support offered to students and/or reporting. Moreover, the authors did not state the number of hours dedicated to simulation nor the percentage of the practice component in this study. However, overall this study indicates that simulation had a positive impact on both performance and outcomes.

In physiotherapy, an RCT suggested that simulation could be used to replace practice hours with no detrimental effect to students’ achievement of learning outcomes. Watson et al. (2012) replaced 25% of practice hours with simulated learning and 360 physiotherapy students volunteered to take part in this Australian study. Data were collected using two methods; an independent examiner who was blinded used a nationally validated assessment tool and all students were assessed in two clinical examinations at the end of the placement. Secondly, students self-reported their confidence levels at the beginning and end of placement using a questionnaire. Two parallel group single blind studies were conducted simultaneously across six sites. One experimental group were exposed to the equivalent of one week of simulated learning and spent the remaining three weeks in clinical placement. The second experimental group spent two weeks divided between simulation and clinical placement and the remaining two weeks in clinical placement. The control group spent four weeks in clinical placement. Actors underwent training to perform as standardised patients, and students were given a total of 21 patient experiences in the simulated environment. Results showed no significant difference in the attainment of professional competencies between the control and experimental groups. In addition, all students, regardless of which treatment group they were in, perceived an increase in confidence at the end of the four week placement. The authors acknowledged that the use of volunteers may have introduced selection bias, and took steps to make comparisons of volunteers with the larger cohort group. Whilst these results are encouraging this research does not show, nor did it set out to demonstrate that this increased confidence and competence transferred to clinical practice. Clearly, the evidence regarding the effectiveness of simulation in achieving outcomes in nursing is limited. Therefore, four systematic reviews that address the question of outcomes of simulation in nurse education were appraised. These reviews and their findings are presented in the next section.
3.6.4 Systematic reviews

Systematic reviews aim to synthesise the evidence base to provide guidance for practice, they are considered to be the top of the ‘hierarchy of evidence’ (Greenhaigh, 1997). However, they cannot all be assumed to be of the same quality so it is important to appraise these papers critically. Four systematic reviews have focused on the outcomes of simulation in nurse education (Cant and Cooper, 2010, Lapkin et al., 2010, Harder, 2010, Yuan et al., 2012). Box 3.2 gives an overview of these four systematic reviews and table 3.5 presents a CASP (2010) analysis.
### Box 3.2 Characteristics of nursing systematic reviews

<table>
<thead>
<tr>
<th>Author</th>
<th>Aim</th>
<th>Papers selected</th>
<th>Appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cant &amp; Cooper 2010</td>
<td>Review the quantitative evidence for medium to high fidelity simulation in nursing in comparison to other educational strategies.</td>
<td>12 papers selected</td>
<td>CASP tool for RCTs</td>
</tr>
<tr>
<td>Lapkin, Levett-Jones, Bellchambers and Fernandez 2010</td>
<td>Identify evidence on effectiveness of the use of human patient simulation manikins to teach clinical reasoning skills to undergraduate nursing students</td>
<td>8 papers selected</td>
<td>JBI meta-analysis of statistics, assessment and review instrument</td>
</tr>
<tr>
<td>Harder 2010</td>
<td>To evaluate current literature on the use of clinical simulation in health care education</td>
<td>23 papers selected</td>
<td>Descriptive appraisal</td>
</tr>
<tr>
<td>Yuan, Williams, Bo Fang and Hong Ye 2012</td>
<td>Identify evidence the effects of high-fidelity simulation on knowledge acquisition and skill improvement in nursing and medical education</td>
<td>26 papers selected</td>
<td>Jadad scale</td>
</tr>
</tbody>
</table>

Each study focused on a different evidence base, either undergraduate nursing, nursing only or nursing, medicine and health sciences. All of the authors provided detailed search strategies and selected papers except Harder (2010). Harder (2010) has not provided evidence of critical appraisal and presented findings as a narrative. This makes it problematic for the reader to identify which papers were included and
appraised in this review. Norman and Griffiths (2014) labelled this type of review ‘pseudo-systematic’, as only part of the process was presented.

Table 3.5 shows appraisal of these papers which has utilised the CASP tool for systematic reviews (CASP, 2010).
Table 3.5 CASP Appraisal of Systematic Reviews:

<table>
<thead>
<tr>
<th>Author</th>
<th>Did the review address a clearly focused question?</th>
<th>Did the authors look for the appropriate sort of papers?</th>
<th>Do you think the important, relevant studies were included?</th>
<th>Did the review's authors do enough to assess the quality of the included studies?</th>
<th>If the results of the review have been combined, was it reasonable to do so?</th>
<th>Can the results be applied to the local population?</th>
<th>Were all important outcomes considered?</th>
<th>Are the benefits worth the harms and costs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cant &amp; Cooper 2010</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Lapkin et al. 2010</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Harder 2010</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Yuan et al. 2012</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>
As shown in Table 3.5, these reviews vary in quality. Systematic reviews should have clear inclusion and exclusion criteria (JBI, 2000) to minimise the risk of selection bias. Lapkin et al. (2010) did not make these criteria explicit in their analysis and it appears that the outcomes were developed iteratively as they do not appear in the search terms. The authors used the JBI Meta-Analysis of Statistics, Assessment and Review Instrument, which is a standardized critical appraisal instrument to assess four selected studies that evaluated knowledge in undergraduate students, and all four papers found significant increases. This assessment was carried out by two independent reviewers who viewed it as good practice for minimising bias in the review process (Petticrew, 2001, Mays et al., 2005). Lapkin et al. (2010) were critical of the current evidence base claiming it derived from studies with weak methodologies, poor sampling strategies and inconclusive findings. The authors concluded that there was a lack of empirical evidence to support the use of simulation in pre-registration nurse education and recommended that more rigorous and robust research should be completed.

Another paper by Cant and Cooper (2010) reached the same conclusion. The authors reviewed twelve quantitative studies which focus on high-fidelity simulation only and included all of nurse education, rather than only pre-registration. They found that only half of these studies found that the experimental groups demonstrated additional gains in satisfaction, confidence, knowledge acquisition or critical thinking when compared with control groups. By contrast, Harder (2010) does not discuss knowledge acquisition but focused on skill performance and perceived confidence and competence. Harder (2010) concluded that few studies had objectively measured the outcomes of simulation and called for the development of a robust evaluation tool to enable this research to be undertaken.

In the only paper to rate the studies included, Yuan et al. (2012) concluded that only three of the 26 studies selected were of high quality. Seventeen of these papers were Chinese, which demonstrates the high level of interest in this subject in China. Unfortunately, the limitations of my own study led me to include English language papers only. Nevertheless, the Yuan et al. (2012) review provides an adequate, although somewhat negative appraisal, with only three studies categorised as high quality. While these Chinese studies were able to demonstrate improved knowledge and skills in both nursing and medical students, the authors concluded that the evidence on the effect of high-fidelity simulation on knowledge, skills and OSCE performance was not robust. Findings of nurse education and medical education were presented separately and reported that evidence suggested that high-fidelity simulation can enhance knowledge and skills, but that student performance in OSCE was inconclusive (Yuan et al., 2012).
A recent meta-analysis compared simulation-based medical education with deliberate practice (SBME-DP) with a traditional model of clinical medical education (McGaghie et al. 2011). This study was based on an extensive search with stringent inclusion and exclusion criteria. This resulted in fourteen papers being selected which were independently reviewed by the four authors. Meta-analytic techniques included effect sizes for the difference in means between the control and comparison groups. Studies were weighted for sample size. The comparative effectiveness of SBME-DP with the more traditional model across studies was 0.71 (95% CI, 0.65-0.75; p<0.001) However, no exploration of heterogeneity was reported. McGaghie et al. (2011) concluded that the outcomes favouring simulation-based medical education with deliberate practice compared with traditional clinical education were ‘powerful, consistent and without exception’ (page 708). The authors suggested that the traditional clinical skills education model is insufficient to achieve skills. However, it was acknowledged that their findings were limited to psychomotor skills such as laparoscopy techniques or suturing. They suggested that it cannot be assumed that this approach is appropriate for the development of cognitive skills such as decision-making or critical thinking. Further research in these areas was recommended.

In summary, whilst there is some evidence of improved outcomes, the systematic reviews are largely critical of the evidence base in both nursing and medicine (Issenberg et al., 2005, Cant and Cooper, 2010, Lapkin et al., 2010, Yuan et al., 2012). In particular, in nurse education it has been noted that whilst educators are enthused about the use of simulation, researchers struggle to demonstrate its efficacy (Rourke et al., 2010). There is a lack of high quality research such as RCTs which investigate the outcomes of simulation in nurse education. In addition, the UK papers presented are single site studies which are essentially evaluations of locally developed simulation models. The studies certainly seem to indicate that simulation can have a positive impact on students’ confidence, knowledge and skills, but in lieu of robust evidence to support this premise an important question arises, and that is whether simulated learning transfers to clinical practice?

### 3.7 Transfer of simulated learning to practice

A central issue to the NMC project was the extent to which simulated learning can prepare students for clinical practice. Several authors have concluded that there is a need for evidence of the transfer of skills learned in simulation laboratories to practice both in healthcare (Solnick and Weiss, 2007, Kao and Thomas, 2008, Baillie and Curzio, 2009a, McCaughey and Traynor, 2010) and non-healthcare literature (Johnson, 2008). The need for this evidence is imperative if the practice component of pre-registration training is to be reduced as proposed by the NMC (2007a), as a direct consequence of this would be a reduction of the opportunities to develop skills. A
number of approaches have been utilised to address this question, including quantitative approaches to measure the performance of a particular skill or self-reporting questionnaires. This section presents the evidence base which has attempted to address this question.

Some of the core UK studies aimed to explore how students perceived that simulation had prepared them for practice (Baillie and Curzio, 2009a, McCaughey and Traynor, 2010); others whether simulated learning had transferred to practice (Traynor et al., 2010, Meechan et al., 2011). Yet other studies explored the relationship between simulation and practice learning (Rush et al., 2010, Hope et al., 2011).

Baillie et al. (2009a) and McCaughey and Traynor (2010) collected data using questionnaires at the end of the students’ placement. Baillie and Curzio (2009a) concluded that the use of simulation to replace some practice hours did not disadvantage these students. Whilst they reported positive findings, less than half of the students reported feeling well prepared for placement. McCaughey and Traynor (2010) distributed a questionnaire collecting both quantitative and qualitative data using a five point Likert scale at the evaluation session following the placement. Questionnaires were posted to those students who were absent and a response rate of 60% (n=93) was achieved. They found that 95.7% of the respondents agreed that they had used the skills achieved during simulation in the practice placement (McCaughey and Traynor, 2010), the limited scope of questionnaires provided no opportunity to explore how they were transferred to practice. The study relied on volunteers who may have had strong views, and so it failed to represent the views of those students (40%) who did not take part, which is a significant number. McCaughey and Traynor (2010) showed caution in presenting their findings and suggested that there was an ‘indication’ that skill transfer would occur. Whilst the qualitative data were positive the use of questionnaires limited any further exploration of student perceptions. Neither of these studies has provided convincing evidence of the transfer of simulated learning to practice.

Two studies asked students how simulation has prepared them for practice (Traynor et al., 2010, Meechan et al., 2011). These studies aimed to evaluate simulation as a learning and teaching approach and data were collected following simulation. Therefore, students were only able to comment on whether they felt prepared for practice rather than whether the simulated learning had actually transferred to practice. Meechan et al. (2011) used a survey which sought perceived levels of confidence, competence, usefulness and ability to transfer learning and views on the assessment strategy. Of these four areas the authors reported that students were most ambivalent in their responses regarding the transfer of skills to practice. Perceived confidence levels were scored most favourably.
One study that did not aim to explore this issue, found that students reported feeling better prepared for practice (Prescott and Garside, 2009). This led the authors to conclude that simulation was a valuable teaching strategy. They suggested that the reported increased confidence would be transferred to practice, however, no evidence to support this conclusion is provided. As this data were collected using questionnaires there was no opportunity to explore the students’ perception of their preparedness for practice.

This limited insight of student experience of simulation and their perceptions of how skills may be transferred to practice warrants further exploration. Qualitative approaches can facilitate in depth exploration of students’ views. Hope et al. (2011), Rush et al. (2010) and Pike and O’Donnell (2010) used focus groups to explore the student experience of simulation in skill acquisition and practice preparedness. One strength of using focus groups is that they can empower students and provide rich data by generating discussion. Conversely, they may inhibit individuals if their experience differs from the majority (Kitzinger, 2005). Hope et al. (2011) developed themes for the focus groups from previous unit evaluations and the authors reported that students found simulation to be an effective learning and teaching strategy. They further claimed that students gave clear examples of knowledge transfer to practice, but provide no evidence to support this. Nor did they address the question of skill transfer which is different to knowledge.

Rush et al. (2010) sought to identify the relationship between simulation and practice learning, which emerged as a theme in their findings. 69% of students felt that their simulation experience had a positive impact on their practice. For example, one student was able to describe how they had used the information from simulation to assess a patient’s wound. The authors concluded that simulation has the potential to prepare students for practice but that further research was needed. This qualitative evidence is limited in the insight it can provide into the transfer of simulated learning to the practice placement.

Pike and O’Donnell (2010) held a focus group and explored students’ self-efficacy beliefs. One of the findings presented in their paper was the issue of authenticity of learning and how the simulated learning had or had not transfer to practice (Pike and O’Donnell, 2010). Nine students participated; one student reported high levels of self-efficacy following simulation, but when they experienced a similar situation in practice their new found confidence left them. This student reported being unable to apply what they had learned in the simulated environment to the real setting. Such a finding is not surprising as there are a number of situational factors which warrant consideration: the length of time in placement, the length of time between simulation and placement, the student’s relationship with their mentor, and familiarity with
equipment/procedures are just a few possibilities. These findings supported Bligh and Bleakley (2006), who proposed that there was a risk of simulation increasing self-efficacy in the simulated setting but that this may not be transferred to the practice setting. It is difficult to ascertain from the limited data presented whether the student expected the skill to transfer, but this finding suggests that there is a risk of students’ having unrealistic expectations of their simulated skills. This example supports Ricketts (2011) conclusion following a review of the literature that student experience of simulation is varied and their expectations warrant further exploration. Ricketts (2011) argued that there is a risk of allowing students to believe they are competent in a skill in the simulation environment, when they have not had opportunity to enact it in practice.

Pike and O’Donnell (2010) explored student perceptions of the importance of authenticity in simulation. They suggested that in order to promote the transfer of simulated learning, experiences should be as authentic as possible, but acknowledge that this can be challenging. It would seem that there is potential for students to have unrealistic expectations of simulation which may have arisen from the NMC’s endorsement of the use of simulation in place of practice hours (NMC, 2007a). Prescott and Garside (2009) argued that simulation is a learning and teaching approach and not a substitution for practice.

Pike and O’Donnell’s (2010) findings contrast with those of Reilly and Spratt (2007) who reported a qualitative study in Australia. In this study volunteers worked in pairs (n=20) and delivered care to two simulated patients in a high fidelity environment. The students then went on their clinical placement. Focus groups were conducted three days after the simulation and following their clinical placement. This method allowed data to be collected following the students placement, and as it was a qualitative approach, issues could be explored in depth. Students reported feeling confident following the simulation and one student was able to initiate care in practice following the simulation. The apparent replication between the simulation and the incident in practice, allowed the student to respond appropriately, demonstrating in at least one student, a successful link between simulation and practice. However, as in Pike and O’Donnell’s (2010) study, this is the view of only one student and no information is provided regarding their previous experience or other situational factors. For example, there are fundamental differences in the nursing curriculum in Australia and the UK, in particular the number of practice hours students are exposed to. However, this student’s account indicated that they were able to make a link between simulation and practice.

Baxter et al. (2009) conducted a quantitative study where students were reported as sceptical about their skills transferring to practice (Baxter et al., 2009). This study
used Q methodology to gather student views of a series of statements about the use of simulation in nurse education. These statements were developed from an earlier study which had utilised focus groups. Baxter et al. (2009) labelled 25% (n=6) of the participants ‘reality sceptics’, because they did not think that simulation could replace practice nor that simulated learning would impact on their practice. These students reported lining up to practice skills and struggled to relate to the mannequin. It appears that they did not perceive their experience as authentic and consequently this impacted on their expectations of simulated learning. This paper reported a state-wide study which collected data from 24 students studying at 17 Canadian institutions. No detail is given about the simulation models used which could impact on their perceptions. Other groups of students were labelled ‘reflectors’, students who reported learning through reflecting on simulation, ‘comfort seekers’, students who found simulation stressful and preferred alternative approaches and ‘technology savvies’, those students who embraced learning with technology.

An earlier study is reported by Feingold et al. (2004) who delivered high fidelity simulation to final year students, as part of a summative assessment with perceived responses measured by a 20 item Likert scale to evaluate realism, transfer and value. The response rate was 67% (n=65). The results showed that less than 50% of participants perceived that simulation had increased their confidence or competence and only 54.7% felt that simulation had prepared them for practice. What is interesting is that the facilitators (n=4) also completed an adapted survey and all four facilitators perceived that simulation would prepare the students for practice. The authors were surprised by this finding and suggested that there may be factors which influenced the transfer of learning. As only quantitative data were collected no opportunity for exploration of these themes was facilitated. The original aim of this study was to have a qualitative interview, but none of the students volunteered. This may indicate that students did not value this approach, but it was reported that all participants agreed that this was an effective teaching tool and that it was realistic (Feingold et al., 2004).

This review has found a limited body of evidence in the nursing literature to demonstrate an effective transfer of simulated learning to clinical practice or patient outcomes, but it seems clear that this is difficult to measure (Alinier et al., 2006, Owen et al., 2006). Student experiences are subjective, unique and influenced by numerous variables which are difficult to control in the practice environment. Examples of different approaches to this research question are considered next from both medicine and midwifery.

In medicine, most studies have focused on measured outcomes rather than individual perceptions of the transfer of learning. This involves a specific skill being compared
before and after simulation, for example Sturm et al. (2008) reviewed studies analysing whether surgical skills acquired through simulation transferred to the operative setting. Ten RCTs and one nonrandomized comparative study which had investigated this topic were reviewed by two independent reviewers. A set protocol was used to select papers. The selected studies had focused on a number of surgical skills including laparoscopic cholecystectomy, colonoscopy and sigmoidoscopy. These studies sought to measure a number of variables such as overall performance, performance time, flow of procedure, patient discomfort and confidence levels. The authors concluded that there was evidence of the transfer of simulation based training to clinical practice. However, they acknowledged that there are many factors which contribute to skill development and therefore this finding may not be the result of simulation alone. In addition, the authors reported a variable amount of detail in the methodology section of those papers selected. Over half of the RCTs did not provide detail of the randomisation processes, allocation concealment and exclusion criteria. Three did not blind the assessors to the training that participants had undergone. Another limitation was identified; that there were generally small sample sizes. Therefore, the authors acknowledged that the findings of this review were limited and recommended further higher quality studies to verify results.

In midwifery, Birch et al. (2007) demonstrated improved outcomes in knowledge, communication skills and confidence with simulated learning. Participants were randomly allocated to three groups which used different teaching methods: lecture based teaching, simulation based teaching and a combination of lecture and simulation. Randomisation was achieved by an independent member of staff sealing envelopes prescribing the teaching modality. The facilitators opened an envelope and then delivered the teaching modality prescribed. Participants undertook pre and post-training testing. Eighteen participants were followed up one year later using qualitative interviews. This study had a sample size of 36 which included midwives and medical staff in the UK. The authors reported that all participants improved in performance and knowledge. However, the simulation based teaching group were able to demonstrate sustained improvement and reported transferred skills. This group felt skills learned had been transferred to their clinical practice and that they had felt confident when dealing with emergencies. It should be noted that this study was under-powered, therefore the sample size was insufficient to detect real differences within the group of participants. The authors’ conclusion that simulation based training can develop transferable skills is based upon the self-report evidence rather than observed performance.

The NMC proposal endorsed the use of simulation to replace practice hours (NMC 2007a), yet it is clear when reviewing the literature that nurse educators are uncertain about this step. For example, Prescott and Garside (2009) concluded that simulation
will never replace high quality clinical placements but that it can support practice learning. The only study that explored educators’ views on this issue reported uncertainty by participants regarding the replacement of practice hours with simulation (Moule et al., 2008). Rush et al. (2010) concluded that simulation has a role in placement learning but suggested that further debate and research is needed regarding the replacement of practice hours.

Ultimately, the decision by the NMC to endorse the use of simulation has a number of consequences. Firstly, it potentially reduces the amount of time students spend in placement. This is difficult to quantify as not all authors make it clear whether simulation is being used in this way. Secondly, it has aligned simulation with practice learning rather than as an approach to learning and teaching within the theoretical component of the programme. The consequence of this may, as Ricketts (2011) suggested lead to unrealistic student expectations.

It is interesting to note what the literature does not say; no author claims that simulation can replace practice. This is not surprising given the limited evidence base. In fact several authors clearly articulated that in their view, it cannot (Murray et al., 2008, Prescott and Garside, 2009), and this is supported by student opinion (Solnick and Weiss, 2007, Baxter et al., 2009). Issenberg (2005) has suggested that simulation complements the practice experience but cannot duplicate it. This is a common theme in the literature with researchers concluding that simulation is a useful adjunct to practice experience (Wayne et al., 2006, Nehring, 2008), but perhaps should not replace it.

3.8 Summary

Generally, the literature does not support the efficacy of the transfer of simulated learning to clinical practice. The research into how nursing students perceive that simulation has impacted on their ability to deliver care in practice is limited, but few studies have collected data following placement experience and there is limited qualitative research which explores student perceptions in depth. Interesting but inadequate quantitative studies in medicine and midwifery have measured skill performance but were focused on specific skills, had small sample sizes and poor quality reporting. These factors limit the usefulness of their findings.

This comprehensive appraisal and analysis of the evidence base on the use of simulation in pre-registration nurse education in the UK, as well as international literature has presented three themes: the concept of simulation, the outcomes of simulation and the transfer of simulated learning to practice. There is clearly a lack of shared understanding of the concept of simulation and nurse educators have sought clarity and guidance. Consequently, a framework of simulation has been developed
and a concept analysis undertaken. The evidence related to the outcomes of simulation and its transfer to clinical practice is inconclusive and contradictory. Findings generally reflect those reported by Rourke et al. (2010); that simulation is associated with ‘greater, similar and lesser improvements in clinical skills’ (page 4). Nevertheless, the NMC have endorsed its use to replace practice hours in the pre-registration nurse education programmes (NMC, 2007a).

What is also clear from this review is that there is a lack of high quality studies in health care, this is evidenced by a number of systematic reviews (Issenberg et al., 2005, Sturm et al., 2008, Harder, 2010, Cant and Cooper, 2010, Lapkin et al., 2010, Yuan et al., 2012). In particular, in the UK, the evidence base in nursing is overly reliant on evaluation of single models of simulation. There is a paucity of qualitative research and limited insight into the perceptions of nurse educators of how simulation is used. Therefore, it is clearly important to address these gaps in the knowledge and this informed the development of the research aims and design of this study, these will be presented in the next chapter.

Chapter 3

Summary:

- A narrative review is presented with a focus on UK studies which explore the use of simulation in the pre-registration nursing curriculum post 2007.
- Research from the international community of healthcare are also presented to contextualise and aid understanding.
- Three themes were developed from the literature: the concept of simulation, the outcomes of simulation and the transfer of simulated learning to practice.
- There is a lack of clarity and consensus regarding the concept of simulation.
- There is a lack of high quality studies which measure the outcomes of simulation.
- Findings regarding the transfer of simulated learning to practice are inconclusive and unsupported by evidence.
- There are a number of methodological limitations in the evidence base which include; small sample sizes; a lack of qualitative exploration and little exploration of nurse educators’ views of simulation use.
Chapter Four
Research Design and Methods

4.1 Introduction

This chapter is presented in two parts. Part one will introduce the research question, aims and design. This includes the rationale and critique of the choices made regarding the research design, case selection, sampling strategy and data collection methods used. The selected case is introduced; a pre-registration nursing programme in a university in the North West of England. Part two provides a detailed account of the actual research process articulating steps taken to ensure rigour throughout. The application of the framework technique for data analysis is critiqued and illustrated. In the final section, the important issues of rigour and reflexivity in this qualitative research study are discussed.

4.2 Research Question and Aims

The research question for this study emulates the over-arching question asked by the NMC’s Simulation and Practice Learning Project (NMC, 2007b) which was:

‘Does simulated learning support nursing students to provide direct care in the practice setting?’

This question was selected as the literature review has shown that there is a paucity of evidence to support the NMC decision to replace practice hours with simulation. The development of the research aims was driven by the need to gain understanding and insight into the students’ experience of simulation. In addition, I was interested in gaining insight into how students’ perceived simulated learning prepared them for practice and how simulated learning may be transferred. Consequently, in discussion with my supervisors the following aims were developed:

- To explore students’ understanding of simulated learning.
- To explore whether simulation has an impact on students’ perceptions of being prepared for practice.
- To explore students’ perceptions of whether/how simulated learning transferred to practice.

As identified in chapter three there is a paucity of qualitative exploration of nurse educators’ views on the use of simulation in nurse education. I also reported the lack of national guidance for the use of simulation to replace practice hours. It was of interest and relevant to clarify nurse educators’ understanding of simulation and how they operationalised this. In addition, I was interested in what their expectations of this approach to learning and teaching were. This resulted in the following aims:
To explore nurse educators’ understanding of the term ‘simulation’.
To explore nurse educators’ expectations of simulation.
To explore nurse educators’ perceptions of how simulation can be used to prepare students for practice.

This research study’s question and aims were central to the choice of research design, this will be articulated in the next section.

4.3 Research design: qualitative case study methodology

4.3.1 Philosophical issues

Appleton (2002) suggested that information about the underlying philosophical assumptions of the author is crucial to understanding the overall perspective of the study design. Yet, many authors do not make their views explicit in journal articles. This was apparent when reviewing the literature presented in chapter three. Whilst this may be due to constraints placed on authors by publishers’ word allowances, there are advantages to both the researcher and reader in having clarity about these philosophical underpinnings. For example, Holloway and Todres (2005) suggested that making philosophical assumptions explicit will benefit both the researcher in designing and implementing the study and the reader in understanding the coherence of the report. Insight into the author’s philosophical position can also be helpful when evaluating the quality of a study (Ponterotto, 2005, Taylor, 2005). Ultimately, it is the purpose of the study rather than the authors philosophical position which should shape the approach chosen (Ford-Gilboe et al., 1995, Krauss, 2005). In other words, the type of knowledge sought and subsequently how they will seek it, should guide the researcher in their choice of research approach. However, as Ravitch and Riggan (2012) suggested a researcher’s philosophical underpinnings may in turn influence the choice of research topic and type of questions asked.

There are a number of research paradigms, that is a world view or set of assumptions or beliefs, which guide and inform the research process (Denzin and Lincoln, 2003). The dominant research paradigms are: positivism, post-positivism, constructivism, interpretivism and critical theory (Ponterotto, 2005). Denzin and Lincoln (2003) proposed that a research paradigm encompassed three concepts: ontology (that is the nature of the world), epistemology (that is the view of the nature of knowledge and how it can be acquired) and methodology (that is the research procedures adopted). These assumptions will inform the research questions asked, the approach adopted, the role of the researcher and the way findings are interpreted and presented.

The world view of positivism believes that there is an objective reality and knowledge which can be found. Consequently, this approach utilises mainly experimental designs
to test hypotheses in order to learn about the world. Post-positivism evolved as a result of its proponents acknowledging that research cannot capture one true reality (Popper, 1968). Consequently, the ultimate goal of post-positivism is theory falsification rather than verification (Lincoln and Guba, 2000). Post-positivism has much in common with positivism and these two research paradigms are aligned to quantitative research (Ponterotto, 2005).

Constructivism and interpretivism share a different world view; this is that multiple realities exist rather than one single reality. One of the early proponents of constructivism believed that the social world was constructed by the individual (Blumer, 1969). To understand these multiple realities they must be viewed from the inside rather than objectively measured. This view shifts the role of the researcher from that of an observer to someone immersed within the research process (Krauss, 2005). This process generates knowledge through the interaction between the researcher and participants. Again, the goal of these two paradigms differs in that constructivism aims to construct knowledge via the research process, whilst interpretivism aims to understand the phenomenon under study. Critical theory places greater emphasis on the role of the researcher, as this paradigm aims to emancipate and empower participants through the research process (Ford-Gilboe et al., 1995). These research paradigms align with qualitative research.

Whilst this summary of research paradigms is simplistic, their application to research in the literature is far more complex. This list of paradigms is not absolute, as Ford-Gilboe et al. (1995) highlighted, and it is evident that numerous paradigms are referred to in the literature. Other examples include: hermeneutics, the feminisms (Denzin and Lincoln, 2003), realism and naturalist paradigms (Krauss, 2005). This is further confused by authors using different labels and lacking clarity when referring to a specific paradigm. For example, Appleton (2002) and Ponterotto (2005) both use the terms interpretivist and constructivist interchangeably in their work. In addition, research paradigms are not mutually exclusive and Krauss (2005) discussed the realism paradigm which has features of both the positivist and constructivist paradigm. This world view proposed that there is a single reality but acknowledged that there are multiple perceptions of this.

Ultimately, as advocated by Ford-Gilboe et al. (1995), it was the goal of the research study which informed the selection of a research paradigm. As the research aimed to gain insight and understanding of the perceptions of students and nurse educators, the interpretive paradigm was considered appropriate to guide this research.

Mason (2002) recommended that the researcher addressed five questions when developing the research aims. It is argued by this author that these five issues must all connect: the researcher’s ontological perspective and epistemological position, the
research area, the intellectual puzzle and finally the research questions. These five issues can usefully be applied to this study.

The purpose of this research study was to gain understanding of the different experiences and perceptions of simulation and insight into what impact this learning may have had on the students’ practice. A positivist approach would require the researcher to objectively observe and measure an outcome, such as the performance of a skill. This would limit the study, as it could only address whether *that particular skill* had transferred to practice.

The ontological perspective of this research is that whilst there may be some shared understanding; there are multiple perceptions of simulation, therefore it is important to understand participants’ individual views. The qualitative researchers’ epistemological assumption is that the best way to view phenomenon is to immerse oneself and view it within its context. Consequently, the researcher is integral to the research and knowledge is constructed through the research process (Krauss, 2005). This active role in the research process raises particular issues for the researcher in acknowledging the influence they may have on the participants. This concept is known as reflexivity and will be discussed in section 4.8.2 (page 132). The research area is the impact of simulation in pre-registration nurse education and the applicable intellectual puzzle is defined by Mason (2002) as ‘causal’ that is; what influence does x have on y. This study explored student and nurse educators’ views on simulation and how it could be used to prepare students for practice. These five issues informed the development of the research question and aims. The interpretive paradigm was used to guide the research process and achieve the research aims.

4.3.2 Qualitative research approaches

The lack of qualitative evidence regarding how students’ perceive that simulation has prepared them for practice was highlighted in chapter three. The aims to explore individuals’ perceptions and experiences of simulation means that the optimum design for this research study was a qualitative rather than quantitative approach. Within qualitative research a number of research approaches may be utilised. These include ethnography, phenomenology, grounded theory, action research and case study research. Ethnography is the primary methodology used in anthropology and is the study of culture or society. Participant observation is central to achieving study aims as the goal is primarily description. Early proponents believed that understanding of a culture required ‘insider’ knowledge, Malinowski (1961) is often cited as the most influential of the early ethnographers. Divergent views of the early proponents of phenomenology led to two different approaches being adopted by the researcher. Husserl (1962) maintained that presuppositions could bracketed or put aside, whilst Heidegger (1962) argued that this was not possible. Heidegger maintained that the
researcher could not separate the self, rather it was important to acknowledge their presuppositions and values. Ultimately phenomenology aims to explore the lived experience of the participants using interviews or narrative accounts (Merriam, 1998, Silverman, 2010). Grounded theory however, aims to generate theory to explain a phenomenon, utilising an interactive and iterative process of data collection and analysis (Glaser and Strauss, 1967). Action research is participative in nature and aims to manage change. The social psychologist Kurt Lewin first coined the term ‘action research’ in seeking to close the gap between theory and practice (Lewin, 1946).

When selecting the research approach, the purpose of the research was the primary consideration. This research study aimed to gain insight into student and educators’ perceptions of the use of simulation in the pre-registration curriculum. It did not aim to generate theory, nor to emancipate students or change the curriculum; this excluded grounded theory and action research. Ethnography requires immersion of the researcher within the research setting over a period of time which was neither a practical nor ethical option for this study. Phenomenology facilitates the exploration of the lived experience of the participant but it was felt that this would limit the study focus. As the operationalisation of simulation is central to this study it was important to have an in depth understanding of the phenomenon. A strength of case study research is that it provides a more holistic and comprehensive approach which allows the researcher to explore the phenomena within its context and as it occurs (Meyer, 2001). Multiple perspectives can be sought in a number of research designs, but it is the diversity of methods and sources which are a key feature of case study (Walshe et al., 2004).

If the purpose of this study was to evaluate the effectiveness of a particular model of simulation in preparing the students for practice, a mixed method approach may have been appropriate. That is, collecting both quantitative and qualitative data. This study’s aims were broader and sought to explore the student and nurse educators’ experience of simulation. This study did not seek to quantify or rate the student experience of simulation, but to gain insight into and understanding of their perceptions. For example, to achieve the research aim: ‘To explore students’ perceptions of how simulation has prepared them for practice’. A Likert scale could be used, asking students to rate 1-5 how well they felt prepared for practice. This would give an indication of the students’ perception but would not allow the researcher to gather ‘in depth’ data regarding their experience. This was identified as a limitation of the current evidence base in chapter three. By using a qualitative approach, I was able to gather rich data and achieve this study’s aims. A critique of the different approaches to case study research is presented in the next section and a rationale for the choices made.
4.3.3 Rationale for selecting qualitative case study

There are two main approaches to case study research; those advocated by Yin (2009) and Stake (2000). Yin defined case study as:

‘an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries and phenomenon are not clearly evident’. (Yin, 2009, page 13).

Yin (2009) stated that case study design can be either ‘holistic’, that is a single unit of analysis or ‘embedded’, that is multiple units of analysis. These case studies can be single or multiple cases and the aim may be exploratory, explanatory or descriptive. Yin (2009) therefore considered the units of analysis as central to determining the type of case study selected.

Stake (2000) suggested that defining case study is problematic as the term is used by a number of disciplines with various interpretations. Indeed, ‘case study’ is a term used within health with numerous meanings. Stake does however refer to a case as a ‘bounded system’ which contrasts with Yin’s definition that the boundaries of the case are blurred. Stake (2000) labelled case studies as ‘intrinsic’ or ‘instrumental’; single or collective. The author distinguished between cases that have intrinsic value that is, they are studied because of the nature of that particular case, compared with one which is instrumental in accomplishing insight into the phenomenon under investigation.

Appleton (2002) critiqued these two main approaches to case study research and explored the philosophical underpinnings of each approach. Both Yin and Stake suggested that case study is suitable if the focus of the study is on a contemporary issue in a real life setting using multiple data sources. Appleton (2002) concluded that Stake’s (1995) approach is more suitable for constructivist or interpretivist inquiry whilst Yin’s work appeared to have a more positivist viewpoint. Yin (1994) suggested that a case study approach may be used in both qualitative and quantitative research. In contrast, Stake (1995) is explicit that his approach is qualitative; he suggested that the aim of case study research is to ‘optimize understanding of the case’ (Stake, 2000). Appleton (2002) concluded that philosophically, Stake’s approach is congruent with the belief that knowledge is constructed rather than discovered. Appleton (2002) noted that Stake was less prescriptive than Yin in his guidance for undertaking case study research. This reflects the nature of qualitative research which should be flexible (Avis, 2005). Therefore, philosophically and methodologically Stake’s approach to case study is congruent with this studies aims.

Determining the type of case study approach to use depended upon the knowledge sought. The selected cases were cohorts of student nurses who were studied to gain
insight and understanding in to simulated learning and its transfer to practice. Instrumental case studies can be either single or multiple (collective). As more than one cohort of student nurses was identified, this study used a collective, instrumental case study. This is defined by Stake (2000) as a case study whose aim goes beyond the case itself, facilitating understanding of the area of interest and allowing comparisons to be made. The cases shared characteristics; that is they were all cohorts on pre-registration nursing programmes who experienced a model of simulation in the second or third year of their programme. By studying these cases, a better understanding of simulation in nurse education was achieved.

Case study has been used extensively in practice orientated disciplines (Walshe et al., 2004) and is well established in educational research (Stake, 1995, Bassey, 1999). Yet Luck et al. (2006) suggested that this approach has not been fully embraced in nursing research. Walshe et al. (2004) outlined situations when a case study approach was appropriate. These will be discussed as applicable in order to develop a robust argument to justify the use of case study approach for this research.

- When complex situations need to be addressed
- When context is central to the study
- When multiple perspectives need to be recognized
- When the study design needs to be flexible
- When you want the research to be directly congruent with a clinical practice approach
- When there is no strong theory to which to appeal
- When other research methodologies could be difficult to conduct

(Walshe et al., 2004)

As discussed in section 3.5.1 (page 62), simulation is a complex issue which lacks clarity. There are numerous actors (students, nurse educators and practitioners) and settings (skills laboratories, simulation areas in practice) involved. This complexity is one of the reasons that a case study approach was selected, as the research aimed to gain insight into a number of different perspectives. Case study facilitated gathering viewpoints from various perspectives using multiple sources of evidence (Yin, 1994). Data sources included documents, field notes and interview transcripts. This assisted in capturing the complexity and ultimately understanding of the case.

A particular strength of case study research is that it allows the phenomenon to be explored within the context of the case (Gillham, 2000). Walshe et al. (2004) suggested that case study was appropriate if the researcher believes that situational factors impacted on the phenomenon under study. This is of great relevance for this study. As demonstrated in chapter three, the operationalisation of the concept of
simulation varies greatly; it was important and relevant to provide rich description of how the concept of simulation is operationalised in this case.

Case study facilitated data collection from multiple perspectives. This study included both nurse educators and students from different cohorts and fields of nursing and used multiple data sources which corroborated findings. This was achieved through documentary analysis that is, review of both strategic and curriculum documents, observation of the activities and interviews with the nurse educators and students. Furthermore, conducting a longitudinal study provided insight into the student experience from the simulation session through to the evaluation; allowing the perceptions of the transfer of simulated learning to be explored. This was a key aim for the study and therefore essential to be able to follow up students when they returned to university following their practice placement.

In conclusion, a qualitative collective case study approach was selected as the optimum approach to undertake a detailed exploration of a contemporary issue (the use of simulation in pre-registration nurse education), within a real life setting (the university), using multiple sources of data (students, nurse educators and key informants) to elicit greater understanding about the case.

4.3.4 Rationale for data collection approaches

The qualitative researcher has a number of approaches available to collect data in their research study. Merriam (1998) proposed that there are three main data collection methods used in case study research: documentary analysis, observation and interviews. I decided to use all three of these methods in order to gain a comprehensive understanding of the collective case study. The rationale for these choices is presented in the following sections and the actual process of data collection is described in section 4.6 (page 120). First, the approach to sampling is presented in the next section.

4.3.4.1 Sampling

Sampling is the term used to describe the process of selecting participants for the study. There are two broad categories, probability and non-probability sampling. A key distinction between these is that non-probability sampling does not seek to make statistical representation which probability sampling does (Ritchie and Lewis, 2003). Non-probability sampling includes a number of approaches: purposive, theoretical, snowballing and convenience sampling. Convenience sampling is based on the most accessible sample to the researcher and consequently is considered to be the least satisfactory of these approaches. Yet, it is noted to be the most widely used in nursing research (Polit and Hungler, 2004, Robson, 2011). This was one criticism of the nursing literature presented in chapter three. Snowballing refers to the process of one
participant referring the researcher to other potential participants. Theoretical and purposive sampling, Silverman (2010) suggested are treated as synonymous, the difference is that purposive sampling is not theoretically defined. Merriam (1998) argued however, that the difference between the two is timing; purposive sampling is planned prior to data collection, theoretical sampling is done in conjunction with data collection. This is because it is guided by the emerging theory; the data leads the researcher to the next document or interviewee (Merriam, 1998). In case study research, sampling is driven by what or whom can facilitate the greatest understanding of the case (Stake, 1995). Yin (2009) discussed the benefits of using key informants who can guide the direction of inquiry, and may signpost the researcher to other documents or informants. For these reasons, purposive sampling was used.

As participants are selected to reflect particular characteristics, the process involves the researcher making deliberate choices. In a study such as this, it was important to be aware of the risk of bias such as the subjectivity of the researcher which can distort the research findings (Holloway, 2005a). Bias may be introduced at any stage of the research process and the researcher must take measures to minimise this influence. These steps are discussed further in section 4.8 (page 130).

Miles and Huberman (1994) proposed criteria with which to evaluate sampling strategies:

- relevance to the conceptual framework and research questions,
- the appearance of the phenomenon of interest
- potential for true to life descriptions and interpretations
- feasibility of sample in terms of access, time and cost
- application of ethical principles

These criteria were considered when planning the sampling strategy for this study. Curtis et al. (2000) explored the value of these criteria and tested their validity by retrospectively applying them to studies undertaken by the authors. They concluded that whilst all of the criteria were applicable, their sampling strategies had been influenced more by the practical criteria. This finding reflects Stake’s assertion (1995) that practical issues such as accessibility may influence sampling, but ultimately he argued, the opportunity to learn should be the main driver. Mason (2002) suggested that the key question is whether the sample provides enough data to address the research question.

In summary, purposive sampling was selected as the most fitting for this case study. The aim of this was to generate sufficient data to meet the research aims, develop
understanding of the case and satisfy the above criteria. Detail of the actual sampling process is provided in section 4.5.3 (page 117).

4.3.4.2 Document analysis

For the purpose of this study, documentary analysis provided context of the development and use of simulation both at a local and national level. There are a number of benefits from using document analysis as a data collection method. Documents can corroborate evidence from other sources and play an explicit role in case study research (Yin, 2009). They can also serve as records of activities that the researcher cannot observe directly (Stake, 1995). Therefore, researchers can access information before the time period of their study. The main strength of documents as a data source is their stability; they are not influenced by the researcher or research process and are grounded in the context of the study (Merriam, 1998). However, a limitation is that they were developed for a different purpose than the study. In the current study, document analysis allowed details of the development and implementation of simulation prior to the commencement of this study to be obtained. In addition, documentary analysis facilitated comparison of the reported and actual operationalisation of simulation.

4.3.4.3 Participant observation

Robson (2011) suggested participant observation provides the opportunity to see what participants do rather than what they say they do. In addition, direct observation allowed data to be gathered in the natural setting (Merriam, 1998). Moreover it may corroborate or contradict data collected by other methods, this is invaluable in understanding the case (Yin, 2009) and can illustrate the whole picture (Mulhall, 2003). That is, not only what is reported but what actually occurs. In the current study I used participant observation to increase understanding of the collective cases by observing the delivery of simulation, and using these observations to corroborate findings from both the documentary analysis and interviews. When planning to use participant observation the role of the observer, the impact of the observer and how to record observations must be considered and accounted for.

Gold’s typology (1958) is a continuum of the researchers’ role when carrying out observations (Merriam, 1998, Mulhall, 2003). The ‘complete participant’ is at one end of the continuum and ‘complete observer’ at the other. In between are the ‘participant as observer’ and ‘observer as participant’ roles describing the level of awareness both parties have of the research study and the involvement of the researcher in the observed activity.

As a researcher, taking either the role of detached observer or active participant have their challenges and potential to impact on the study (Wallace, 2005, Yin, 2009) and
so careful consideration was given to which role I would undertake as an observer. For example, if the researcher has an active role, it is difficult to observe what others are doing (Merriam, 1998) and furthermore, the participant observer, immediately becomes part of, and alters the dynamic of the field upon entering it (Mason, 2002). This may have been particularly relevant for the educators who were aware of my background in nurse education, and may have felt that I was observing their ‘performance’ rather than simply the simulation. In fact, several educators alluded to this. To deal with this scenario, I met with the educators beforehand and developed a rapport because it was important to put the participants at ease (Bassey, 1999). It is suggested that as a participant observer, the researcher is the research instrument more than in any other method (Gillham, 2000), and for this reason critics suggest that it is highly subjective (Merriam, 1998). The issue of reflexivity is discussed further in section 4.8.2 (page 132).

The most important thing a researcher does is to record what they see, which can be challenging (Delamont, 2007). Observation as a method is not infallible (Gillham, 2000) and Mason (2002) argued that it is not possible to record a truly comprehensive and objective account of the activity. For this reason the researcher has to be explicit about what they will selectively observe and record. This should link to the research aims but will also be influenced by the researcher’s tacit knowledge and beliefs (Wolfinger, 2002).

Wolfinger (2002) suggested that there are two strategies for writing field notes; salience hierarchy and comprehensive note-taking. Salience hierarchy is the prioritising of what was most relevant, whilst comprehensive note-taking is more systematic and usually documented chronologically (Wolfinger, 2002, Mulhall, 2003). The timing of writing up notes may influence what is recorded, as the researcher may be influenced by any significant occurrences which may have impacted on the outcome (Mulhall, 2003).

4.3.4.4 Interviews

The aim of a qualitative interview is to gain insight into peoples’ understanding of the phenomenon under investigation (Taylor, 2005). In addition, interviews can generate knowledge by constructing the story via the dialogue between the researcher and participant (Nunkoosing, 2005). However, the structure of the interview, level of control and whether to conduct individual or group interviews must be considered.

Interviews can be a shared communication (Davies and Dodd, 2002), a verbal report (Yin, 1994) or even a conversation (Taylor, 2005). But interviews can go beyond everyday conversation as the researcher actively probes and seeks in depth explanations (Ritchie and Lewis, 2003, Rapley, 2007). Furthermore, interviews can be
anything from highly structured to unstructured or informal (Merriam, 1998). A semi-structured approach to the individual interviews was selected for this study as an informal approach may not have gathered the data required and a highly structured interview may have limited the richness of the data collected. A topic guide was developed to guide the structure of the interviews (see Appendix 1 and 2), this was informed by the documentary analysis and field notes.

It has been suggested that the less structured the interview the more skills required by the researcher (Robson, 2011). As a researcher with limited experience, I had considered this but felt confident that in my previous roles as a nurse and a lecturer, I had developed excellent interpersonal skills. Whilst Swallow and Macfadyen (2004) suggested that the communication skills used by nurses on a daily basis can form a ‘tool-kit’ for research, others are more cautious. For example, Britten (1997) warned against assuming the transferability of these skills, as they are not the same. An interview in the clinical environment will be far more directive than the approach used in qualitative research. It is important therefore, that the researcher should differentiate and adapt different types of communication and self-critique their personal interview style when reviewing recordings (Britten, 1997, Taylor, 2005). As I transcribed the interviews myself I was able to reflect upon my interview skills. This will be discussed further in section 4.8.2 (page 132).

One of the differences between observation and interviews is control; in interviews the researcher can guide the discussion but has no control in observation (Stake, 1995). There are a number of issues that the researcher must be aware of, for example, Yin (2009) warned against assuming the veracity of interviewees who may be prone to bias, poor recall or articulation. In addition, Mason (2002) stressed that interviews do not collect facts, they collect individuals’ views and memories. This is a key strength of case study research as data can be corroborated from other sources (such as observation or documents). The researcher’s role is to facilitate but not to influence the sharing of these views and they should clarify any ambiguity, rather than assuming shared understanding (Taylor, 2005). In this study I decided to use both individual and focus group interviews.

4.3.4.5 Focus groups

Focus groups may provide additional data that is not available with a one to one interview (Kitzinger, 2005, Clavering and McLaughlin, 2007), this derives from the group interaction (Kitzinger, 2005). Focus groups capitalise on group communication and interaction to generate data and are particularly useful for exploring attitudes, knowledge and experience (Mays and Pope, 1996). There are advantages and disadvantages of using focus groups; they can empower participants and provide rich data by generating discussion (Gibbs, 1997). Conversely, they may inhibit the
individual if their experience differs from the majority (Kitzinger, 2005). Groups are not necessarily more truthful than individual interviews but they may talk in different ways and perhaps about different aspects of their experience. The challenges for the researcher, are firstly to encourage the voice of dissent, rather than allowing the group to go with the consensus and secondly, to protect confidentiality. It is important that the researcher is aware of these issues and tries to encourage all participants to contribute to the discussion.

Recommendations related to the ideal group size vary between four and eight participants (Kitzinger, 2005) or six to eight (Ritchie and Lewis, 2003). The advantage of using a smaller group is that the depth of data gathered may be greater (Ritchie and Lewis, 2003). The issue of homogeneity can be an advantage or disadvantage; shared experience and memories can provide glimpses of naturally occurring data and the group can relate to each other. The researcher should be aware that this may cause participants to be reluctant to make revelations within their own group. It is felt that the advantage of homogeneity in this study is that students felt safe to share experiences. It was hoped that the group dynamic would encourage participants to discuss and explore the phenomenon and generate new knowledge which may not be accessible in individual interviews (Kitzinger, 2005).

4.3.4.6 Data Analysis

Most qualitative data analysis uses some form of coding technique (Hahn, 2008). The principles of qualitative data analysis are that it is iterative and inductive. This inductive approach to the generation of knowledge from the raw data avoids pre-empting findings and placing data into themes prematurely (Silverman, 2010). One of the criticisms of qualitative research is that the data analysis is not always evident in research papers (Altride-Stirling, 2001, Ritchie and Lewis, 2003). This is claimed to be a strength of the framework technique which was applied to the data collected in this study, as it provides transparency of the process (Ritchie and Lewis, 2003).

The framework technique was originally developed by Ritchie and Spencer (1994) specifically for applied policy research where the objectives are usually set at the outset. However, it has increasingly been used in nursing research (Lyte et al., 2007, Walshe, 2011, Ward et al., 2013). Ritchie and Lewis (2003) claimed that the use of a tool increased the robustness of the analysis and as Swallow et al. (2011) noted it is not a rigid tool and therefore does not limit flexibility, which is valued in qualitative data analysis.

The framework technique involves five key stages (Ritchie and Spencer, 2002):

1. Familiarisation with the data
2. Identification of a thematic framework
3. Indexing
4. Charting
5. Mapping and interpretation

By following each of these stages, the data analysis was manageable and easily retrievable, which is important when dealing with large quantities of data. However, the analysis does not necessarily follow a linear pattern, researchers can return to earlier stages at any time.

Ritchie and Lewis (2003) depicted the stages and processes in qualitative analysis as an ‘analytic hierarchy’. The importance of moving from descriptive accounts of data to explanatory accounts is emphasised. Whilst using framework increases transparency and assists in the organisation of data, it is only a tool. The key component of this process is the researcher’s ability to explain (Ritchie and Lewis, 2003). This approach initially describes the data collected and then explores links and interpretations by synthesising existing evidence and theory, in order to explain the findings.

A criticism of framework is that it is deductive in approach because of the use of a priori themes when developing the thematic framework (Pope et al., 2000). That is, the aims and objectives determine the thematic framework applied. However, in the first edition of the framework the authors made it clear that the thematic framework is developed from both the research aims and emerging themes which have been noted during the familiarisation stage (Ritchie and Spencer 1994, page 179). In this way the development of the thematic framework can be both deductive and inductive; that is developed both prior to and throughout the data analysis process. The authors noted that the issues identified by the participants are of equal importance as those identified a priori in the development of the thematic framework.

Framework analysis was selected for this study as it was anticipated that the collective case study approach would generate large amounts of data. Framework aided management of this data and facilitated the ‘within’ and ‘across’ case analysis necessary to achieve the aims of this study. This process is illustrated in section 4.7 (page 125) in order to enhance the transparency of the research process.

4.3.4.7 Summary of rationale for data collection approaches

As discussed, a case study approach was selected to gain understanding of a complex issue. Using multiple data methods was key to capturing this complexity (Walshe et al., 2004). Whilst the interviews and focus groups generated the most data, participant observation and documentary analysis contextualised the case. In addition, this triangulation of data helped to make sense of the case (Appleton, 2002). In this case study these multiple data collection methods allowed comparison with reported
and actual behaviour. The interviews facilitated exploration of any discrepancies identified. Framework technique enhanced transparency of the data analysis process and facilitated within and across-case analysis. The actual data collection processes are illustrated and explained in section 4.6 (page 120). The next section introduces the collective case study and explains how it was selected.

4.4 The case and its context for this research

It is recognised that the case can be problematic to define and one author has suggested that the case may only be clearly articulated once the research process is complete (Ragin and Becker, 1992). Sandelowski (2011) labelled this process as ‘casing’ and suggested that the case does not pre-exist, but is created by the researcher for the purpose of the research. The primary criteria for selecting an instrumental or collective case is the opportunity to learn. Stake (2000) recognised that other factors may influence this selection, such as accessibility and variety but these will ultimately influence how much can be learnt. These important considerations have influenced the case selected. There were a number of advantages to collecting data at the selected university. Firstly, the population identified in the research aims, that is pre-registration nursing students and nurse educators were accessible. Secondly, the intervention which is the focus of this study, that is simulation, was being utilised in the School in a variety of models. In addition, the risk of any bias due to power relationships would be minimised as the students on this programme did not know me as a nurse educator.

The first steps to identify the case for this study involved exploration of the use of simulation at the university in the pre-registration nursing programme. This was done by meeting with key personnel and reviewing curriculum documents. Through discussion with my supervisors it was agreed that second and third year nursing students would be selected. These students had gained experience of developing skills in both the university and clinical setting, compared to the first year students who had limited exposure to skill development and practice placements. Therefore, the 2009 and 2010 intakes were selected, as these students were in the second and third year of their programme during the period of data collection in the academic year 2012/13. At this time both the Bachelor of Nursing (BN) and the Diploma in Professional Studies in Nursing (DPSN) programmes were delivered at the university. The 2010 DPSN cohort was the last diploma programme as commencing 2011, all nursing students followed the degree pathway, as per the new NMC standards (NMC, 2010).

Through discussions with key personnel a number of activities were identified. Selection was based on sampling across all three fields and both programmes in the pre-registration nursing curriculum. This process identified three activities delivered within the university plus one in the practice setting. These were:
• Developing communication skills with 2nd year diploma students in mental health in communication suites and seminar rooms at university prior to placement.
• Developing critical thinking skills when assessing an acutely ill patient with 2nd year diploma students in adults in a simulated ward environment at university prior to placement
• Developing communication skills with 2nd year degree students in child in a simulated ward environment at university prior to placement.
• Developing psychomotor skills with 2nd and 3rd year degree students in child in a simulated cubicle in the Paediatric Intensive Care Unit (PICU).

Because of the importance of the different simulation models, a detailed account of each model is presented next. Each model is labelled for reference in the remainder of this thesis. These cases have several differences: context, timing, skills taught, and level of study, thus adding to the depth and understanding of the case.

The mental health groups were diploma students in the second year of training. The simulation model focused on developing communication skills using role play and was delivered by academic staff with the participation of service users. The two cohorts experienced two different models of simulation, although both undertook simulated skills as part of a unit of learning at the beginning of the second year of the programme. The theoretical component was delivered in a lecture prior to the skills sessions.

4.4.1 Recorded role play

The 2009 cohort undertook role play in a communication suite in the university which was recorded using video equipment. A live feed was shown in a nearby classroom to the rest of their group (n=8). On completion of this, the student was given verbal feedback by the individual who had taken the role of the client. This could be either a service user or nurse educator. They then returned to their group where there was a debrief and the student was given written feedback on a proforma. The video recordings were then made available on the e-learning platform. Students were able to access their recordings and reflect on their performance and the feedback given. The use of simulation developed throughout the second year and was summatively assessed using an objective structured clinical examination (OSCE).

4.4.2 Seminar role play

The 2010 cohort also used role play with either the service user or nurse educator. Unlike the 2009 cohort, this simulation was delivered in a seminar room in front of the group (n=15). Students volunteered to role play a scenario with either a lecturer or
service user portraying the client. The student or their peers could ‘freeze’ the scenario at any point to discuss its development. Following the role play, students were given verbal feedback by both the ‘client’ and their peers. This cohort had a written assessment of the unit reflecting on the use of communication skills.

4.4.3 Adult assessment scenarios

The adult group were second year diploma students and the simulation aimed to develop critical thinking and decision-making skills in the university simulated ward environment. This was facilitated by four nurse educators. The unit had clear learning outcomes documented in the Unit Guide which focused on using a structured and systematic approach to assess an acutely ill adult. The unit aimed to develop knowledge and skills in appropriate decision-making and the implementation of care. Specific practical skills for the simulation were included in the learning outcomes which expected students to demonstrate competence in clinical skills and communicate effectively within the team. These students had undertaken the theoretical component of this unit prior to their placement. This was followed by two, four week practice placements in a variety of critical care areas, such as intensive care, theatres and Accident and Emergency. The skills week was delivered in between these two placements, replacing practice hours. In addition, there were on-line study tasks linked to the unit for the students to complete.

A three hour session was delivered to groups of sixteen students; on arrival they were divided into four groups of four and rotated around four simulated assessment scenarios lasting approximately 30 minutes each. During each scenario one student was asked to ‘lead’ and a patient was ‘presented’ to them. Educators facilitated each ‘station’ and were available to answer questions, discuss decisions and demonstrate psychomotor skills. Opportunities to practice these skills were available. The simulation sessions contributed to the unit assessment, as students had to articulate decision-making when assessing patients in a written exam.

4.4.4 Child ward scenarios

The child group included second and third year degree students on a critical care placement. These students were involved in two models of simulation. In the second year, they had a skills session in the simulated ward environment. This comprised of one hour of teaching psychomotor skills which included:

- Care of a tracheostomy
- Care of a stoma
- Insertion and care of a nasogastric tube
These skills were demonstrated to the larger group (n=15), there was little opportunity for practice. The group was then divided into two smaller groups, half remained and half went for a break. The second half of the session used ward scenarios aimed to develop communication skills. Students (n=7) were assigned various roles such as ‘nurse in charge’, ‘staff nurse’ and ‘runner’. Four students were allocated the ‘staff nurse’ role and allocated a patient requiring care. This session culminated in ‘sim baby’ (a high fidelity mannequin) suffering a respiratory arrest and the group observed whilst three students resuscitated the baby. This was followed by a short debrief. This simulation model was not linked to either a theoretical unit or specific placement.

4.4.5 PICU skills day

During their critical placement on PICU the students were involved in a skills day. This was delivered in a simulated cubicle within the PICU environment, by practice educators. Four groups of three students rotated around four stations, each facilitated by a practice educator. At each ‘station’ a psychomotor skill was demonstrated and students given the opportunity to practice and ask questions. Skills included:

- Basic life support for infant and child
- Insertion and care of a nasogastric tube
- Suction via endotracheal tube
- Insertion and care of a urethral catheter

These cases offered balance and variety of the phenomenon studied, that is simulation in pre-registration nurse education, but were also accessible and most importantly offered the opportunity to learn and understand the case itself as advocated by Stake (1995). Figure 4.2 provides an overview of the case and its context:
Part one of chapter four has introduced the research design: qualitative case study and the collective cases. It has provided detail of the process of case selection and the study participants. Part two details the actual research process, beginning with access and consent.

### 4.5 Access and consent

This section explains the procedures, both formal and informal, which were followed to gain access to the case and the study participants. Initially, formal approval had to be gained for the study, for this purpose an application was submitted to the University Research Ethics Committee. It was essential to satisfy the committee that the ethical principles as defined by Beauchamp and Childress (2009) of autonomy, beneficence, non-maleficence and justice were adhered to.
The issues of autonomy and confidentiality were of particular relevance to this study. All participants were allowed to make an informed decision about their involvement. There was a risk that as senior figures had given permission for data collection; participants may have felt obliged to engage with the study. McDonnell et al. (2000) discussed this issue, as permission from an authority figure may influence the participants decision to consent and/or withdraw from the study. Participant information sheets (see Appendix 3 and 4) were issued to potential participants and a minimum of twenty four hours allowed for them to consider their decision. Any queries that the participant may have had about involvement in the study were addressed prior to data collection. Opportunities to ask questions were provided at the beginning of each interview. It was particularly important that the students did not feel coerced to be involved (Bradbury-Jones and Alcock, 2010) and that they were reassured that their participation would not affect their progress on the programme.

Confidentiality was assured both in the Participant Information Sheet, consent form (see Appendix 5) and verbally by the researcher. Informed consent was acquired and permission to use verbatim quotes in the final report sought. I transcribed the interviews myself and participants were coded at that point. All data used in this thesis is anonymised including verbatim quotes. In addition, the cases, University and Trust are anonymised. In accordance with the Data Protection Act 1998, data were anonymised and stored securely, both on a password protected computer and in a locked cupboard.

The principle of beneficence relates to promoting good in research. Whilst there were no obvious benefits to the participants involved in this study, it is suggested that qualitative interviews can be therapeutic and even cathartic for participants (Bradbury-Jones et al., 2011). Non-maleficence means that the researcher must avoid causing harm to the participants. There were no obvious risks to the participants involved in this study. However, I was prepared in case any students became distressed when talking about their practice experiences. It was made clear at the beginning of the focus group that they did not have to discuss anything that they felt uncomfortable about. I was prepared to offer student service contact details to students who required support or follow up. This was not necessary.

It is important that all students had an equal opportunity to be involved in this study to promote the principle of justice. Particularly as it has been demonstrated that involvement in research has potential benefits to students (Bradbury-Jones et al., 2011). All student groups were invited, as the number of volunteers was small, all those who volunteered were able to participate.

Approval was gained from the University Research Ethics Committee following minor amendments in December 2011. In addition, permission was sought from both the
Dean of the School of Nursing, Midwifery and Social Work and the Hospital Trust. As there was no patient involvement, NHS ethical approval was not required. Permission was granted for access to the site and staff by the Trust Research and Development Unit in June 2012.

4.5.1 Access to staff

Once these permissions were granted a number of informal meetings were held with key members of staff to introduce myself and the study. Two simulation leads were in post and they were useful initial contacts to make. As discussed, I was conscious of the participants’ right to autonomy and that staff may have felt compelled to participate and allow access. For this reason, I felt it was important to meet staff individually to introduce myself and ensure that they had sufficient information regarding the study and time to consider whether they wanted to allow access to their teaching. It was also of critical importance that I gave assurance that I was not assessing their teaching style or performance in any way. Some staff made jokes regarding this issue. These meetings were held weeks, and in some cases months before the teaching commenced. This facilitated a rapport to develop between myself and the educators, and helped to establish a trusting relationship. Once consent was gained from the nurse educators to be allowed to observe the simulation, we discussed access to the students. Following the delivery of simulation, staff were invited to participate in the study and a convenient date for an interview was arranged. A participant information sheet (see Appendix 4) and contact details were given prior to this meeting.

4.5.2 Access to students

Prior to the simulation sessions I contacted the students via the e-learning platform to explain that I would like to attend these sessions as an observer. Students were advised to contact either myself or their educators if they had any concerns regarding this. In this way students were informed of my presence at their teaching session in advance. I was introduced to the student group at the beginning of each simulation session by the nurse educator and explained that I was present to observe the process, not their performance. In addition, I explained the nature of the study and asked if any students objected to my observation of the simulation. None of the students expressed concern or objected to my presence. At the end of each session I invited the students to participate in the study. Information provided at this stage included an outline of the study and its purpose, their possible involvement in it and an assurance of confidentiality. Participant information sheets (see Appendix 3) outlining the study and including contact details were circulated to each member of the group. Participation was voluntary and students were told that they had the right to leave the study at any point. Assurance was given that involvement in the study
would not influence their progress on the programme or the assessment process in any way. Students were invited to contact me to express interest or ask any questions they may have had about the study.

When the students returned to the university following their clinical placement, I attended the evaluation of the module when possible. These evaluation sessions were an excellent source of data and comprehensive field notes were recorded. This was not possible with the child group as the simulation was not aligned to a specific module or placement. At the evaluation sessions I was once again introduced to the students and they were invited to attend the focus groups. These were timetabled at a time deemed convenient for the students, avoiding additional travel. They were scheduled as soon as possible following the evaluation as it was felt to be important not to allow time to lapse, as this may have introduced recall bias.

4.5.3 Sampling

Merriam (1998) highlighted that two levels of sampling are often required in qualitative case studies, firstly, when selecting the case and secondly when selecting the participants. The process of case selection is described above (section 4.4 page 110).

By articulating the selection criteria, purposive sampling should increase the transparency and therefore credibility of the sampling process. By using purposive sampling I aimed to identify the participants who were able to offer the most insight into the use of simulation in the pre-registration curriculum at the university.

Table 4.1 depicts the five cases which formed the collective case study for this research. This consists of four student cohorts and the fifth case comprising of the selected key informants. The four student cohorts were each exposed to different models of simulation. In addition, it introduces the coding, which is used throughout the remainder of this thesis to ensure participant anonymity.
Table 4.1 Study participants

<table>
<thead>
<tr>
<th>Co-hort</th>
<th>Simulation model</th>
<th>Total</th>
<th>Participants</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Health DPSN 2009</td>
<td>Recorded role play</td>
<td>12 contacted</td>
<td>6 students</td>
<td>MH1-6/09</td>
</tr>
<tr>
<td>78 students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health DPSN 2010</td>
<td>Seminar role play</td>
<td>8 attended observed simulation</td>
<td>3 students</td>
<td>MH1-3/10</td>
</tr>
<tr>
<td>66 students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse Educators</td>
<td></td>
<td>4 lecturers</td>
<td>2 lecturers</td>
<td>NE1-7</td>
</tr>
<tr>
<td>Adult DPSN 2010</td>
<td>Adult assessment scenarios</td>
<td>40 attended evaluation event</td>
<td>4 students</td>
<td>A1-4/09</td>
</tr>
<tr>
<td>135 students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse Educators</td>
<td></td>
<td>4 lecturers</td>
<td>3 lecturers</td>
<td>NE1-7</td>
</tr>
<tr>
<td>Child BN 2009</td>
<td>PICU skills day &amp; ward exercise</td>
<td>2 attended skills day</td>
<td>2 students</td>
<td>C1-6/09</td>
</tr>
<tr>
<td>51 students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child BN 2010</td>
<td>PICU skills day &amp; ward exercise</td>
<td>6 attended skills day</td>
<td>6 students</td>
<td>C1-2/10</td>
</tr>
<tr>
<td>64 students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse Educators</td>
<td></td>
<td>2 lecturers</td>
<td>1 lecturer</td>
<td>NE1-7</td>
</tr>
<tr>
<td>Nurse Educators</td>
<td></td>
<td>4 practice educators</td>
<td>1 practice educator</td>
<td>NE1-7</td>
</tr>
<tr>
<td>Key Informants</td>
<td></td>
<td>6 key informants</td>
<td></td>
<td>KI1-6</td>
</tr>
</tbody>
</table>

The selection of the four models of simulation provided student and nurse educator representation from all three fields of nursing and both the BN and the DPSN programmes. Each of the student cases were homogenous; in that they shared similar characteristics or subculture (Holloway and Wheeler, 2002). All student participants had met academic and personal entrance criteria to study on the pre-registration nursing programme. They also shared a subculture as students on a nursing programme at the university, and had shared experiences of the programme to date.
As each simulation model varied, so did the sampling strategy and for this reason, the approach used for each case is detailed below.

Mental health 2009 experienced the ‘recorded role play’ simulation model. Of the 78 students in the 2009 cohort, I invited twelve students who had consented to their recordings to be used for research purposes. Of these twelve, six attended the focus group. These six students are coded throughout this thesis as MH1-6/09 depicting their participant number and cohort.

Mental health 2010 experienced the ‘seminar role play’ simulation model. There were 66 students in this cohort, I observed one group’s simulation seminar on two occasions and invited these eight students to participate, of these, three attended the focus group. These three students are coded MH1-3/10 throughout the thesis.

Four mental health nurse educators were involved in these two deliveries of this simulation model to both cohorts; I interviewed two of these. A total of seven nurse educators were interviewed and they have been coded NE1-7 throughout the thesis.

The adult students experienced the simulation session labelled ‘adult assessment scenarios’. In total 135 students attended these sessions over four days. I attended the evaluation at the end of the student placement and invited those attending to participate in this study, of the forty students in attendance, four attended the focus group. These students are coded A1-4/10 in the remainder of the thesis. This simulation model involved four nurse educators, three were interviewed.

Both the 2009 and 2010 cohorts of child students experienced two simulation models. One was labelled ‘child ward scenarios’ and the second was labelled ‘PICU skills day’. Eight students in total (six from 2009 and two from 2010 cohorts) were allocated placements in the PICU. I invited all of these students to participate in the study following my observation of the ‘PICU skills day’. All of these students agreed and six attended the focus group. The two students in the 2010 cohort chose to be interviewed individually rather than join the focus group. These students are coded C1-6/09 and C1-2/10 in the thesis. In addition, the two nurse educators who led the simulation teaching were both interviewed.

Purposive sampling was also used to select key informants who had responsibility for curriculum development and quality assurance of the programmes in the School of Nursing. In order to gain insight into simulation across the region an additional key informant was selected which aided the contextualisation of the case. In total, six key informants were interviewed and they are coded KI1-6 throughout this thesis.
The issue of students self-selecting to participate in this study is considered in section 8.5.2 (page 238). Interestingly, all of the nurse educators and key informants invited to participate in this study agreed.

4.6 Data Collection

A key feature of case study research is the use of multiple sources of evidence (Anthony and Jack, 2009) and methods (Merriam, 1998). This study used documentary analysis, participant observation and interviews to gather data in order to meet its aims and gain insight into how students experienced simulation. Taylor (2005) argued that interviews do not capture actual behaviours, rather they investigate perceptions of phenomenon. By using observation and document analysis, this case study captured some of those behaviours which added context to the case. Each of these methods is discussed in detail below.

4.6.1 Documentary analysis

Documents were selected that had relevance to the research question and aims. As discussed in section 4.3.4.2 (page 105) the purpose of document analysis is to provide context of the case therefore, both local and national documents were selected. At a local level, curriculum documents were initially examined to gain insight into how and where simulation was being delivered within the pre-registration programme. These included: the curriculum documents for both the BN and DPSN programmes, including the curriculum validation documents, and student handbooks. Once the simulation had been identified the unit handbooks, lesson plans, learning outcomes and where applicable, assessment criteria were analysed in order to ascertain what outcomes educators expected from using simulation.

To provide national context, strategic documents, policy documents and national guidelines have been scrutinised. This includes for example, Standards for pre-registration nursing education (NMC, 2010) and the supporting document for implementing these standards (NMC, 2011). Notes were made and a comprehensive list of these documents has been maintained.

Mason (2002) suggested that a key question when beginning documentary analysis is what do you want to get from documents? Key questions that were asked of these documents included: how is the concept of simulation operationalised? What are the influencing factors on the use of simulation in nurse education? What are the expected outcomes of simulation? Are there any assumptions about the use of simulation? The primary aim of using document analysis in this study was to contextualise the use of simulation at the university and more broadly in nurse education in the UK.
Analysis of documents also informed the interview schedule, for example a simulation strategy had recently been developed in the School. It was both relevant and of interest to explore how this strategy had been received, interpreted and implemented when interviewing nurse educators and key informants.

4.6.2 Participant observation

As discussed in section 3.5.1 (page 62), the way in which simulation was conceptualised and operationalised is variable and therefore, was central to the understanding of this case. Participant observation helped to achieve my research aims by:

- Observing the uses of simulation at the university
- Observing the role of the educator
- Observing the students’ level of engagement
- Listening for links made to theory and practice. Were these implicit or explicit?

Participant observation provided a wealth of information, providing insight into the conceptualisation of simulation at the university and the educators’ delivery of the simulation. By attending the simulation and debrief, I was also able to gain insight into the group, their responses to the simulated environment and how they perceived their learning. Consideration was given regarding how I was introduced and what my role would be in the classroom setting. I was aware that if I appeared to be affiliated with the simulation it may have created bias in the students’ responses to me and the research questions. During each of the simulation sessions I attended I was introduced to the student group as a researcher studying at the School. As I had contacted the students prior to these sessions, they did not show any signs of being surprised or disturbed by my presence.

One method of gaining insight into the impact I may have had on the teaching was to ask the educators whether this session was different to normal and whether the students’ responses were altered. This of course only ascertained the educators’ perspective, but gave an indication of the impact my presence may have had on these sessions. This is discussed further in section 8.4.2 (page 235).

A number of factors influenced my role in the simulation sessions. Delamont (2007) argued it was not necessary to actively participate in the observed activity (although this may happen), but rather interact with the participants while they do it. This reflected my role in a number of activities. As a participant observer, I was dependant on the nurse educator for granting access and therefore was happy to accommodate their suggestions regarding my role.
Another factor which determined my role, was the nature of the activity. For example, the delivery of the simulation in mental health involved the student and facilitator role playing a scenario at the front of the seminar room. My role therefore, was simply that of an observer. In contrast, in the child ward scenario, I was asked to role play a parent, this was a minimal role which still allowed me to observe the rest of the group interaction. The guiding principle in all of these sessions was that both the students and the educator were aware of my presence and understood the purpose of my observation.

During the observed simulation, I noted key words of significant events as appropriate, thereby adopting a 'hybrid’ version of the two approaches to note-taking identified by Wolfinger (2002); salience hierarchy and comprehensive note-taking. In order to capture the observed data, I set aside time immediately following the sessions to reflect upon and document my observations whilst they were clear in my mind. Notes were made in chronological order but additional notes were made of relevant events. Detail of body language, the mood of the class, side comments, the level of engagement and whether reference was made to forthcoming practice by either students or nurse educators was recorded. In addition, it was important to note my own initial thoughts and ideas as well as what was seen and heard (Wolfinger, 2002). For example, during the PICU skills day a student commented that it was good to be in small groups as ‘you didn’t feel silly asking questions’. I recorded this observation in my field notes, and subsequently was able to explore this in greater depth during the interview. Analysis of these field notes assisted in developing themes to be explored with the student participants in the focus groups. These field notes were indexed and annotated to enable retrieval and contextualisation of data at a later date as advocated by Mason (2002).

4.6.3 Interviews

Considerations when deciding which type of interviews were used, focused on how to gather as much pertinent data as possible to inform the case. Two approaches were adopted; educators and key informants were interviewed individually which enabled exploration of specific issues. The focus of these interviews was to explore their expectations of simulation and how it can be used to prepare students for practice. (See topic guide, Appendix 2). During these interviews, findings from both the documentary analysis and field observations were explored.

However, for the students it was felt that a group discussion may generate more data as the students could share their experiences and perceptions. This is discussed further in section 4.6.4 (page 123). In addition, individual interviews may have made students feel uncomfortable with the researcher and they may have felt safer in their own groups. Individual interviews were held with two child students who were willing
to participate in the study but were in a different cohort to the majority. Rather than include them in a group with which they were unfamiliar, I interviewed them individually. This proved to be useful as similar issues were discussed which corroborated data gathered in the child focus group. As these were individual interviews, I was able to explore these issues in greater depth.

At the beginning of each interview, the participant information sheet (see Appendix 1 and 2) was discussed and the participant was given the opportunity to ask any questions. Once questions had been answered the participant signed the consent form (see Appendix 5). I then gained permission to begin recording and explained that I had a topic guide which would help me to ensure all topics of interest were explored. Throughout the interviews, I aimed to ensure I maintained an open posture and eye contact with the participant as appropriate. I gave encouragement by nodding and used open questions and prompts as necessary. I was aware of the risk of making assumptions and when listening to the recordings it is apparent that I have sought clarity regarding language and understanding. For example, using phrases such as: ‘can I check that I have understood you correctly…’ and ‘what do you mean by that?’ I listened to the recording following the interview and made notes to supplement this record.

In total, seven nurse educators, six key informants and two students were interviewed as shown in table 4.1 (page 118). The majority of the interviews with educators and key informants were held in their offices, this meant that there were occasional interruptions but this was manageable. Some participants chose to be interviewed in a seminar room to avoid these disruptions. The interviews lasted between forty five and ninety minutes. The two student interviews took place in a quiet room in the practice setting. These took approximately twenty minutes. Interviews were recorded using a digital recorder and I transcribed these recordings as soon as possible following the interview.

4.6.4 Focus groups

The student focus groups had between three and six participants. They were held in a pre-booked room and recorded using a digital recorder with the participants’ consent. Refreshments were provided. They were scheduled following timetabled sessions to avoid students incurring additional cost of travel to the university. Copies of the participant information sheet (Appendix 3) and consent form (Appendix 5) had been distributed prior to the interviews both in person and via email. At the beginning of the focus groups, any questions were answered and consent forms were signed. Students were given a copy for their retention. Ground rules (see Appendix 6) were discussed before the interview began, and students were given the opportunity to add any additional points. In addition, it was made clear that whilst the interview would be
confidential, any disclosure of poor practice would have to be shared with the appropriate personnel as per professional (NMC, 2010) and local guidance. I explained that I had a topic guide (see Appendix 1) to help ensure that all important issues were explored. I also stressed that I wanted to hear all of the student views even if they disagreed with their peers. This was effective as will be shown in the findings chapters; the students frequently expressed different viewpoints. During the focus group I was conscious of my body language and strived to make the participants feel comfortable and relaxed. It was reassuring to listen to the recordings as there is much laughter and none of the students became distressed during the focus groups. The duration of the focus group interviews varied from fifty to seventy minutes. Following the interviews, I listened to the recording and made notes regarding the general mood of the group, body language and any issues which arose. The recording was transcribed as soon as possible.

4.6.5 Overview of data collection

Documentary analysis was ongoing throughout the study period. The participant observation, focus groups and individual interviews took place between May and November 2012. Table 4.2 provides an overview of this process. Participant observation took place in May, June and July, the interviews with educators followed this whenever possible. Student focus groups took place in May, July and August following their practice placements. The interviews held in November were with those key informants and nurse educators who had been unavailable during the summer months.

Table 4.2 Overview of data collection 2012

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</thead>
<tbody>
<tr>
<td>Participant Observation</td>
<td>Child &amp; MH</td>
<td>Child &amp; MH</td>
<td>Adult &amp; MH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviews: Students</td>
<td>MH</td>
<td>Child &amp; MH</td>
<td>Adult</td>
<td></td>
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</tr>
<tr>
<td>Interviews: Educators</td>
<td>MH</td>
<td>Child</td>
<td>Child</td>
<td>Adult</td>
<td>MH</td>
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<td></td>
</tr>
<tr>
<td>Interviews: Key Informants</td>
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</tbody>
</table>
4.6.6 Summary of data collection

These three data collection methods provided a rich source of data, but as noted by Merriam (1998), each method did not necessarily have equal emphasis. The interviews and student focus groups provided the most data. However, the documentary analysis and field notes contributed important data to facilitate a holistic and comprehensive insight into the case.

The aim of case study research is to gain understanding of the case (Stake, 1995). These three methods of data collection and multiple data sources provided information regarding the perceptions of simulation of both students and nurse educators of how it can effectively prepare students for practice and its transferability to practice.

4.7 Data Analysis

This section addresses the analysis of the data in this study. A common criticism of qualitative data analysis is that it lacks transparency (Altride-Stirling, 2001, Ward et al., 2013). This section illustrates the process of analysing the data, providing a clear audit trail.

The five stages identified by Ritchie and Spencer (2002) were not followed in a linear way. As demonstrated in table 4.2 (page 124), data collection took place over a period of seven months and therefore the cycle of familiarisation, developing a thematic framework, indexing and charting was perpetual. Analysis was ongoing throughout the data collection process and as themes emerged, the methods were adapted to incorporate these. For example, it was noted in the delivery of one of the simulation sessions that different educators used a different approach. I was able to explore the reasons for this in the subsequent interviews. Ultimately, a large amount of data were collected which provided rich description of the case and facilitated understanding. This large quantity of data and how it can be managed is identified by Yin (2009) as one of the challenges of using case study methodology.

As discussed it is essential that the process of analysis is both systematic and rigorous. Framework can assist in the management of this large quantity of data, but to aid this I also used NVivo 9 software. Computer assisted qualitative data analysis software can assist with data management and help to provide a clear audit trail (Ward et al., 2013). Whilst Pope et al. (2000) noted that these packages have the potential to improve the robustness of the data analysis, they noted that they are not analytical tools. The coding of the data and refining of the emerging concepts is the responsibility of the researcher alone (Pope et al., 2000). However, in order to enhance the robustness of the data analysis it was agreed that a member of the supervisory team would oversee this process. By sharing the data and discussing the process at each stage, my supervisor was able to corroborate and validate both the
analytical process and findings. In this study, the analysis ran parallel to data collection and continued throughout the write up period of this thesis.

A research log was maintained throughout this process which documents decision-making and also initial ideas and questions to ask of the data. The following section aims to illustrate the data analysis process and where applicable provides examples.

4.7.1 Familiarisation with the data

Familiarisation with the data is the stage when the researcher becomes immersed in their data. This was facilitated in a number of ways. Firstly, I carried out all of the interviews myself and therefore was fully conversant with the context and content. The field notes made following the interviews proved useful as they aided the contextualisation of the data during this stage and later when indexing data.

I transcribed all of the interviews myself as soon as possible. As discussed by Easton et al. (2000), a benefit of this was an increased accuracy, a ‘joining up’ of the transcript with field notes and familiarisation with the data. Transcription involved listening to each interview numerous times, and so I quickly became immersed in the new data. The extensive notes made of the participant observation and documentary analysis were also referred to. Notes were made throughout this stage of key words and emerging themes in the research log.

All data, documents, field notes and digital recordings were imported to NVivo 9. This programme incorporates framework and enabled matrices to be created directly from the data. This meant that once text from a transcript was coded to a node (referred to as a descriptor in this thesis), it could then be inserted into a matrix. This process was time consuming, taking weeks rather than days. It was extremely worthwhile as it meant that I became well acquainted with the data at this stage.

4.7.2 Identification of a thematic framework

A thematic framework was generated from both the data and the topic guide, which divided the interviews into two broad themes; the experience of simulation and the transfer of simulated learning. As key words or themes were identified during the familiarisation phase, they were also noted and this created additional nodes or descriptors. A third thematic framework was developed which focused on learning. At this point these codes were kept ‘in vivo’ that is, using the participants own words to retain the context.

4.7.3 Indexing

Once the thematic frameworks were developed the interview transcripts were re-visited and the data indexed or coded to these frameworks. This process was iterative
as additional nodes or descriptors were created until I was satisfied that all of the data was indexed in an appropriate way. Themes were refined as similarities and differences between these were noted. For example, it was noted within the minor theme of safety, two issues were discussed; one was student safety and the second patient safety. Subsequently, two descriptors were developed and these were ultimately included in separate major themes. ‘student safety’ in the ‘experience of simulation’ theme, and ‘patient safety’ in the ‘perceptions of simulation’. NVivo 9 assisted the process as this allowed colour coding to be added to the text, which gave a visual overview of the data. This clip demonstrates that one short passage of text was coded to several nodes or descriptors. This excerpt includes coding to the descriptors or nodes: ‘expectations of simulation’, ‘assessment strategy’, ‘preparation for practice’ and ‘links with practice’.

**Figure 4.2 Example of Nvivo coding**

4.7.4 Charting

Charting is the process of moving the indexed data from the original context of transcripts or documents to where it fits in the thematic framework. This allowed data to be re-arranged from the individual transcripts to charts which collated responses indexed to that particular thematic framework. NVivo 9 has the capacity to create a matrix for each of the thematic frameworks. This facilitated cross-checking as the excerpt is linked to the original source; that is the interview transcript. Matrices were developed for three thematic frameworks: simulation, practice and learning for each of the three participant groups: students, nurse educators and key informants.
Once the matrices were developed they were exported to ‘Excel’ and numerous charts were created. A key feature of framework technique is that it allows ‘within case’ and ‘across-case’ analysis (Ritchie and Spencer, 2002). Charts were created for the three over-arching themes and then replicated for the three participant groups. In addition, charts were created which aligned the field nurse educators with field students for example, adult nurse educators with the adult students to compare perceptions of the simulation sessions delivered.

As demonstrated in figure 4.3 the cells of the initial chart contained a great deal of verbatim text which needed to be summarised whilst retaining the context of the transcripts. This made the data more manageable but still recognisable (Ritchie and Lewis, 2003). A new column was inserted labelled ‘Elements/Dimensions’ and a summary of the verbatim text inserted. This can be seen in figure 4.4. It is possible to track the verbatim text in Excel, to the matrix in Nvivo 9 and ultimately to the transcript which provides a clear audit trail. This is another key feature of framework technique (Ritchie and Spencer, 2002). Twelve charts were created in total, these were printed and this enabled visualising the data as a whole.

Figure 4.3 Example of initial ‘Educators - Practice’ excel chart

<table>
<thead>
<tr>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educators - practice</td>
<td>Practice Preceptors</td>
<td>Preparation for practice</td>
<td>Transfer to practice</td>
</tr>
<tr>
<td>to give them opportunities that they may not have had already</td>
<td>I think some of the mentors that they have, refer to certain skills, again more sort of tacitic type skills, that they have, 'have you done this before? and they can say yes, I've done it', so they feel more able to try it again or try it for the first time or practice it again and feel safer to</td>
<td>It depends, I think some would say yes, some would say no, some would say no, I've only done it on a model so would say well yeah, it depends cos if they've practiced sort of doing clinical observations on each other, on a human, then they say yes, I have done it, same as taking blood, not that much, so yes, it depends on the skill doesn't it?</td>
<td></td>
</tr>
<tr>
<td>I think sometimes you often get students who think they have had limited ward experience in the main, and they say 'Oh, I haven't done anything, I haven't done anything' and perhaps when you've practiced some skills or some scenarios with them, they realize that they are able to do the things that they might be expected to do at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>That is not to say that they're not seeing good examples of practice but maybe they're doing it in a different way and that they can't articulate, they might not say yes, we're looking at the ABC of emotion here but they're actually doing it but they are not articulating in the same language that we're using at the University sometimes. But once the student explores that with their practitioner mentor then they say 'ah, that's the</td>
<td>Which really, the student's weren't being exposed to, so well.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both, we believed. Because what we would see, very much through reflection with the students we would hear about their exposure to role models in practice and often it would be, very seen, limited exposure to what the evidence would say is sound skills practice and best evidence of engagement and assessment and responding</td>
<td>We will do all to make possible sure you are prepared for the assignment but this is actually about practice, this is about equipping you with the knowledge, the values, the skills, the attitudes, the understanding for practice and that seems very evident to me, but isn't always the priority the student puts on emphasis on their learning experience, and that can cause tension, that can cause tension</td>
<td>We've always tried to convey, that this isn't, this isn't a recipe, this isn't that you start with ingredient A and end up with product B, that this is a set of core, core skills, that with knowledge and understanding and evidence back up, you can apply differently, in different clinical situations, and you know adjust them if you like, to the clinical needs of the person you're caring for.</td>
<td></td>
</tr>
</tbody>
</table>

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4.7.5 Mapping and interpretation

This stage of the data analysis is perhaps the most elusive in qualitative research as it is when the researcher attaches meaning to the data and scrutinises the data in order to develop explanations (Ritchie and Lewis, 2003). This stage entailed looking for patterns and associations and then attempting to explain why they were there.

A further column labelled ‘Categories/Classes’ categorised the contents of each cell, this process involved both abstraction and synthesis of the data. This involved re-visiting the transcripts to contextualise the data and cross-checking the charts to ensure that all data was appropriately coded. Ritchie and Lewis (2003) stressed the importance of retaining key terms or phrases and avoiding interpretation by the researcher. This enabled the data to be interrogated in order to establish the range of perceptions included in each theme. As demonstrated in figure 4.4 these categories retained as much of the original context as possible.

**Figure 4.4 Example of chart development ‘Educators – Practice: Preparation for Practice’**

<table>
<thead>
<tr>
<th>S Preparation for Practice</th>
<th>T Elements/Dimensions</th>
<th>U Categories/Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>we will do all to make possible sure you are prepared for that assignment but this is actually about practice, this is about equipping you with the knowledge, the values, the skills, the attitudes, the understanding for PRACTICE and that seems very evident to me, but isn't always the priority the student puts on emphasis on their learning experience, and that can cause tension, that can cause tension to be able to give them, if you like a set of core capabilities, a set of skills, competencies, to enable them to actually have a framework, and a structure, and an understanding of the intentionality of nursing, the therapeutics of nursing, so, we felt very strongly that they needed that to equip with some confidence, and a base line of knowledge and understanding and skills sets to, more meaningfully, if you like, look at their work, with clients in the practice setting.</td>
<td>We aim to prepare them for their assert but this is about practice, equipping them with the skills, values, knowledge and understanding for practice. This is evident to me but the student doesn't see that as the priority and that can cause tension. Aim to give them a set of core capabilities, a structure to equip them with some confidence and a baseline of knowledge and understanding to look at their work more meaningfully.</td>
<td>Aim to prepare them for practice. To give them a core set of capabilities to equip them with some confidence and knowledge.</td>
</tr>
</tbody>
</table>
A record of this process was documented in a word document. The data were indexed to fifty eight descriptors; twelve minor themes and three major themes. The categories were refined and resulted in re-organisation of the three major themes: 'perceptions of simulation', 'simulation experience' and 'transfer to practice'. These three themes are presented in chapters five, six and seven respectively; chapter eight presents a synthesis and discussion of these findings.

This section has illustrated the data analysis process and introduced the three major themes. Before presenting the findings, the next and final section of this chapter explores the issues of rigour and reflexivity in qualitative research and in particular to this study.

4.8 Rigour and reflexivity

4.8.1 Rigour

The need for rigour in qualitative research is the topic of much debate in the literature (Mays and Pope, 1995, Morse et al., 2002). It is considered by some authors to be a measure of quality which relates primarily to the positivist paradigm or quantitative approach (Davies and Dodd, 2002, Tobin and Begley, 2004). Terms such as reliability, validity and generalisability are persistently applied to qualitative research despite this on-going debate. Tobin and Begley (2004) suggested that terms used in the positivist paradigm have become the language of research as a whole. Several authors prefer to emphasise the need for transparency or visibility and systematicity or orderliness to ensure rigour in qualitative research (Davies and Dodd, 2002, Meyrick, 2006). This ambiguity in the use of language can be confusing to the novice researcher. Whichever terms are applied Holloway (2005) suggested that the key was to demonstrate the truth-value of the research report.

Rigour has been defined as the way legitimacy, integrity and competence are demonstrated in research (Tobin and Begley, 2004). In 1985, Lincoln and Guba introduced the concept of trustworthiness with which to assess qualitative research. To do so, they suggested the application of criteria which included credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985). Credibility means that the researcher provides an accurate representation of the participants’ views in the research report (Tobin and Begley, 2004). Transferability concerns the ability to apply the research to another setting, this relies on the researcher providing sufficient detail of the research setting to facilitate this (Murphy et al., 1995). Dependability requires the researcher to recognise that the research has been carried out in a particular context, from a particular viewpoint, by a researcher with particular skills and that all these factors will have influenced the study (Lincoln and Guba,
Confirmability is measured through being able to provide a clear audit trail throughout the researcher process (Murphy et al., 1995).

In this study, I will demonstrate the trustworthiness of this research through consideration of these four criteria: credibility, confirmability, dependability and transferability (Lincoln and Guba, 1985). Credibility will be demonstrated by illustrating the findings using verbatim quotes, thereby striving to provide an accurate representation of the participants’ views. Credibility was also enhanced by the involvement of one member of the supervisory team throughout the process of data analysis. By using NVivo 9 software, I was able to access and share all of the data and demonstrate the development of codes, categories and ultimately themes. We discussed this work and my supervisor aided this process by challenging and questioning the decisions made.

Reflexivity is central to the criteria of dependability which will be discussed in the following section (page 132). Transferability is promoted by the rich description and contextualisation of the cases provided in section 4.4 (page 110). In addition, it has been shown that the simulation models used at the selected university were comparable with those used in the UK core studies presented in chapter three. This demonstrates that findings from this study may be transferable to other AEIs using simulation in their pre-registration nursing curriculum.

This thesis aims to provide a clear audit trail to satisfy the criteria of confirmability. The foundations for this research were presented in chapters one, two and three. This chapter has presented the development of the research questions, study aims and the design selection. Section 4.5.3 (page 117) explained how purposive sampling was used on a number of levels to ensure that participants who could provide the most insight into the phenomena being studied were selected. The rationale for the data collection methods has been articulated. Seale and Silverman (1997) suggested that excellent data management can enhance confirmability by providing a clear audit trail. This was facilitated in this study by the use of NVivo 9 which enabled all data including recordings, transcripts, field notes and documents to be stored in a central location. The application of framework technique enabled the process of data analysis to be explained and illustrated in section 4.7 (page 125). The findings are presented in chapters five, six and seven. This thesis aims to demonstrate that a transparent and systematic approach has been applied throughout this research study.

The effectiveness of the application of these criteria will be reflected upon in chapter eight (section 8.4.1, page 234).
4.8.2 Reflexivity

Reflexivity is an important principle in qualitative research. Whilst it is acknowledged that the researcher has an influence on the research process, it is critical that they acknowledge this impact and takes steps to minimise it (Finlay, 2002, Morse et al., 2002, Krauss, 2005). Schwandt (2001) described reflexivity firstly, as the acknowledgement that the researcher is part of the social world under investigation and secondly, that it involves reflection on their own viewpoints and biases. Throughout this study, two principles have guided this process; these are labelled by Finlay and Gough (2003) as ‘introspection’ and ‘inter-subjective reflection’. Both have been central to undertaking this study in a reflexive manner.

Introspection is the process in which the researcher uses reflection to consider the impact they may have on the research process. This was documented in a reflective research log and was on-going throughout the data collection period. When developing the research question I examined my motivation, assumptions and interests in the topic (Finlay, 2002). At the time of the publication of the NMC circular (2007a), I was a senior lecturer in children’s nursing and used simulation as a learning and teaching approach in the pre-registration nursing programme. The NMC’s decision to use simulation to replace part of the practice component led me to question whether simulation could replace practice. In developing the research proposal, a systematic approach has been demonstrated by ensuring that the aims and research question were clearly stated and that an appropriate methodology was chosen as advocated by Meyrick (2006). I was aware that when reviewing the evidence base, I needed to be objective and critical.

When transcribing the interviews I reflected on my interview technique as recommended by Taylor (2005) and developed this skill throughout the data collection process. In addition, reflection-in-action (Schon, 1983) was used during both the interviews and participant observation as I was aware of both my verbal and non-verbal communication. I tried to maintain an open and friendly manner and avoided making assumptions; always clarifying what the participant meant.

Inter-subjective reflection is the process whereby the researcher shares their thoughts and feelings with others. In this case, the supervisory process facilitated this, monthly meetings throughout this research study has enabled decisions to be debated and challenged. In particular, as detailed in section 4.7 (page 125) one supervisor assisted throughout the data analysis to question and debate each of the five stages of applying framework technique to the data. The use of inter-subjective reflection has strengthened the credibility and dependability of this study and its findings.
Inter-subjective reflection was also sought by consulting the nurse educators regarding the students’ response to my presence during the simulation. This will be explored further in section 8.4.2 (page 235). The question of whether I influenced the nurse educators’ delivery of simulation was an important issue. They were aware that I had previously used simulation, studied simulation and been awarded a scholarship to visit international centres of excellence. They made comments about their use of simulation being ‘not as good as I was used to’. I was aware of this and aimed to be supportive and objective in my discussions with them. This involved giving positive feedback following the sessions and assisting whenever possible, for example sharing articles of relevance.

These are some of the strategies which were integrated into the research process in order to strengthen the trustworthiness of this study. It is worth noting that the extent which the researcher influences the data can never be known (Krauss, 2005), but it is important that steps are taken to acknowledge and minimise this. Whilst it has been suggested that reflexivity will come naturally to health care professionals, as they are encouraged to reflect on practice (Taylor, 2005), I would challenge this and suggest that not all health care professionals have reflective skills and this process should be made explicit.

4.9 Summary

This chapter has provided a detailed account of the research process undertaken for this study. The first part of the chapter presented the research question and aims and provided a rationale for the research design and data collection methods selected. Detail of the collective case has been provided and the data collection process described. The application of framework technique is illustrated and the development of the three major themes articulated. Finally, steps taken to enhance the rigour of this study and acknowledge reflexivity have been presented.

The next three chapters present an in depth discussion and analysis of the three main themes: the perceptions of simulation, the experience of simulation and the transfer of simulated learning to practice.
Chapter 4

Summary:

- Rationale for a qualitative case study approach is provided.
- A collective case study was adopted which includes a number of simulation models and representation from each field of nursing and programme.
- Purposive sampling of multiple data sources included: key informants, nurse educators and students.
- Data collection methods included: document analysis, participant observation, individual interviews and focus groups.
- Framework analysis was used to enhance transparency and rigour, facilitated within and across-case analysis.
- Steps to enhance the rigour of the study are outlined.
Chapter Five
Perceptions of Simulation

5.1 Introduction

This chapter will present the first of three major themes of findings; the perceptions of simulation in the case study. Throughout the findings chapters, verbatim quotes are used to support the themes. Where appropriate field notes are used to support this data.

As explained in chapter four, section 4.7.5 (page 129) the three major themes were developed using framework analysis. Fifty eight descriptors created twelve minor themes and ultimately three major themes: perceptions of simulation, student experience of simulation and the transfer of simulated learning to practice. Table 5.1 provides the overview of the minor themes and descriptors which formed this major theme:

Table 5.1 Overview of theme development

<table>
<thead>
<tr>
<th>Major theme</th>
<th>Minor theme</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptions of simulation</td>
<td>Curriculum development</td>
<td>• Curriculum development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Educational principles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quality issues</td>
</tr>
<tr>
<td></td>
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<td>• Staff development</td>
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<td>• Risk management</td>
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<td>• Action</td>
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<td></td>
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<td>• Historic influence</td>
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<td>• Evaluation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Evidence base</td>
</tr>
<tr>
<td>Drivers</td>
<td></td>
<td>• Drivers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NMC</td>
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<tr>
<td></td>
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<td>• NMC Circular</td>
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<td></td>
<td></td>
<td>• Lack of skills</td>
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<td></td>
<td></td>
<td>• Patient safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Limitations of practice</td>
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<tr>
<td>Challenges</td>
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<td></td>
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<td>• Resources</td>
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<td>• Attitudes</td>
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<tr>
<td>Defining simulation</td>
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<td>• Defining simulation</td>
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<td></td>
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<td>• Exclusivity</td>
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<td></td>
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<td>• Expensive mannequins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Assumptions</td>
</tr>
</tbody>
</table>

Table 5.1 shows that twenty two descriptors created four minor themes which ultimately created the overarching major theme; perceptions of simulation. Before
introducing the next section two points should be noted. Firstly, the minor theme of curriculum development is not presented in detail in this chapter as the data does not address the research question and aims; the participants discussed these issues in order to contextualise the development of simulation. The content of this chapter is focused on the other three minor themes; the drivers and challenges for the development of simulation and participants’ definitions of simulation. The second point is that this major theme derives mainly from the nurse educator and key informant data. This is because as identified in chapter three, the use of simulation is variable across the UK and there is a lack of consensus regarding the language used. I felt it was relevant and important to explore these issues with this group of participants in order to contextualise the case. Thus, to understand how simulation is conceptualised and operationalised at the selected university, exploring these issues with the participants was necessary to provide context. Student data is presented, in order to compare and contrast the different participant groups’ viewpoints.

The responses of the key informant and nurse educator participants in relation to their understanding of simulation are presented and analysed using table 5.2 (see page 146). Key themes emerged from the analysis of this data; simulation as an emerging concept, simulation as an umbrella term and misconceptions about simulation. These will be presented and explored using verbatim quotes to provide further insight of the participants understanding. In addition, participants’ views of the key attributes of simulation are considered. Before this in depth exploration of the participants’ perceptions of simulation, data will be presented which provides context related to the development of simulation in the School of Nursing at the university. The drivers and challenges as perceived by the participants are explored in the next section.

5.2 Development of simulation

This section aims to contextualise the case and explore how simulation has developed and been implemented at the university in the pre-registration nursing programmes. It was apparent from the interviews with the nurse educators and key informants that there had previously been an ethos that practice skills were taught in practice and the theoretical component of the programme was delivered in the university. This had been introduced with the Making a Difference (DoH, 1999) curriculum in 2000, which emphasised the need for students to develop clinical skills in practice. As discussed in chapter two (section 2.2.2, page 27), in recent years there has been a renewed focus on the delivery of clinical skills in the university setting. This has been influenced by both the national agenda and local issues. Investment was made by the selected university in both facilities and staffing; this included a new building with simulated ward areas and the appointment of two clinical tutor leads for simulation. The use of
simulation in the school continues to develop; this is evident in the curriculum documents for the newly validated BN Programme (2011).

When orientating myself to the case, it was not clear where in the curriculum, simulation was delivered. I therefore utilised the newly appointed staff as key informants to guide me to those members of academic staff using simulation as a learning and teaching approach. During the interviews with the nurse educators I explored with them how they had developed the use of simulation within the programme’s course units. In particular, what the drivers had been for its implementation. It became apparent that there were a number of perceived challenges in this process. These will be discussed in the following sections.

5.2.1 Drivers

A number of drivers for the development of simulation in the school were discussed in the interviews. These have been categorised as national, local and personal.

5.2.1.1 National

The national agenda set by the NMC (2007a) when introducing their proposal regarding the use of practice hours for simulation did not appear to be a major incentive. In fact the development of simulation appeared to have preceded the circular within the DPSN programme. The NMC endorsement of simulation was referred to by only one participant; NE5 refers to the fact that the NMC accepting simulation as a teaching tool had influenced the development of its use:

‘One of the drivers... was, that is, becoming accepted by the NMC as a, you know as a teaching tool’. (NE5)

Nurse educator participants focused on the limitations of practice to provide students with the opportunities to develop clinical skills, which is presented in the next section.

5.2.1.2 Local

The reason which was cited most frequently for the development of simulation was to address students’ need for skills development. This had been identified by the local practice areas, the nurse educators and students themselves. For example, within mental health it was perceived that students lacked opportunities for skill development in the practice setting. This perception led to the introduction of simulated skills delivered in the university setting and is explained by this key informant:

‘I think again, it’s, there’s been an acknowledgement that students, although initially they were having some skills development in practice it was then
gradually withdrawn, I think there was a report into mental health skills, which showed that there was a lack of, a lack of good provision, of helping students develop these skills and so our teachers took that on board’. (KI4)

This was expanded upon by this nurse educator from mental health, who identified specific issues regarding students’ skill development which were perceived as not being addressed in practice:

‘they should have that opportunity to have practice that is observed, that is fed back on, that is enable to encourage them to reflect and to look at what they did well and what they could do differently and what they need to go away at and improve on if you like erm so, it was very much a feeling that and feedback that students weren’t getting that also in practice ... and I think that in reality it’s because staff haven’t got the time to do that. and students would often comment that often they would do work unsupervised, and often the work they were doing with people would invariably be with unqualified staff, and I think that they raised their concerns about ‘how do I know I am doing it well, because no-body’s watching me’ so the idea about simulation grew in the sense of ‘how do I know I’m doing it well, how do I know what I need to grow and develop in’. (NE2)

In this nurse educator’s view students were not able to have their practice observed, given feedback, or opportunities for reflection in practice. In mental health, the use of simulation was developed to specifically address these perceived limitations in practice. This learning was deemed essential by this nurse educator for students’ skill development.

Another driver for simulation was to prepare students for specialist practice placements. In adult nursing, the development of the ‘adult assessment scenario’ simulation was also implemented to address skill development, but this was driven by the need to prepare students adequately for their critical care placement. This is demonstrated here:

’[the educators said]; ‘actually, they’re coming into this Unit... they really need some more, if you like, sort of essential skills, to deal with the environments into which they’re going’. (KI4)

Within child, whilst the opportunity to develop skills was noted, the perceived lack of skills in newly qualified nurses appeared to drive the development of simulation. This view is demonstrated by two nurse educator participants:
'I think it was driven by partly by practice, I think from what my understanding is, there were comments from practice saying they, students are coming out not being able to do things’. (NE1)

This participant stated that their understanding was that practice had identified an issue regarding students lacking skills, which resulted in an increased focus on this. Consequently, it was the needs of practice rather than student needs that had driven the development of simulation. This was also highlighted by the practice educator who voiced concern regarding newly qualified nurses’ skills:

‘we looked at the nurses that were coming through from newly qualified that didn’t have these basic skills, so we thought that was an issue we could address earlier on, and the fact we are employing them so it was sort of, selfish there, feedback from the students themselves, on the evaluations from the placement where they’d maybe not had opportunity to practice some skills’. (NE3)

In this participant’s view there were two main drivers for the development of simulation. Firstly, that the practice area wanted newly qualified nurses to have an essential skill set, and secondly, student feedback highlighted a lack of opportunity for skill development in practice. These were the drivers for developing the simulated skills sessions in Paediatric Intensive Care Unit (PICU). This participant indicated that as new graduates would be required to have these skills, the unit considered this investment to be worthwhile.

The need for simulation to support practice learning because of the lack of opportunities in the practice setting has been reported in the literature (Murray et al., 2008, Prescott and Garside, 2009, Traynor et al., 2010, Meechan et al., 2011). For example, Murray et al. (2008) highlighted the lack of opportunities for students to develop skills in practice as a driver for the use of simulation. Prescott and Garside (2009) raised the issue of limited opportunities for feedback and discussion in practice. They proposed that a major strength of simulation is that students have the opportunity to ask questions and discuss the rationale for decisions which is not always available in practice. However, this is dependent on which model of simulation is used, as not all simulation models facilitate this.

As presented in chapter two the question of the competence of newly qualified nurses has been raised in a number of reports, for example by the UKCC (1999) and NMC (2005) and continues to be the focus of current debate. Simulation has been proposed as a means of addressing this deficit by the NMC (2007b). Therefore, it would appear that the drivers identified by these participants for the implementation of simulation are not unique to this case.
5.2.1.3 Personal

Finally, two nurse educator participants described how they had implemented simulation because they had an interest in, and prior experience of, using this approach:

‘I would say from my perspective it’s been my interest, but I have, I am well supported by … to do that, and there are also people in the adult, … that have pushed it in the adult curriculum and for the mental health there are key people’. (NE1)

This quote indicates that the development of simulation is driven by key members of staff who are keen to use it and consider it to be a valuable tool. It was apparent that these participants saw value in using simulation as an approach to learning and teaching. This is reflected by this quote:

‘this AIM programme… and at the end of it, I said to him that I thought we could un-pick this, and put it into our pre-reg programme, cos I could see tremendous value in it, in terms of the structured process of assessment and then intervention’. (NE6)

This has been reported in the literature by Kneebone (2009) who noted that the development of simulation in the UK can be driven by the enthusiasm of individuals. In summary, it would seem that there are a number of drivers which have influenced the development of simulation at the university which include national, local and personal issues. The strongest influence appears to be recognition of students’ need for skill development which is perceived not to be currently available in the practice setting.

5.2.2 Challenges

During the interviews it was apparent that there were a number of perceived challenges to the development of simulation which were discussed by the participants. The predominant issues were the availability of resources and staff attitudes. These are presented next.

5.2.2.1 Resources

The resources discussed included staff, equipment, space and time. Four participants described a number of initiatives which had previously been developed but subsequently stopped due to lack of resources. For example, the involvement of mental health practitioners in role play as described by this key informant:
‘we used to bring clinical staff into help us with simulations, with the role plays but they fell down because of resourcing issues’. (KI2)

Another example was described by a nurse educator from child where previously a paediatric life support (PLS) programme had been delivered. This ended when student numbers increased, which resulted in insufficient resources:

‘we couldn’t continue with that because of cost and resources and numbers, that skills development, you know skills simulation should be integrated in some other way, rather than just PLS’. (NE1)

It was clear that the availability of resources impacted on the delivery and development of simulation. This was evidenced by other participants:

‘so, it’s resources, it’s resources of people, of time and of space, so we don’t have space to get people through the two labs that we have’. (NE4)

Further exploration showed that in these nurse educator participants’ view the development and delivery of simulation was directly influenced by the availability of resources:

‘tried a number of different ways of doing it, managing staff, looking at the equipment we had, looking at what was reasonable and practical and things that didn’t work, and its developed over the years’. (NE1)

‘we have to accept the limitations of the resources we have’. (NE4)

This led to frustration for one participant when the delivery was altered despite positive student evaluation because of resource issues:

‘I think that this is an important point because I think when you’re going to offer simulation it has to be resourced well, it can’t be done on a shoestring’. (NE2)

It would appear that the availability of resources was a major influence on the development of simulation at the university. This, of course is not unusual and was commented on by this key informant:

‘they’ve got all the issues that everyone has, you know how do you get a huge cohort through? How do you have equity of access? And also, again enabling their own faculty, to recognise when simulation is useful and indicated’. (KI3)

This quote demonstrates that the limited availability of resources was not unique to this university but was considered to be problematic across the region. This is reflected in the minutes of a meeting of the regional ‘Simulation in Pre-Registration
Nursing Group’, which listed resources as one of the main barriers to providing simulation. Five universities from across the North West region were represented at this meeting.

Five of the key informants interviewed discussed the need for further investment in simulation if it was to be developed further. For example, this key informant commented:

‘I really feel that we just don’t have the facilities, I’m sure that they could be generated but the financial input to do that would really be quite significant’. (KI4)

This quote captures the perceptions of the key informants interviewed that if simulation is to be developed and embedded in the pre-registration nursing curriculum, further investment is necessary. The issue of resources is also discussed in the literature; Kneebone (2009) commented that the development of simulation in the UK is driven by the availability of resources. An American author; Seropian et al. (2004b) also cited the lack of resources as a potential problem when developing simulation. These authors advocated that consideration should be given to available resources and staff development when planning a programme of simulation (Seropian et al., 2004b).

5.2.2.2 Attitudes

The attitude of staff towards simulation and clinical skills was viewed by the majority of the nurse educator participants as challenging in four ways:

1. A negative attitude towards involvement in clinical skills and that these should be developed in the practice setting.
2. Anxiety regarding involvement of delivering skills sessions.
3. A sense that simulation is not a priority in the School.
4. A lack of understanding of what is meant by the term of simulation and/or clinical skills.

Number four, the lack of understanding and agreement of the labelling of activities is explored in depth in section 5.3.4.1 (see page 151).

The educators that were involved in delivering simulation perceived that some of their peers considered that clinical skills should be taught in practice rather than the university setting. This is demonstrated here:

‘then again I suppose there’s those that have the view that skills should be learned in practice not in the university’. (NE5)
This issue was discussed by other participants, and it seemed possible that this was a legacy from the Making a Difference (DoH 1999) curriculum as discussed in section 2.2.2 (page 27). During this period, it was perceived by these participants that some staff appeared to have developed an aversion to being involved in clinical skills. For example:

‘I think the reason why people don’t want clinical skills to be within it is more to do with the snobbery of not wanting to teach a clinical skill and something psychomotor is deemed less academic than possibly the role play of a conversation’. (NE4)

This quote illustrates that in this participant’s view, there is a perception in the School that clinical skills training is deemed to be of less value than other types of simulation by academic staff and that this may influence individual willingness to engage in this approach. This view was prevalent amongst those interviewed and in turn appeared to have had an impact on the reception of the introduction of simulation to the curriculum:

‘I was accused of teaching skills, and skills is something students learn in practice and this was a little, a huge hurdle I had to overcome, because people couldn’t see beyond this’. (NE6)

This participant went on to say the focus of the ‘adult assessment scenarios’ was not to teach psychomotor skills but to develop students’ critical thinking skills. The participant acknowledged however that:

‘there might be an element of skills training, within it you might play around with equipment, you might show students equipment that they don’t know, and not familiar with and use the right terminology, but it’s more about, understanding when, they have to use that piece of equipment, and why they have to use THAT piece of equipment, rather than another piece of equipment, and understanding what effect that that process would have on the patient within that clinical scenario’. (NE6)

This approach was evident in the observation of these sessions, as recorded in my field notes:

‘the facilitator discussed insertion of airways and chest auscultation, X demonstrated and the students all took a turn, using the mannequin to demonstrate sounds of breathing ie: wheeze, stridor and crackles’.

[Excerpt from field notes, July 2012]

I was able to explore this issue with the nurse educator participants, who commented:
'we are focussing heavily on assessment skills, critical thinking, 'what's going on with my patient? What am I going to do? and, what does my patient need?'. in a sense, but I don't think you can ignore the psychomotor skills that goes along with it'. (NE4)

This discussion and observation implies that there was a belief that some nurse educators were reluctant to be involved in the delivery of clinical skills, yet as noted by NE4 this aspect of teaching is essential for students’ skill development. Whilst a negative attitude towards clinical skills and simulation was perceived, this was not the only reason given for staff not wanting to get involved:

'Just to go back, a big barrier with staff getting involved is anxiety, so the way we get around that is, I deliver these workshops for them'. (NE5)

According to this participant a number of educators have been away from the practice setting for some time and therefore may feel uncomfortable delivering clinical skills. This participant went on to explain that they offered training to give staff confidence in delivering skills. Finally, several of the participants discussed the difficulties in embedding simulation in the curriculum. One participant said:

'I don’t think simulation’s at the forefront of anyone’s mind’. (NE4)

Another participant observed:

'I think she fights a few battles in terms of, in terms of getting support to develop it and I think in some ways X has suffered in the same way'. (KI4)

Worthy of note is the negative language used when participants discussed the perceived staff attitudes towards clinical skills and simulation. Terms such as: ‘accused of’, ‘fighting battles’ and ‘barriers’ all have negative connotations. Whilst several studies have sought staff perceptions of simulation (Feingold et al., 2004, Kardong-Edgren et al. 2008, Baillie and Curzio 2009a) this perception of a negative attitude towards clinical skills has not been reported in the literature to date. The implications of this will be explored further in chapter eight.

This section has demonstrated that the main driver for introducing simulation has been the recognition that students needed additional input to facilitate the development of clinical skills. Other drivers were the national agenda and personal interest and experience of the use of simulation as a learning and teaching approach. The implementation of simulation was perceived as challenging because of the limitations of resources, which has been shown is not unique to this university but is identified at both a regional and national level. Finally, several of the nurse educator participants perceived staff attitudes towards simulation as problematic for a number of reasons. Whilst this perception is shared by only a small number of nurse
educators, in their view this impacted on the development of simulation in the School. This will be discussed further in chapter eight. The next section explores participants’ understanding of simulation.

5.3 Defining simulation

The literature review presented in chapter three demonstrated that the concept of simulation is not clearly defined and therefore it was important in this study to ascertain what each key informant and nurse educator participants’ understanding of this term was. For this reason each interview opened with this question:

‘people have quite a different understanding about this term simulation and what it means so I think it is really important to first establish what your understanding is of this term’. AG

Each participant’s response is extracted from the transcript and included in Table 5.2 (page 146). Repetition and digression is not included but the essence of their definition is included verbatim. In column 3, I have used key words to reflect the attributes referred to in these definitions. The fourth column uses key words to indicate where the participant has made reference to the attributes of simulation elsewhere in the interview.

All of the key informants and nurse educators except one are included. This participant was not asked this opening question as they were interviewed for a specific reason and simulation did not fall within their remit.
<table>
<thead>
<tr>
<th>Participant</th>
<th>Definition</th>
<th>Key attributes in Definition</th>
<th>Key attributes in Interview</th>
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<tbody>
<tr>
<td>KI1</td>
<td>it's one of those things where you reflect on over time and maybe change anyway the way your ideas are... all I know is that there is some learning related, to do with practice particularly, which is, can take place in relatively safe learning environment... So its quite a broad church it can be a very practical thing, and it can be right the way through the role play including interviews and so forth, would I broaden it beyond that? I think there are some things increasingly on line</td>
<td>Emerging concept</td>
<td>Experiential</td>
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<td>KI2</td>
<td>I have a confession to make because my understanding was probably the mass understanding before I had some conversations with somebody in the last 12 months, so my view of simulation before tended to be bringing a resusi annie and play around with that... And its very clear to me now that simulation operates on a number of different levels, and its got all sorts of different elements to it, and it dawned on me, I don't why it didn't dawn on me before that a lot of the work we'd done... is actually simulation, you know where we're role playing interviews with patients, its simulation... simulation is nearly always associated with this woolly term of clinical skills...</td>
<td>Misconception</td>
<td>Skill development</td>
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<tr>
<td>KI3</td>
<td>it's interesting because it's something we pick up time and time again, and inherently we try to be very, very inclusive so really we think of simulation as being any kind of 'off patient training'... so we try to be inclusive because we want to include areas like the clinical skills, kind of task base training, but obviously we're aware that everyone tends to jump to thinking of the very expensive mannequin</td>
<td>Not in practice</td>
<td>Experiential</td>
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<tr>
<td>KI4</td>
<td>I feel that my understanding of simulation has broadened over time, and that is partly to do with the advances in technology, I certainly feel that at one time we taught more in terms of simulated practice and I feel that it's about trying to give the students an opportunity to practice something, learn something in safety... in a relatively safe environment, and yes with supervision, but that they could get used to particularly some of the skills that required dexterity and some practice, so that things like, I don't know all sorts of things like asceptic technique, intravenous fluids you know all those sorts of things... but I think also my thoughts have expanded because as we've gone through the various versions of the programmes, we've also put in other types of skills that students need so things like team skills, other communication skills, management leadership skills... so I think in some ways, it's a really broad area and perhaps we don't exploit it as well as we might</td>
<td>Emerging concept</td>
<td>Skill development</td>
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Table 5.2 Participant definitions of simulation
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<tr>
<td>KI6</td>
<td>my vision of it was what would probably be considered a low fidelity simulation, where students were learning skills, mainly behavioural, technical skills, in a setting outside practice but that they could then replicate in practice... now since then because I've been looking at simulation as part of my own learning, I've broadened my view of it, and realised that there's lots of approaches to simulation that could and should be applied and that the NMC push has that agenda, and what we should really look at, in programme teams is why and how simulation could help the teaching and learning. So my understanding is that it should be, regarded as an approach to teaching and learning, rather than just simply a tool to replace practice hours</td>
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<tr>
<td>NE1</td>
<td>from my experience of simulation and from what I've read, we can see simulation from lo to hi level of simulation... fidelity yes, so your high fidelity might be your sim baby, multi-disciplinary experience with all the equipment and a virtual ward perhaps, whereas your low fidelity may be some on-line observation with skill or some very simple task led, you know very basic skill development that may not be with even a mannequin or a patient or may be with a model or something like that, so a range between the two... but, I do think that sometimes the, way its' advertised and the way some of the manufacturers put simulation forward is always in high fidelity</td>
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<td>NE2</td>
<td>in development of your ideas of simulation so it really was about very much a truthfulness, a real potential experience of what it could be like to work with patients, that was my basic understanding I guess... it had to have the right level of fidelity so that it didn't seem unreal or made up or lacking in that integrity if you like of connection with the real clinical experience that they would face out in practice...</td>
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<td>NE3</td>
<td>I've always been used to simulation on a wide level so, the low level simulation that we were using on the skills day for example, I still consider to be simulation... you know that it's considered in this environment not to be, its erm task based learning, which I suppose you could see it as that, but I think you know, you are simulating these skills on a mannequin</td>
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<td>Safety</td>
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<td>Replication</td>
<td>Bridge theory-practice gap</td>
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<td>Emerging concept</td>
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<td>Approach to Learning &amp; Teaching</td>
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| NE4         | I have changed my views... 
  to me it's just an umbrella term that covers lots of different types of teaching methods, from your task trainers and your simple skills if you like, over to high fidelity simulation, and just a way of breaking something down for students in a step by step approach, or a way of letting something run and after the event being able to discuss it, so giving them the opportunity to act something out, role play it, so I think it encompasses a lot and I don't, I think as well we can be too simplistic in its term, you know in its definition, sometimes by just saying 'oh, it's just, role play' or 'oh it's just task trainers' | Emerging concept 
Umbrella term 
Facilitated Feedback 
Misconception | Replication 
Safe environment 
Bridge theory-practice gap 
Experiential 
Skill development |
| NE5         | Simulation really, simulate, any aspect of nursing care, or professional care that's simulated or is carried out not in practice placement environment, so to me it would include things like practical psychomotor skills, but also the cognitive skills, you know anything to do with training if you like or support for education that isn't delivered in practice apart from the academic side... it includes not just teaching psychomotor skills, such as cannulation, or how to do a blood pressure it includes, as I say, how to you know, how to interview patients and clients, and communication skills can be included in simulation as I see it | Skill development 
Not in practice 
Umbrella term 
Multi-dimensional | Feedback |
| NE6         | Simulation is an add on to pure classroom learning, in that it tries to bridge the gap between, what they learn in the classroom and what they learn in practice... I guess is one of the big values of simulation, in it allows students to explore their knowledge, and identify where they need to go and learn, more than they will get in practice, because in practice they don't have that opportunity to enter into dialogue with staff, | Bridge theory-practice gap 
Facilitated Feedback | Approach to Learning & Teaching |
| NE7         | I guess for me it's having an opportunity, in I guess a safe environment, not in a practice setting but something that will reflect issues, from a practice setting, so whereby a student can erm, I guess use their and test out their skills, their knowledge their values etc with somebody else whether that's another student or somebody in another role and erm receive feedback from other people and also reflect on that themselves | Safe environment 
Replication 
Not in practice 
Skill development 
Feedback | |

**Key Concepts in Definition**
- Emerging concept
- Umbrella term
- Facilitated Feedback
- Misconception

**Key Attributes in Interview**
- Replication
- Safe environment
- Bridge theory-practice gap
- Experiential
- Skill development
Analysis of these definitions showed that there were some common themes discussed. Firstly, that the participants’ understanding was emerging and continues to develop, secondly, that simulation was viewed as an umbrella term which included a variety of activities and finally, that there was some misunderstanding of this term. In terms of what constitutes simulation, reference was made to a number of key attributes: skill development, safe environment, experiential learning, replication, feedback and facilitation. These attributes of simulation are presented and analysed further in the following section (page 156). First, each theme will be examined in turn and table 5.2 will be referred to throughout the remainder of this chapter.

5.3.1 Emerging concept

The majority of the key informants described their understanding of simulation as having developed over time indicating that within this case study, the concept of simulation is perceived by these participants as dynamic rather than fixed. This perception of simulation appeared to be influenced by a number of factors, as evidenced in table 5.2: key informants described dialogue with colleagues (KI2), the development of technology (KI4) and their own learning (KI6) as informing their understanding. Five participants described simulation as an emerging concept, only one of whom was a nurse educator. This may be an indication that whilst the key informants recognised that their perception of simulation had changed, the nurse educators had a more concrete understanding of simulation.

5.3.2 Umbrella term

The second theme which emerged from the data was that simulation was viewed as an umbrella term that is, it encompassed a range of activities. As demonstrated in table 5.2 participants referred to a number of activities which they considered to be included in this umbrella term of simulation. These included: high fidelity simulation, clinical skills and task based training, role play and on-line simulation.

It is also apparent in table 5.2 that the participants considered that a range of skills may be developed with simulation. These included: psychomotor skills, communication skills, cognitive skills such as critical thinking and decision-making skills, team working skills and management skills. These align with the four domains of competencies outlined by the NMC in the Standards for Pre-Registration Nursing Education document (NMC, 2010): professional values, communication and interpersonal skills, nursing practice and decision making, leadership, management and team working. The use of simulation to develop these skill sets is comparable to that reported in the UK core papers presented in table 3.4 (page 71).

Whilst the data presented in table 5.2 indicates that the participants view a range of activities to be included in the umbrella term of simulation; documentary analysis
suggested otherwise. Review of the unit guides and timetable for the cases in this study showed a variety of terms were used. For example, the adult session is labelled as the ‘skills lab session’ in the evaluation document and both child activities were timetabled ‘skills days’. Only the mental health unit guide described the activity as ‘supervised simulated practice’, but this was timetabled as ‘core skills’. This issue was recognised by the School and the newly developed ‘Strategy for Simulation’ specifically stated that simulation should be clearly labelled. This may however, be problematic if there is a lack of consensus regarding which activities constitute simulation.

5.3.3 Student labels of simulation

Analysis of the student transcripts showed that the language used by the students, not surprisingly, reflected that used in the unit guides and timetables. This is shown in table 5.3 below:

**Table 5.3 Student labels of simulation**

<table>
<thead>
<tr>
<th>Label used</th>
<th>Student</th>
</tr>
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<tbody>
<tr>
<td>Clinical skills</td>
<td>A2/10, C4/09, C1/10</td>
</tr>
<tr>
<td>Clinical simulation</td>
<td>A3/10, C4/09</td>
</tr>
<tr>
<td>Clinical skills lab</td>
<td>A2/10</td>
</tr>
<tr>
<td>Skills day</td>
<td>C1/10</td>
</tr>
<tr>
<td>Simulated theory</td>
<td>C2/10</td>
</tr>
<tr>
<td>Skills sessions</td>
<td>MH4/09, MH6/09</td>
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<tr>
<td>Skills environment</td>
<td>MH6/09</td>
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</table>

Table 5.2 shows that a range of terms were used by the students to label the activities they had experienced. The adult students frequently referred to the activity as the ‘skills labs’, but also used other labels. For example, A2/10 refers to ‘skills labs’, ‘clinical skills’ and ‘clinical skills labs’. The child students referred to ‘simulation’ with most frequency, but again a number of labels are used. For example C4/09 refers to ‘skills labs’, ‘clinical skills’ and ‘clinical simulation’. The mental health students used ‘role play’ with most frequency but also used ‘skills simulation’ and ‘skills sessions’.
Rather than using the ‘umbrella term’ simulation referred to by the nurse educators, table 5.3 shows that the students used a variety of labels which included those used in the unit guides and timetables. This data suggests a lack of clarity in the labelling of simulation in the programme. One consequence of this is that the adult and child students perceived the simulation experience as a ‘one off’ rather than an approach to learning which had developed during their programme. For example, the adult students discussed their earlier exposure to clinical skills:

‘We've had skills lab sessions but it was basic ad hoc sort of stuff’. (A3/10)

‘yeah, lifting a box, the moving and handling when we had to pick up a box’.
(A4/10)

“We're only really in [skills] for mandatory updates’. (A2/10)

It is evident that these student participants saw this experience as different to the ‘adult assessment scenarios’. It would seem that the ambiguity regarding what is, and is not, considered simulation experienced by staff is shared by the student participants at this university. One key informant (KI3) described a similar situation when delivering simulation in another university in the region. During the session, nursing students were asked whether they had been involved in simulation before. They all responded that they had not, their nurse educator expressed surprise as they had undertaken clinical skills training earlier in the programme. These findings reflect those reported by Prescott and Garside (2009) who reported that 71% of students indicated that they had not been exposed to simulation previously, despite having undergone mandatory skills training in their first year. This would suggest that this lack of recognition by students of skills training to be simulation is not unique to this university, but is also a regional and national phenomena.

5.3.4 Lack of clarity regarding simulation

5.3.4.1 Misconception

As I have shown in section 5.2.2.2 (page 142) the participants who were involved in delivering simulation believed that a negative attitude towards simulation was held by their colleagues in the School. Several participants suggested that in their view their peers lacked understanding of what simulation was:

‘simulation is nearly always associated with this woolly term of clinical skills’.
(KI2)

In this participant’s opinion, this is the general understanding of simulation, but they acknowledged that their perception had changed following discussions with their colleagues. They now appreciated that simulation was far more complex and operated
on a number of levels with multiple elements as shown in table 5.2. These quotes also reflect this perception that simulation was the same as clinical skills:

‘we’ve got a barrier to overcome of understanding what simulation is, and once we get over that I think, it will be a lot easier’. (NE6)

‘Well one of the main challenges has obviously been the attitude of some, lecturers, members of staff, not necessarily the senior members of staff, but certainly, some of the lecturers and staff, their attitudes towards simulation... they see it as clinical skills’. (NE5)

This participant continued:

‘but, you know the actual concept if you like as well, of simulation, not just the profile, rather than clinical skills, you know taking a blood pressure, but the concept of simulation has probably never been appreciated and fully understood if you like, that it doesn’t just include doing the psychomotor skills, I think that’s the sort of message that is slowly getting across’. (NE5)

This participant shared KI2’s view of simulation; that simulation is more than clinical skills and felt that their colleagues were beginning to appreciate this. We discussed what could have contributed to this increased awareness and this participant perceived that the simulation lead roles and the new strategy had raised the profile of simulation in the School.

This lack of consensus regarding whether clinical skills should be included in the umbrella term of simulation became apparent during the data collection in the case study. When I approached PICU to observe the simulation delivered to a group of pre-registration students; I was told by the unit manager that they did not use simulation with students. This was explored further during the interview with the nurse educator who explained that high fidelity simulation was used extensively on the unit for staff development. The manager perceived the skills day as ‘skills training’ rather than ‘simulation’. By contrast, the nurse educator viewed simulation as an umbrella term which included a continuum of activities, apparently they had not reached an agreement on whether the skills day was simulation.

As discussed in chapter three, the question of whether clinical skills are considered to be simulation was an issue that was identified in the literature review (see section 3.5.1, page 62). This issue of labelling simulation warrants further exploration of the data and is presented next.
5.3.4.2 Labels

In table 5.2, KI2 described a revelation that the activities they had previously been involved in could be considered as simulation. They continued to say:

‘I think I always knew what simulation was, and always knew where it fitted but a lot of the time I never would have called it simulation’. (KI2)

It would seem that the lack of clarity in the labelling of simulation and clinical skills was problematic. This is also apparent in this quote:

‘in essence the principles haven’t changed but the language has changed, and I think simulation, it’s just a new bit of the language isn’t it?’ (KI4)

It has been noted in the literature that simulation is nothing new in nursing (Tanner, 2006). Tanner (2006) commented that it is the technology which is new, rather than the approach to learning and teaching, as role play and clinical skills have been integral to nurse education for decades.

As discussed in 5.3.2 (page 149) if simulation is accepted as an umbrella term for a range of activities then clinical skills would be considered as simulation. However, the separation of simulation and clinical skills was evident in other interviews. This participant discussed the need to be inclusive:

‘we try to be inclusive because we want to include areas like the clinical skills, kind of task base training, but obviously we’re aware that everyone tends to jump to thinking of the very expensive mannequin and that’s what a lot, definitely a lot of the management feel that simulation is’. (KI3)

This participant perceived that the majority of people in the region assumed that simulation only included high fidelity simulation. Some participants attributed this view to the way simulation is promoted; NE1 and KI6 both discussed the way simulation is advertised and promoted by manufacturers as always being ‘high fidelity’. The notion of exclusivity was also described by NE3 who discussed certain members of staff in PICU who only wanted to be involved in high fidelity simulation, and suggested that:

‘I think simulation is considered to be quite exclusive on the unit, whereas it shouldn’t really be, it should be fairly inclusive’. (NE3)

This distinction between clinical skills and simulation is evident in the literature as discussed in chapter three, section 3.5.1 (page 62). The lack of shared understanding and consistency in terminology has been noted by a number of authors (Lasater, 2007, Harder, 2010, Hallmark et al., 2013). The implications of this will be explored further in chapter eight.
In addition to the recognition that their colleagues in the School, did not understand what activities were simulation, it became apparent that the nurse educator participants experienced a degree of uncertainty themselves. This is explored in the next section.

5.3.4.3 Uncertainty

Whilst there was acknowledgement of the concept of simulation being inclusive of a range of activities by the participants, there appeared to be ‘grey areas’. These ‘grey areas’ emerged during the interviews. There was also clear reference to what, in their opinion simulation was not, or where others were believed to have a misunderstanding. This is labelled as ‘misconception’ in table 5.2. Several nurse educators referred to activities and debated whether these should be labelled as simulation.

‘I would argue that forms of learning such as role play, experiential learning and even some elements of problem or enquiry based learning tend to use principles of simulation. Where we are trying in any way to emulate practice, that comes under the umbrella term of simulation’. (KI6)

This participant had a broad view of what could be classed as simulation; including classroom based exercises such as problem based learning. It is clear that they recognised that there was a lack of consensus regarding this viewpoint as the participant went on to say:

‘We argue strongly that this is simulation [decision-making skills] to convince our colleagues’. (KI6)

It would appear that this participant anticipated disagreement from within the School regarding the labelling of this activity as simulation. Another participant described a classroom based activity, it was evident that they themselves were unclear and asked me, as the interviewer, whether this was simulation:

‘I have tried to bring, it’s not simulation, but I’ve tried to make it real, and... the module leader and she asked me how I thought we should deliver it and I said ‘well I can find you, clinical cases where there are ethical considerations, so we’ve given them podcasts, we’ve given them videos, of ethical situations and said to the students ‘in clinical practice, how are you going to apply the ethical theory to this case?’ So, we’re bringing the link between the two, is that simulation? I would probably say it is’. (NE6)

This participant demonstrates their own uncertainty by arguing with themselves regarding the labelling of this activity as simulation. There does appear to be consensus in participants’ understanding of high fidelity simulation such as ward
scenarios using mannequins or role play using service users. By contrast, there was a lack of agreement and uncertainty regarding simulation at the lower end of the fidelity spectrum. It was apparent that participants questioned themselves and others, regarding certain activities and that there was a lack of agreement. This section has demonstrated that despite participants referring to simulation as an umbrella term there was an element of uncertainty regarding some low fidelity activities.

As highlighted in chapter two (section 2.4.4, page 43) the NMC had, until recently, failed to define simulation or offer guidance regarding the implementation of simulation in the pre-registration nurse education programmes. This issue was raised by a number of participants who voiced an expectation of the NMC to guide and monitor the use of simulation. This is demonstrated by these participants:

‘if you look at the NMC enquiry, not enquiry, the allowance for 300 hours simulation, I’m not sure that that’s been presented as broadly as what that might mean, you can say simulation, you can do simulation, but what does that constitute, how much of it, where to what degree and how should it evolve over the years, that’s not been made clear at all and so it would be helpful if we had a broader definition, and roll out perhaps to more people’. (NE1)

‘I do think that was a bit remiss of the NMC if you can use these hours for simulation you need to clearly define what that is, and have some way of evaluating whether or not those hours have been used for simulation ‘cos they’re going towards your registration’. (NE4)

These participants indicated that clarity regarding what activities constituted simulation from the NMC would have been helpful. Another participant discussed the need for the NMC to monitor the quality of provision for simulation in the same way that placement provision was currently monitored.

‘monitored if you like, and that it is meeting their requirements... before they can do that, they’ve got to put in standards and criteria for, simulation’. (NE5)

Two of the participants acknowledged the need for consensus regarding the issue the labelling of simulation:

‘as a school, I think we need to establish ‘this is what we will call simulation, and this is what we won’t’ and we’ll stick with that’. (NE4)

‘I think the first thing I’d like is that there was consensus about, what simulation was in terms of teaching and learning strategy, and that there could be some understanding about the ranges, so that people were comfortable that role play in certain circumstances could be seen as simulation and so on’. (KI6)
The recently approved School ‘strategy for simulation’ aimed to improve this and defined simulation as:

‘Simulation is a teaching and learning method within which a real life task, event or experience is recreated, with the aim of providing a safe learning environment, for the acquisition of skills, knowledge and behaviours’. (NHS North West, 2010)

This section has shown that whilst participants referred to simulation as an umbrella term there was still a level of disagreement and uncertainty in the School, regarding which activities should be included. In particular, the question regarding the labelling of clinical skills which was raised in the literature review was apparent within the case. It was acknowledged that there is a need for consensus, and whilst guidance from the NMC would have been welcome, the school have developed a Strategy document to begin to address these issues.

In the next section, I have analysed the data further to ascertain the perceived critical attributes of simulation and compared these with those identified by Bland et al. (2011) in the concept analysis presented in chapter three (section 3.5.2, page 65).

5.4 Critical attributes of simulation

As demonstrated in table 5.2: skill development, safe environment, replication and feedback were frequently referred to by the nurse educator participants as attributes of simulation. Facilitation and experiential learning were referred to less frequently. It would appear that these key attributes were applicable to the understanding of simulation in the School. As presented in chapter three, Bland et al.’ (2011) concept analysis of simulation in pre-registration nursing identified five critical attributes; these have similarities to those identified by the nurse educator participants interviewed in this study. This is shown in table 5.4 below:
Table 5.4 Attributes of simulation in pre-registration nursing:

<table>
<thead>
<tr>
<th>Bland et al. (2011)</th>
<th>Participants data</th>
<th>Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating a hypothetical opportunity</td>
<td>Not in practice</td>
<td>KI1, NE5, NE7</td>
</tr>
<tr>
<td>Authentic representation</td>
<td>Replication</td>
<td>KI2, KI6, NE2, NE3, NE4, NE7</td>
</tr>
<tr>
<td>Active participation</td>
<td>Experiential</td>
<td>KI1, KI3, NE4</td>
</tr>
<tr>
<td>Integration</td>
<td>Bridge theory practice gap</td>
<td>KI2, KI6, NE4, NE6</td>
</tr>
<tr>
<td>Repetition, evaluation and reflection</td>
<td>Feedback. Facilitated</td>
<td>KI3, KI4, NE1, NE2, NE4, NE5, NE6, NE7</td>
</tr>
<tr>
<td></td>
<td>Skill development</td>
<td>KI2, KI3, KI4, KI6, NE1, NE2, NE3, NE4, NE5, NE7</td>
</tr>
<tr>
<td></td>
<td>Safe environment/Safety</td>
<td>KI1, KI2, KI3, KI4, KI6, NE1, NE2, NE3, NE4, NE5, NE7</td>
</tr>
</tbody>
</table>

This table indicates some consensus regarding the key attributes of simulation by both the key informant and nurse educator participants and the work done by Bland et al. (2011). Column three shows which participants referred to these attributes. Skill development and safety were additional attributes frequently referred to by the participants but not included in Bland et al.’ concept analysis. Table 5.4 shows that the attributes most referred to were: safety, skill development, replication and feedback. Student participants also referred to these attributes of simulation, this data is presented in chapter six.

It is apparent that individual participants equated different attributes as critical to determining whether a particular activity should be considered to be simulation. These did not necessarily correlate with those attributes identified above. For example, safety was repeatedly referred to in the nurse educators’ definition of simulation, but was not used as a critical attribute to illustrate the concept. The experiential nature of simulation, replication, feedback and skill development were each referred to in this way. For example:

‘those paper exercises I do struggle with because I think, if it was that they sought the information out, so they have a patient they have to ask questions and then write the care plan, I could accept that as simulation, if it’s in a
classroom and they're all in rows and it's up on a screen I struggle, thinking that is simulation... there's no inter-action there and it just, I'm not keen on that at all, and yet we can badge that as simulation and use practice hours, it seems’ (NE4)

This quote demonstrates that this participant perceived inter-action as central to their understanding of simulation. This participant referred to experiential learning as an attribute in the interview transcript (see table 5.2, page 146). It was also apparent that this participant had some concern regarding which activities were ‘badged’ as simulation. Students appreciated the ‘hands on’ nature of the activities and this is discussed further in chapter six (section 6.3.1.2, page 181). For another participant, fidelity was considered to be a key attribute:

‘it's only simulation for us because we use real life scenarios’ (KI2)

For this participant the replication of reality was a key attribute of simulation, this was referred to by all those involved in mental health simulation. Several of the mental health students however, did not perceive this simulation model to be realistic for a number of reasons and this will be explored further in chapter six (section 6.3.1.3, page 183).

NE2 discussed a change in the delivery of the simulated skills and commented that once the video recording of the role play was lost, they no longer considered it to be simulation, rather they classed the activity as, what they labelled ‘episodic role play’.

‘So, I wouldn't call this simulation, no. I would call it episodic role play’. (NE2)

In this participant’s view the simulation became a standalone episode of role play, when the opportunity to record and reflect on the students’ performance was lost. NE2 had described how the simulation model had been developed to provide the opportunity for feedback and reflection as presented in section 5.2.1.2 (page 137). It was apparent that in their opinion, feedback was a critical attribute.

Another participant viewed the development of clinical skills for practice to be a critical attribute of simulation:

‘a critical thing here is how people perceive perception, erm simulation, because it borders on, that some people would see that as a different form of activity, and I think one of the crucial things is that what it's doing in terms of developing skills for practice’. (KI6)

In other words, simulation has a role in preparing students for practice. This resonates with NE5’s definition of simulation:
‘simulate, any aspect of nursing care, or professional care that's simulated or is carried out not in practice placement environment’. (NE5)

Overall, the student participants appreciated the use of simulation to prepare them for practice and this will be explored in depth, in chapter six.

This section has shown shared perceptions regarding the key attributes of simulation; however there are certain key attributes which were critical in the participants’ view. Two of these attributes align with those most often referred to by participants, these are, replication and feedback. This section has also compared the perceived critical attributes of simulation of the participants in this case study with those identified by a published concept analysis (Bland et al., 2011). Whilst there is some similarity, it is evident that there are differences in the way simulation is conceptualised.

5.5 Summary

This chapter has presented the drivers and challenges of developing simulation in the case from primarily the key informants and nurse educator participants’ perspectives. It would appear that the lack of shared understanding of simulation and perceptions of clinical skills in the School were perceived to have impacted on this work. Analysis of the participants’ definitions of simulation identified three themes: simulation was an emerging concept, it was considered as an umbrella term and there was a lack of consensus regarding this concept. This lack of shared understanding has been demonstrated in how participants defined and operationalised it. Questions were raised regarding how others viewed simulation. The students’ perceptions of simulation and clinical skills were not well defined. The consequences of this lack of consensus in language and perception of simulation will be further explored in chapter eight.

Chapter 5 summary:

- A lack of opportunities for student skill development was a key driver for the development of simulation in the school of nursing.
- The main challenges for this development were perceived as the availability of resources and staff attitudes.
- Simulation is an emerging concept.
- Simulation is perceived by participants as an umbrella term.
- There is a lack of consensus regarding the concept of simulation.
- The ambiguity regarding whether clinical skills is considered to be simulation, was not helpful in the development of simulation.
Chapter Six

Student Experience in Simulation

6.1 Introduction

This chapter will explore in detail both nurse educator and student perceptions of the students’ experience of simulation. Table 6.1 provides an overview of the development of this major theme, five minor themes were developed from the data which are: engagement, safety, the benefits of simulation, student issues and simulated learning.

Table 6.1 Overview of theme development

<table>
<thead>
<tr>
<th>Major theme</th>
<th>Minor theme</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulation experience</td>
<td>Engagement</td>
<td>• Engagement&lt;br&gt;• Assessment strategy&lt;br&gt;• Authenticity</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
<td>• Learning style&lt;br&gt;• Fidelity&lt;br&gt;• Student safety&lt;br&gt;• Facilitator&lt;br&gt;• Confidence&lt;br&gt;• Feelings&lt;br&gt;• Group size&lt;br&gt;• Group support&lt;br&gt;• Exposure to simulation</td>
</tr>
<tr>
<td>Benefits of simulation</td>
<td></td>
<td>• Benefits of simulation&lt;br&gt;• Identify gaps&lt;br&gt;• Better than nothing</td>
</tr>
<tr>
<td>Student issues</td>
<td></td>
<td>• Student issues&lt;br&gt;• Limitations of simulation&lt;br&gt;• Want more</td>
</tr>
<tr>
<td>Simulated learning</td>
<td></td>
<td>• Simulated learning&lt;br&gt;• Student development&lt;br&gt;• Expectations of simulation&lt;br&gt;• Feedback - Debrief</td>
</tr>
</tbody>
</table>

The students had different perceptions of their experience of simulation; this was both within and across-cases. The first section of this chapter presents findings within each case. The second part synthesises data across-cases to explore factors which appeared to have influenced the students’ experience of simulation. The nurse educators’ views are compared and contrasted throughout the chapter.
6.2 Within case analysis

The students who participated in this case study had diverse perceptions and experiences of simulation and a number of students felt uncomfortable in the simulated environment.

A detailed analysis of each individual case will be presented in the next section with excerpts from the interview transcripts used to illustrate the students’ and nurse educators’ perceptions. The experience of each of the four student cases is presented, followed by an exploration of the influence of both the group and then the model of simulation.

6.2.1 Mental health 2009 – Recorded role play

This group of students experienced the ‘recorded role play’ simulation model (see section 4.4.1, page 111). When asked to describe their experiences of simulation half of the students (n=3) in this focus group used terms such as ‘nerve-wracking’, ‘terrifying’ and ‘petrified’.

‘but I just found it really nerve-wracking like everybody, I didn't like being observed’. (MH1/09)

‘I thought the worse part about it was that whole having to go downstairs to that room and knowing that everyone was watching you, and the first one I was absolutely terrifying, and personally I could hardly talk for nerves and it was really uncomfortable, I didn't enjoy it’. (MH2/09)

‘I found that quite a bit, I found it very... terrified, I think it was such a false situation and it had to be so.. not like so forced but I don't know’. (MH3/09)

‘cos when we started doing them I was petrified cos I hate role play and then they said its going to be videoed, and we're going to watch it that was my worse nightmare’. (MH5/09)

Each of these students referred to the simulation raising anxiety levels and it appeared from these accounts that a primary cause of this was being observed by their peers. This is evident in three of the above quotes; MH1/09 and MH2/09 both refer to being observed as a source of their anxiety. MH5/09 found watching the video with their peers stressful. The experience of this group was a type of covert observation, their role play was observed on a live feed and the student was unable to see their peers’ response to their performance. On their return to the seminar room, they were given verbal and written feedback on their performance from their peers. This model of simulation was the only one to have this element of covert observation, which these students perceived as a source of discomfort.
In addition, MH3/09 referred to the situation being false; the issue of fidelity and authenticity in simulation is explored in greater depth in section 6.3.1.3 (page 183). It should be noted that whilst the interview of a service user may be classed as high fidelity simulation; the use of the video recording may not seem realistic as this is unlikely to take place in practice. In addition, the service users role played clients which proved challenging and impacted on student perceptions of authenticity of the simulation, this will be discussed further in section 6.3.1.3 (page 183).

It is important to note that these students were in the 2009 cohort, therefore in the third year of their programme and had undergone the simulated skills discussed a year prior to the focus group. Whilst there may be an issue of recall bias, what was apparent was that the simulation experience still evoked strong emotional responses in several of these participants. However, it is acknowledged that the sample size is small and that these perceptions were not shared by all members of the group.

Whilst one student had felt anxious about participating in the simulation exercise, they were nevertheless able to see value in it on reflection. MH5/09 explained:

‘I was dreading it and I didn’t want to do it once, I had to go into practice and do an assessment I felt a little bit less nervous, and a bit more confident in doing it, as much as it pains me to say it I did think it was worthwhile, prove myself wrong cos I never thought I’d say that’. (MH5/09)

This student had described feeling ‘petrified’ but was able to reflect on the simulation experience and felt that it had given them some confidence to carry out an assessment in practice. By contrast, MH6/09 expressed positive opinions regarding their experience of simulation. On a number of occasions this student commented on how they valued this approach when the focus group members were discussing negative aspects. For example, this excerpt from the transcript shows the students discussing how the simulation felt contrived, which had influenced their engagement:

‘It felt quite contrived’. (MH1/09)

‘you've got 10mins I don't know and you need to do this and I just... in practice I'm fine but in this situation I really, really held back and I just thought anybody else just go ahead cos I can't don't have the confidence right now’. (MH3/09)

‘so you weren't inclined to put yourself forward?’ (AG)

‘No’. (MH3/09)

‘But I enjoyed them so when people were like ‘go for it I was like yeah OK’. (MH6/09)
This student stated that they enjoyed the simulation and was happy to participate. Later in the discussion this student acknowledged that the experience may have caused anxiety for some, but concluded that in their view the simulation was useful in preparing students for practice:

‘but then again overall I think they were very good, and I don’t take that as a negative. The fact that we were over-prepared or just maybe, yeah too nervous yeah, it’s bad at the time isn’t it, but at the end of the day we are very, we are more prepared, we are aware and I think it can only serve you well’. (MH6/09)

This key informant demonstrated an awareness that students may be uncomfortable in the simulation environment:

‘the whole point of doing it is so they can practice in a safe environment, they might disagree with us, they might not think its safe because they risk to them is always the risk of being embarassed and making a fool of themselves’. (KI2)

This quote highlights the contradiction in the construct of safety in simulation that is; simulation may aim to provide a safe environment but this may not be how students’ perceive it. This key informant had been involved in the delivery of simulation previously and appeared to have an awareness of the potential for students to experience raised anxiety levels. A nurse educator participant also articulated their thought processes regarding the dichotomy of student safety:

‘So when I say safe, I guess it’s safe in a sense that it’s not a service user there, whether it feels safe for the students is another matter, they might feel quite anxious … and they might have issues about it so yes, controlled might be a better word than safe’. (NE7)

As explained in section 4.4.1 (page 111) this model of simulation used service users to role play clients, the student perceptions of this will be explored in the next section. When developing simulation this nurse educator had aimed to provide a safe environment for skill development, however in this excerpt it was demonstrated that they understood that not all of the students felt safe:

‘brings me on to another concept of how I’ve grown with this notion of safety, because the intention was to try and offer students to experience a truthfulness if you like, but in this safe, structured and supportive environment within the university and I think that initially, there was some wobbles with that and I think that students initially didn’t feel safe and therefore we had to reflect ourselves as a group of facilitators, to say ‘how do we create that environment of emotional safety, psychological safety and physical safety’. (NE2)
This simulation model had a number of factors which may have influenced the students' feelings of discomfort: they involved ‘real’ service users, they were being recorded, their performance was on a live feed to the larger group and they were given feedback in a structured way by both peers and the educator. In addition, this unit culminated in an assessment which used an objective structured clinical examination (OSCE) which may also have caused anxiety. These issues will be explored in greater depth in section 6.2.1.2 (page 165), first the issue raised by the students about being observed will be explored further.

6.2.1.1 Influence of Group

The mental health 2009 focus group explained that the Unit of learning was at the beginning of the branch component of the mental health programme. Consequently, this was the first time these students were together as a large group. For the purpose of the simulation they were allocated smaller groups of eight, apparently these group members were not familiar with each other and this appeared to have had a negative impact on their experience:

‘It was absolutely nerve wracking, it was a huge big screen and it was the first time really, as soon as we went into branch some of us didn't really know each other that well, so there were a lot of people that might not know that well watching you, and it just felt…’ (MH2/09)

This lack of familiarity with the group members appeared to have been an additional source of anxiety for this student. This was discussed further by this focus group as shown by this excerpt of dialogue:

‘when we went into the second year we went into branch, and for the first time it was all mental health students together, so then you were finding your feet and making new friends to a certain degree, and then with this module which was crisis and acute... We were then broken off into smaller groups,’ (MH5/09)

‘So that was random again so even if you'd made friends...’ (MH2/09)

‘The dynamics were changing all the time’. (MH5/09)

This change in group dynamics appeared to have impacted on the students’ comfort levels when engaging in simulation. There is evidence that the nurse educator participants had an awareness of the issue of promoting safety. NE2 perceived ‘group dynamics’ as being influential and explained the importance of having ‘closed’ groups:

‘because we wanted it to be safe and to have a continuity so the groups were closed, you know you couldn’t have new memberships come in and the
facilitator remained the same where it could and that for the most part that was achieved except for illness or something’. (NE2)

This nurse educator actively promoted group familiarity by keeping the membership constant throughout the Unit. This participant made a direct link between the issue of group membership and student safety. Yet the students’ perceptions were not all positive and indicated that initially, they had felt quite threatened when observed by their peers.

6.2.1.2 Influence of simulation model

The analysis of the critical attributes of simulation presented in chapter five showed that KI2 considered this simulation model to be high fidelity because real scenarios were used. However, the students did not always perceive this activity as authentic as demonstrated here:

‘I just found it ridiculous the idea of pretending that the lecturer was an 80yr old woman, and making small talk about the clothes they were wearing, or the weather, or something that felt very contrived, I just felt embarrassed doing that’. (MH4/09)

Alternatively, the same student found undertaking skills with service users ‘almost too real’ and both students and nurse educators commented on a communal ‘sense of relief’ when the new unit started which did not use the service users. This student commented:

’in core capabilities we used either lecturers or service users to be, to act in the role of service user then in enhanced core capabilities at September/Christmas we just used fellow students, and I kind of felt a bit safer using lecturers or fellow students ’cos I felt like, I was worried with... kind of touching on what you were saying a little bit, I felt a bit like, like I might offend someone’. (MH4/09)

This student reflected upon the service user involvement in the simulation as challenging, which the other students in the focus group agreed upon. Further discussion revealed that at times the service users had been unwell and the student cohort had been aware of that.

‘it’s their real lives so I kind of felt a bit you know... I knew from their past that they had tried and kill themselves three times and you’re kind of asking about it and it did feel a bit too real’. (MH4/09)

‘There were a couple of instances weren’t there when people were not, were a bit fragile’. (MHS/09)
The students demonstrated awareness for the need for sensitivity when working with the service users. Ultimately, they reported feeling safer with their peers or lecturers role playing the scenarios.

This cohort were assessed using an OSCE at the end of the unit. As a result the simulation aimed to prepare the students for practice and ultimately, for students to develop skills to pass their assessment. This student's observations demonstrate that there was an appreciation that the simulation was developing skills for both the assessment and their practice development.

‘towards the end the exam marking sheet we knew, it was getting that we were just driving towards the exam, this is what you need to pass it, the exam when I guess in reality this is what you need for the rest of your life now, for the rest of your working career not just about that exam’. (MH5/09)

The focus on preparing students for the assessment meant that each week different topics were addressed and students had to demonstrate set skills and meet certain criteria. This appeared to influence the delivery of the simulation:

‘but when we started off it was so rigid and tick box, wasn't it because we had to for the exam’. (MH2/09)

The assessment strategy appeared to have impacted on both the simulation experience and the transfer of simulated learning to practice. This issue will be explored further in chapter seven.

I explored the matter of preparing students for both an assessment and placement during the interview with one nurse educator. I aimed to gain insight into the nurse educator’s awareness of the tension it appeared to have created for this group. They said that they had not considered this before, but could see that it may have been an issue for the students. They acknowledged that there had been a limited time frame in which to demonstrate skills and that this could be challenging:

‘yeah, address risk and come to an end, come to a formulation at the end etcetera and you know I think people were made very aware that if you don’t get to that point, to the end point and you know basically shown certain sort of skills or whatever and come to an end where you’d summarise everything, you couldn’t get that end point and ran out of time, then the chances were that you might not pass that assessment, so that was, that was a real issue and I think that, that’s something that we will probably need to look at in future because it, that obviously takes it a little bit away from what might be a very real practice situation, I mean of course you have time limit in practice as well, but
because it was so focused I can see that students were probably, 'I've got to do this”. (NE7)

This quote demonstrates that this nurse educator perceived the simulation to be authentic as they referred to a ‘very real practice situation’. It also shows that in hindsight they recognised that having a dual focus for the simulation, may have been problematic.

In summary, student participants in this focus group expressed different perceptions and experiences of simulation. Several students recalled raised levels of anxiety which impacted on their performance. The main cause for this appeared to be being observed by their peers. The lack of familiarity with the group seemed to exacerbate this issue. Another emergent issue was how authentically the simulation was perceived by these students. Whilst the service user involvement aimed to increase fidelity, the knowledge that they had mental health issues presented challenges for these students in the role play. These issues will be explored further in chapter seven, when the theme of transfer to practice will be explored.

Whilst this model of simulation and the issues it presented were unique to this case; the diversity of student perceptions and experience was evident in three of the four focus groups. Students in the other cases who experienced different simulation models also experienced high levels of anxiety. As described in section 4.4 (page 110) these cases had a number of variables including: the simulation model, the field of nursing and the year and programme of study. Therefore, it is important to note that student perceptions may be influenced by a number of factors. The mental health 2010 focus group is presented next.

6.2.2 Mental health 2010 – Seminar role play

The mental health 2010 cohort, experienced the ‘seminar role play’ simulation model (see section 4.4.2, page 111). Only three students participated in this focus group; and interestingly each held a different opinion regarding simulation. One student valued simulation, another experienced levels of anxiety but felt it was a valid approach. The third student struggled to engage.

This excerpt from the interview transcript demonstrates that as in the previous case, being observed was a cause for raised anxiety experienced by all three of these students:

‘it’s just the actual sitting, with everyone watching you’. (MH3/10)

‘it’s like stage fright and then’ (MH2/10)

‘yeah’ (MH3/10)
Again, being observed by their peers appeared to be the source of increased anxiety for these students, but as will be shown each student responded to this stress differently. This model differed from the previous delivery of the mental health scenarios in that the role play took place in the seminar room in front of the whole group. Students were able to interrupt and give guidance or feedback as well as structured written feedback at the end of the session; this approach was quite informal.

One student described experiencing physical symptoms of anxiety, but it would seem that the need to please the educator led the student to volunteer to participate, rather than a need to develop their skills or valuing the approach:

'It feel so anxious, I get sweaty, my heart races, probably what happens with you but then, I felt the pressure of, of X going 'whose going to volunteer?' and everyone just sat there, I felt that pressure as well, and it all just built up, so I would volunteer, I felt the pressure to volunteer and even though, I still feel really anxious about it'. (MH1/10)

It was this perceived pressure to volunteer which led this student to argue in the unit evaluation that all students should be encouraged to participate. This was recorded in my field notes, the student felt that this would be fairer and ease pressure on those group members who volunteered more frequently than their peers. One of the participants in the focus group had never volunteered:

'I liked watching someone else do it, if someone else is happy to sit in front of a group, that's fine, and I liked that they were doing it and we could all discuss it, but I didn't want to be that person in front, and that sounds bad but people, the people I saw at the front did volunteer, and I think it's OK if you're happy to volunteer but I wouldn't volunteer'. (MH3/10)

This student described feeling more comfortable observing the role play than volunteering; this contrasts with the third student who felt safe in the simulation:

'Yeah, I felt safe to try new things, or if I didn't know I didn't feel embarrassed to, I think it depends on your group, who's in your group'. (MH2/10)

'it depends on the person as well'. (MH1/10)

This introduced two factors which these students perceived may influence student engagement in simulation; the group dynamic and the individual’s characteristics. This student continued:
‘I think it’s personality types, depending on like, if some people learn by, just sitting back and watching other people do it, I think that’s fine, as well and I think if some people are more hands on and can learn that way’. (MH2/10)

This student continued and said that they preferred ‘hands on’ learning:

‘I’m better at, what’s it called, like... role play, like hands on things’. (MH2/10)

This contrasted with the preferred learning style of this student:

‘even when you sit there, and if I’m watching someone else, I think ‘I wouldn’t know what to do there’ and then we’ll freeze it and someone will say ‘you should have done this’ and I think ‘oh yeah’ so it does help anyway’. (MH3/10)

This student noted that whilst they did not feel comfortable engaging in the simulation, they were still able to learn by observing and participating in the group discussion. MH1/10 concluded that this teaching approach was valid:

‘I know people don’t like role play and I feel horribly nervous in it, but you’ve just got to do it and it is valid to do it’. (MH1/10)

This quote is similar to the reflection of MH5/09; that whilst the simulation caused raised levels of anxiety it was worthwhile.

6.2.2.1 Influence of group

As in the previous case there were different student perceptions of the simulation. This student compared two role play activities, in the first the students worked in groups of three; the second involved a larger group of fifteen:

‘we’d have to interview them, but in the smaller group which I preferred, in the smaller group, only because I couldn’t, the thought of sitting in front of like 16 other people in a false environment like that, I don’t like that at all’. (MH3/10)

This student preferred the smaller groups and chose not to volunteer for the activity in the larger group. MH2/10 who felt safe in the group explained that they perceived that group familiarity had been a strength. This student valued developing positive relationships within the group and found this a good source of support:

‘yeah it was a protected group, to me it felt like it was more, cos I knew I was coming and I was going to see these people, on this day, and it, you build friendships and you get stronger as a group, and I think that makes you feel more comfortable when offering advice to each other’. (MH2/10)

By contrast the nurse educator perceived that students did not feel safe within their group due to the altered format of the 2010 cohort. The nurse educator commented:
'they felt exposed, they felt unsafe, with each other, not even just the method but with each other'. (NE2)

Whilst this nurse educator noted that students did not feel safe in the larger group, the student data suggests that whilst MH2/10 felt safe, MH3/10 did not. This demonstrates the range of different student perceptions and needs and consequently the challenge developing simulation may present if student psychological safety is to be promoted.

6.2.2.2 Influence of simulation model

As presented in section 4.4.2 (page 111) the 2010 students did not have the same simulation model or assessment strategy as the previous cohort. The new assessment strategy replaced the OSCE with a written assignment reflecting on student skill development. One of the nurse educators involved in this delivery considered that this change had a direct impact on student engagement with the simulation.

‘I think is still something that students feel quite anxious about, and coming up in front of their peers and actually engaging in a simulation with me, you know in the role as a service user, was still something that people clearly felt quite anxious about, I think it was a bit more difficult to actually get volunteers to experience that, probably, I suspect partly because this wasn't going to be assessed at the end of the unit... so there wasn't that extra level of ‘oh, I really must practice this, I really must work on this, because I'm going to be assessed on it'. (NE7)

‘BUT there was definitely that issue that it was more difficult to get people to participate than it was the first time round’. (NE7)

This excerpt demonstrates that this nurse educator had some awareness that students may experience raised anxiety from being observed. In their view the change in assessment strategy impacted on students’ willingness to engage in simulation. We discussed methods of promoting engagement:

‘then I think clearly trying to make that seem as unthreatening as possible, so try and make it as, as you know as positive an experience as it could be for that person and I guess in doing that demonstrating to everybody else, actually it's not going to be that awful’. (NE7)

It is clear that this nurse educator understood that some students would view the simulation as ‘awful’ and took steps to allay their fears. I asked the focus group whether they would have been more willing to volunteer if the assessment had remained the same:
'I think I would have been'. (MH3/10)

'Because you're like, 'I've gotta do it, gotta do it'. (MH1/10)

'Practice'. (MH3/10)

'yeah, it would've encouraged people a lot more'. (MH2/10)

This dialogue indicates that in this group of students’ view, the assessment strategy would have had an impact on their engagement in simulation. MH3/10 stated above that they would have been willing to volunteer, as discussed earlier this student had never volunteered to participate in the ‘seminar role play’. It would seem that a different assessment strategy may have promoted student engagement in this case.

Both of the mental health nurse educators perceived this shift in engagement with the change in the assessment strategy. However, NE2 discussed that in their view students are increasingly assessment driven. In their opinion, it was important to make students aware that the simulation aimed to prepare them for practice as well as for the assessment:

'students are so assessment driven, so assessment driven and if they perceive anything, as being not of value to that assessment it becomes secondary, it becomes less important, less meaningful... I think that they're, [2010 cohort] they're looking for very much 'why are we doing this?'; well we're doing this because, and this rationale was given to them, and repeatedly given to them, you are working with real, live people this, in inverted commas, is a 'safe environment' in which to test out, and to have a go, of your understanding and applying it across a range of client groups, and to develop your observational skills, and to develop your feedback skills, peer feedback skills, and self-awareness skills and self-management skills'. (NE2)

This nurse educator indicated that the students questioned the use of simulation and needed convincing that it was of value; if not towards their assessment then to develop skills for practice. This excerpt demonstrates that in this nurse educator’s view, the simulation provided a safe environment for students to develop clinical skills. As shown, this was not the perception of all of the student participants in this focus group.

In summary, the mental health 2010 student participants also described different perceptions and experiences. Once again, being observed by their peers caused some degree of raised anxiety. However, the change in assessment strategy appeared to influence student engagement in the simulation. Interestingly, whilst one student had not engaged in the simulation, they were still able to articulate learning from these
sessions. These students valued the small and familiar group which is comparable with the adult focus group, this is presented in the next section.

6.2.3 Adult – Adult assessment scenarios

The perceptions of the adult students differed from the other focus groups. They experienced the ‘adult assessment scenarios’ simulation model (see section 4.4.3, page 112). All of these students were positive about their experience. It is acknowledged that there were only four participants in this focus group, and a larger group may have captured a more diverse range of experiences. However, my field notes of the unit evaluation session documented a broader view. Approximately forty students (a third of this cohort) attended this session and the facilitator used ‘Turning Point’ to capture student views of the unit. ‘Turning Point’ is an audience response technology which allows educators to pose a question and students to respond using keypads. Questions were developed by the students who worked in pairs and compiled a list of positive and negative attributes of the unit components including: theory, practice, simulation and on-line learning. The educator collated these into a series of statements and presented them to the group using a power point presentation. Using the keypads, each student voted on each statement; choosing either ‘agree’, ‘disagree’ or ‘don’t know’. The responses were immediately displayed on the screen as bar charts, providing a visual display of student response.

The majority of comments regarding improvement related to other aspects of the Unit such as the on-line work and practice issues. One statement which related to simulation was; ‘longer skill lab time (or more sessions)’. The bar chart recorded 97% of those present agreed with this statement. The larger group did not raise any negative issues regarding the simulation experience, and overall high levels of satisfaction were reported.

One student in the adult focus group acknowledged that simulation may be embarrassing but saw the value in getting over that and learning from the experience:

‘I think as long as you’re not embarrassed doing things in front of other people I think you can take stuff away from practice and things’. (A3/10)

This student acknowledged that being observed may be a source of anxiety, but appeared to appreciate that simulation may have potential for learning. This led me to question why this student could overcome their reservations about simulation but others appeared not to. This will be explored further in section 6.3.1.2 (page 181).
6.2.3.1 Influence of group

The ‘adult assessment scenarios’ were delivered in groups of four, the students had worked in these groups previously. As with mental health 2010, it was evident that the student participants appreciated being in small groups:

‘I agree they [skills] were beneficial and it did help that they were in small groups cos we got a chance to ask questions if you needed to’. (A1/10)

One adult student commented on the benefit of being in a familiar group. This student suggested that this promoted safety and felt reassured if other group members were asking similar questions:

‘at least we know each other’s faces, and we’ve all been in the same little groups for different things now…it’s a lot safer and it’s good if you all ask the same questions. My little group, we discussed it amongst ourselves before asking the lecturer, which was nice we could all help each other out with our separate knowledge which we learned on the different placement areas’ (A2/10)

It would appear that this student felt a sense of collaboration with their peers in resolving problems. Due to the iterative nature of qualitative case study, I was able to explore emerging themes with participants. I asked the nurse educator participants what strategies they used to promote student safety in simulation. NE6 responded:

‘It’s about promoting collegiality in that group, and I think I said right at the very beginning, this is not a test today, this is about learning’. (NE6)

It would seem from the student’s comments that they had appreciated working in familiar groups, interestingly, this focus group did not discuss the issue of raised anxiety. The nurse educators involved in this delivery of simulation appeared surprised that students may perceive simulation as threatening. When I asked this nurse educator about the issue of student safety it was evident that they believed that simulation promoted patient rather than student safety:

‘patients are safe, I think that's what we mean by a safe environment’. (NE6)

‘do you think there's then assumptions that it's safe for students also?’ (AG)

‘how are they at risk?’ (NE6)

This nurse educator questioned how students were ‘at risk’ in simulation and seemed surprised at the suggestion that they may not feel safe. A second nurse educator also appeared surprised that simulation could have a negative impact and suggested that this must be the result of poor facilitation:
'I haven't really, considered that it would be negative, erm because if they don't have it at all, I don't, I can't think of a scenario where it would have a negative impact on somebody, it may identify a learning need, and hopefully the facilitator in the simulation would do it in a way that's supportive, I think that if it ever had a negative impact on the student, I think it would be more to do with the facilitation, rather than the simulation'. (NE4)

This participant explained that as a facilitator it is important to be aware of a student’s response to simulation and to intervene if they were struggling:

‘you’re watching somebody’s body language really closely aren’t you? how they’re responding to you, and the level of nerves that they’ve got, and if it’s getting too much, someone else can get up and help, or you intervene, and so I don't see how it would, have an impact so much that when they’re out in practice then, that they become under confident’. (NE4)

This participant highlighted facilitation skills as another factor which may influence or promote student safety in simulation. The adult students commented on the teaching style of the nurse educators involved in delivering simulation:

‘the lecturers themselves were very engaging, which kind of helped with the learning and meeting learning outcomes... they were really, really good which kind of helped’. (A3/10)

‘they didn't give negative feedback they were always ‘what more could you do, that's a good idea' which is really nice’. (A2/10)

It would appear that these students appreciated the encouragement and positive feedback which these nurse educators explicitly employed to promote student comfort.

6.2.3.2 Influence of simulation model

As presented in section 4.4.3 (page 112) the ‘adult assessment scenarios’ were delivered in a simulated ward environment. Students appeared to perceive this simulation model as an authentic learning experience. Whilst they acknowledged that it was not ‘real’, they perceived value in the approach in preparing them for both their practice experience and the assessment. One student commented on the simulated skills not being the same, but was able to balance that with the potential learning they were able to take away from the simulation:

‘I personally think doing a little bit or something, ‘well it might be like this' is better than nothing so putting a naso-pharangeal airway in a dummy is better than not practicing at all you know, at least it gives you some idea of where
you’re putting it you know basics you know, there’s definitely value in that’. (A3/10)

In the adult evaluation session, 97% students agreed with the statement that ‘all scenarios were realistic and relevant to practice’. Whilst they do not use the term, this indicates that the group perceived the learning as authentic. They appeared to appreciate simulation both to prepare them for practice and for their assessment.

The adult students had a written examination which assessed their knowledge of systematic assessment and decision-making. This examination concluded the unit and gave students the opportunity to demonstrate learning from the theoretical component, placement and simulated skills. All of the student participants felt well prepared for their exam:

‘I think that the skills labs were definitely a lot better than any of the lectures, definitely, I learned more in the skills labs than I did in any of the lectures and I think it really clarified as well what we needed for the exam’. (A4/10)

‘it’s like you were saying [to A4] you learn more on placement than you do on lectures, so to go in clinical skills lab and then go through it all step by step you remember doing it a lot more because you’re actually physically acting on what you’re learning so in the exam you can go through it all again and write it all down as you did it’. (A2/10)

It appears that these students appreciated the approach and felt that the simulation helped prepare them for the unit assessment. It is interesting to note that A4/10 voiced a preference for simulation rather than lectures, and A2/10 described the value of ‘doing’ to aid the recall of information.

The adult focus group all described positive experiences of simulation, they appeared to value working in small groups and the style of facilitation. These students appeared to appreciate this approach to prepare them for both the assessment and practice. The child focus group had quite different perceptions which are presented next.

6.2.4 Child – Ward Scenarios and PICU skills day

The child students participated in both the ‘ward scenarios’ and ‘PICU skills day’ (section 4.4.4, page 112). When discussing the ‘ward scenarios’ in which they worked in small groups; two of the participating students also expressed concern about being observed by their peers. For example:

‘sometimes, when you’re in simulation they’re like ‘right your go’, and then they’re watching you, and its just horrible and you just feel like under pressure, and you won’t do it right’. (C2/09)
It would seem that this student felt under pressure ‘to do it right’. This need to be seen to perform correctly was apparent in another student’s recollections. This student went on to link being observed with the fear that their peers would make a judgement about their ability to perform:

‘I know the others are watching and then that's making me think they think, now that I can't do it, but I know I can't do it, cos I don't like the pressure, if that makes sense’. (C1/09)

This student continued to say that whilst they would feel confident in practice, they did not in simulation. This in turn made them feel foolish in front of their peers, and worried that they would judge them unable to perform the skill. Unlike the ‘recorded role play’ simulation model, there was not a formal mechanism for students to give feedback, yet the perception of ‘being judged’ was evident. The student continued:

‘its like with that simulation baby I, when I, I never used that in the back of my mind, in placement now because it wasn't useful cos I felt so intimidated, under too much pressure that I don't feel that I was learning anything’. (C1/09)

In this excerpt the student has made a link between raised anxiety and learning and concluded that they did not learn anything because there was ‘too much pressure’. As in the mental health 2009 cohort, opposing views were expressed by this group. This student appeared to have valued simulation as demonstrated here:

‘I quite like the pressure of that, cos I think, I don't really take the clinical simulation away but I didn't take the clinical skills away from it, it was more coping with the pressure and on placement we are going to be in situations where people are watching us do meds, people being slightly intimidating at times and I think it gives you ways to, as I said a minute ago, it gives you confidence to deal with the situation’. (C4/09)

All three of these child students used the term ‘pressure’ when reflecting on the simulation experience. Whilst the first two students described this pressure having a negative impact, the third student perceived it in a positive way. It would appear that this student perceived simulation as being useful in preparing them for practice and that the pressure replicated reality to some degree. In other words, this student perceived the simulation to be an authentic experience which contrasted with the perceptions of the other students. This nurse educator acknowledged that different students experienced simulation in different ways:
‘I’m not sure it feels safe for all the students, I think it depends on their personality, some students can go with it and feel comfortable and seem to be not threatened’. (NE1)

As discussed several of the child students also experienced raised levels of anxiety from being observed. This will be explored further in the next section.

6.2.4.1 Influence of group

When the child students discussed the simulated skills session delivered in PICU, they felt more comfortable with this model than when in the university setting. The group size was smaller, containing four students compared with seven. There was group consensus that this session was perceived to be more relaxed and that they felt able to ask questions in the smaller groups. One student said:

‘it’s more relaxing as well I think… as opposed to the simulations at Uni’. (C5/09)

This was corroborated by an individual interview with a student from the 2010 cohort:

‘it did feel better because we were in the small groups and it was more a bit informal I think when you’re in a bit of a bigger group it feels like you’re just sat there and you’re listening… yeah you can ask questions but I feel a bit daft if it’s just a stupid one. Whereas, if it’s just a couple of you then it doesn’t really matter’. (C1/10)

These students were allocated to these groups for the purpose of the simulation and were not in the ‘protected’ groups used by mental health. As presented these students were from two different cohorts but neither the focus group nor the individual students raised the lack of familiarity with group members as an issue.

6.2.4.2 Influence of simulation model

The simulation model used in the university setting involved students adopting roles such as ‘nurse in charge’ and ‘staff nurse’. This appeared to affect their perceptions of the authenticity of the simulation they experienced, which in turn, appeared to have impacted on their engagement with the simulation:

‘it’s just not realistic and I just feel like a fool, every time doing it’. (C1/09)

‘not the simulation ‘cos its not real and I don’t think anyone takes it serious’. (C3/09)

‘it’s hard I think to do a role like that because, it’s not, I know you do the practice but it’s not real life it’s not, the way you react and you’re talking to like
your friends and cos its not a real situation I think it's quite hard to imagine it being’. (C2/10)

These quotes suggest a link between the perceived authenticity of the simulation and how the students engaged with the activities. The students described feeling foolish and not taking the simulation seriously, in particular when adopting a different role.

This nurse educator recalled an incident where a student had become distressed during the simulated ‘child ward scenarios’:

‘last year we had a, one upset erm because she felt challenged... and another one who just said ‘I don’t like it, I really don’t’, but they were weaker students as far as communication skills... No, no we talked to them about it, and we tried to fathom out what it was that had made her so upset and whether she felt she was actually being put on the spot or she was, she was challenging herself, she was wondering if she herself wasn’t good enough and it was damaging her confidence rather than encouraging her’. (NE1)

This nurse educator made a link between the student’s performance in simulation and identified them as ‘weaker students’. This indicates that the approach had exposed these students and the educator recognised that the experience may have damaged the student’s confidence rather than developed it. It was apparent from the nurse educator response that this was an unusual occurrence. By contrast, this key informant viewed exposure as a potential benefit to simulation:

‘I suppose it’s about, they really engage, it’s about them really engaging with what they’re doing at the time, and they can’t hide in the same way, so it’s [adult simulation] been, in some ways we’ve been quite fortunate, it’s been the end of second year and it’s been in that position pretty much, yeah for a long time and, (laughs) from a purely strategic point of view it’s been a good ‘weeder outer”’. (KI4)

This indicates that in this participant’s view, there was a benefit to identifying weaker students during the simulated skills at a key point on the programme, that is, before they progressed to the third and final year. However, the same incident discussed by the nurse educator made a strong impression on this student who referred to it in the focus group:

‘but they’re not like ‘and what would you do now, what would you do now’, and you haven’t got an audience watching you... and like with this girl that was crying opposite me I felt so sorry for her, she didn't, I think she got one of the answers wrong or something, and [the facilitator] was like ‘right, well what else
could you do’ and she didn’t know, so she started crying cos she panicked and everyone was watching her, and I could like sympathise with her’. (C1/09)

In this student’s view the student’s distress was influenced by two things; the questioning by the facilitator and being observed by her peers. However, this cannot be confirmed as the student involved did not participate.

This case has also captured diverse opinions regarding the student experience of simulation. Students once again described being observed as a cause for raised anxiety. These students preferred working in small groups in the ‘PICU skills day’. The authenticity of simulation was questioned by these students and as in the previous cases this appeared to influence engagement.

This section has presented each case and compared and contrasted student and nurse educators’ perceptions of simulation. Emerging themes include student psychological safety, authenticity and engagement in simulation. The next section presents a synthesis of these findings to provide across-case analysis of the data.

6.3 Across-case analysis

Table 6.2 illustrates the participating student views of their experience during simulation by cohort. This table demonstrates the range of viewpoints within each case. Those students who expressed strong opinions whether negative or positive are represented in column two and four; those students whose views were ambivalent are shown in column three.

Table 6.2: Student views of simulation:

<table>
<thead>
<tr>
<th>Student Group</th>
<th>Negative views</th>
<th>Ambivalent views</th>
<th>Positive views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Health 2009 (n=6)</td>
<td>3 (MH1, MH2 &amp; MH3)</td>
<td>2 (MH4 &amp; MH5)</td>
<td>1 (MH6)</td>
</tr>
<tr>
<td>Mental Health 2010 (n=3)</td>
<td>1 (MH3)</td>
<td>1 (MH1)</td>
<td>1 (MH2)</td>
</tr>
<tr>
<td>Adult 2010 (n=4)</td>
<td>0</td>
<td>0</td>
<td>4 (A1, A2, A3 &amp; A4)</td>
</tr>
<tr>
<td>Child 2009 (n=6)</td>
<td>2 (C1 &amp; C2)</td>
<td>3 (C3, C5 &amp; C6)</td>
<td>1 (C4)</td>
</tr>
<tr>
<td>Child 2010 (n=2)</td>
<td>0</td>
<td>2 (C1 &amp; C2)</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 6.2 demonstrates that there were differences between the cohorts regarding their experience of simulation. All of the adult students viewed simulation positively, which contrasts with the child and both mental health groups. Half of these students reported negative perceptions of simulation. Three of the four focus groups contained students who described uncomfortable feelings about simulation which included high levels of anxiety.

Of the 21 students who participated in the study, table 6.2 demonstrates that a number (n=6) of students described feeling uncomfortable in the simulation, and expressed negative views of their experience and how it had made them feel. The table shows that these students were in three different focus groups who experienced three different models of simulation. By contrast, one third of participating students expressed positive views about simulation and defended this approach in light of group members’ criticisms. There is representation from each of the cases in this column. The remaining students had mixed views; some were ambivalent, others acknowledged that whilst they had felt anxious, in hindsight they believed there was some value in the approach.

This section has demonstrated that the student participants in this case study responded to simulation in different ways and could be categorised into different types. A typology was developed by identifying the dimensions of the typology and then applying these to each participant using the data analysis charts. The dimensions were tested and revised to ultimately create four types. Type A: student participants valued simulation as a learning and teaching approach and engaged willingly. Type B: students did not express strong opinions regarding their experience of simulation, but found it useful. Type C: students experienced raised levels of anxiety but in hindsight saw value in this approach. Type D: did not value simulation and preferred not to engage. These are depicted in table 6.3 below:

### Table 6.3 Typology of student engagement

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Value simulation and engage willingly, no discomfort</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td>Found simulation useful, ambivalent about experience</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>Feel anxious during simulation but in hindsight see value</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>Do not value simulation, raised anxiety</td>
<td>6</td>
</tr>
</tbody>
</table>

To develop this work further, the models of simulation delivered to these students have been aligned with the student perceptions. This is facilitated by comparison of table 6.2 and 6.3. All four students in the adult case were ‘type A’. All of the ‘type B’
students were from the child case and all of the ‘type C’ were from the mental health cases. The seven ‘type D’ students were identified from three of the cases: child (n=3), mental health 2009 (n=3) and mental health 2010 (n=1).

However there are a number of variables, the ‘type A’ students came from all four of the cases: adult (n=4), child (n=1), mental health 2009 (n=1) and mental health 2010 (n=1). Similarly the ‘type D’ also had students from across the cases excluding adults. Students across the cases reported feelings of discomfort and raised anxiety prior to and during the simulation experience. However, students coped with these feelings in different ways. Each of the four cases experienced a different model of simulation, yet being observed appeared to be a strong cause of raised levels of anxiety in all cases. The students in these cases also identified additional factors which may have influenced engagement and anxiety levels including: the size and dynamic of the group, individual characteristics and a perceived lack of authenticity. These are explored further in the following section.

6.3.1 Factors which may influence student experience and engagement in simulation

6.3.1.1 Group

Within and across-case analysis has indicated that the group dynamic and size were influential on how these students felt during simulation in this case study. All student participants across cases appreciated working in small groups. Both the adult and mental health 2010 students worked in groups which they were familiar with and were able to provide examples of collaboration. This contrasts with the child students who were placed in groups for the purpose of the simulation session only. Both the child and mental health 2009 groups shared concern about being judged by their peers. The lack of familiarity with the group appeared to heighten anxiety levels experienced by the mental health 2009 group. In summary, promoting a positive group dynamic would appear to be good practice which may minimise student anxiety when engaged in simulated learning.

6.3.1.2 Individual learning style

It was not practical nor an aim of this study to determine students’ individual learning style, however, data analysis facilitated insight into what individual students valued about their simulation experience. When discussing the perceived benefits of simulation five of the students across-cases referred to the benefit of ‘hands on’ learning. This was reported in three cases across all three fields of nursing. By contrast four students appreciated the opportunity to observe and reflect upon skills. These students appeared to use a reflector style of learning, whilst reticent to participate in the activity they articulated benefits from observing others and discussing the activity with the group. These four students who expressed a
preference to observing simulation rather than being actively involved, were all from the mental health field of nursing. There may be a link between the type of learner and field of nursing but this is beyond the remit of this study.

These two groups of students appeared to take different things from the simulation experience. One group appreciated observing and discussing the scenario whilst the other saw value in the hands on learning. The potential of simulation to address the learning needs of different types of learning was reported by Fountain and Alfred (2009). They found that two different types of learners valued simulation as a learning and teaching approach. The implications of this will be discussed further in chapter eight.

Individual learning styles may be influential on how simulation is perceived. In order to meet different students’ needs a number of authors (Baxter et al., 2009, Stayt, 2011) recommend using a pluralist approach to learning and teaching. That is, using multiple teaching methods in order to meet different students learning needs. These nurse educators and key informants recognised the benefits of this:

‘well, I think we haven’t got a duty to make sure that every student is exposed to their learning style, at every point of the curriculum, what we should be doing is sitting with them and saying ‘right, understand your learning style, understand what works for you and what’s better and that can then help you when you’re planning your revision and all those sorts of things’. Having said that I think during a programme we need to expose them to everything, but we need to be explicit about that and say ‘well we’re going to be giving you a mixed economy’. (KI1)

‘so we do need a mix, and I offer the mix, I offer the classroom, I offer the skills lab, and I offer on-line... so there is this mix of learning opportunities, and it will be, some won’t like one method and some like the other or some like a variety, but at least somewhere, hopefully we’ve got everybody, by offering the different approaches’. (NE6)

These quotes demonstrate that these participants recognised the need to offer a variety of teaching and learning opportunities to facilitate student learning at both a strategic and operational level. Whilst there is recognition that simulation may not suit every individual students learning style; there was an expectation for each student to partake in the majority of the simulated skills sessions observed. The implications of this will be discussed further in chapter eight.
6.3.1.3 The role of fidelity and authenticity

In order to promote engagement with simulation, it would appear that students needed to value the approach. As discussed in chapter one, authenticity and fidelity are important concepts in simulation. The findings of this study support this. As presented in the cases, students referred to whether the simulation was viewed as valuable in preparing them for practice or whether it was dismissed as being 'not real'. These perceptions indicate whether the students perceived the simulation as authentic or not.

This section explores these views from both the student and nurse educator perspective. The need for students to value simulation in order to promote engagement is captured here. This key informant suggested that students see simulation as 'little steps' towards their ultimate goal of being in practice with real patients:

‘and I think that students will do that, and they’ll like it, and they’ll be excited about it, but they’re only excited about it because it’s a stage getting into, into the clinical area and that’s the thing that they’ve come here to do...if they can see it as a direct step to the practice that they’re actually doing it'll be fine, cos they can see the logic of erm they’ve told me about this, now they’re going to up the level a bit and get me ready for going out in practice, there might even be another step above that, but my ultimate goal is to get out there and work with real patients’. (KI2)

For this reason it is important that simulation is perceived as having clear links with practice. The fidelity of the simulation may influence how the students perceived these links, it was evident that the students viewed skills in very different ways. In 3 out of 4 of the focus groups, divergent views were expressed. Those that valued simulation felt that it increased their confidence and prepared them for practice and those that did not. These students felt that the simulation was ‘false’ and they felt ‘foolish’ or ‘silly’ (n=7). This equates to a third of the students interviewed, which is higher than the percentage (25%) of ‘reality sceptics’ identified by Baxter et al. (2009) and discussed in chapter three (page 91). Table 6.4 shows the viewpoints in each group regarding authenticity.
Table 6.4: Student views of authenticity in simulation:

<table>
<thead>
<tr>
<th>Student Group</th>
<th>Negative views</th>
<th>Positive views</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mental Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009 (n=6)</td>
<td>4 (MH1, MH2, MH3 &amp; MH4)</td>
<td>2 (MH5 &amp; MH6)</td>
</tr>
<tr>
<td>2010 (n=3)</td>
<td>1 (MH3)</td>
<td>2 (MH1 &amp; MH2)</td>
</tr>
<tr>
<td><strong>Adult 2010</strong></td>
<td>0</td>
<td>4 (A1, A2, A3 &amp; A4)</td>
</tr>
<tr>
<td><strong>Child 2009</strong></td>
<td>3 (C1, C2 &amp; C3)</td>
<td>3 (C4, C5 &amp; C6)</td>
</tr>
<tr>
<td><strong>Child 2010</strong></td>
<td>2 (C1 &amp; C2)</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6.4 demonstrates that half (n=10) of those students interviewed struggled to engage in the scenario because it ‘was not real’ or did not perceive simulation as authentic. The other half of the student participants perceived the simulation experience as authentic. These students did not perceive simulation to be the same as practice, but felt that their learning was relevant to their practice.

The issue of the perceived lack of authenticity impacting on student engagement in simulation has been reported in the literature (Baxter et al., 2009). The comments made by several students in this case study resonated with the findings reported by Baxter et al. (2009). In this paper, the student participants expressed views that ‘it was not real’, that ‘no one took it seriously’ and that they ‘felt foolish’ (Baxter et al., 2009). This will be discussed further in chapter eight. It can be challenging to ensure that the simulation feels real enough to promote engagement but as will be considered next, there may be an increased risk associated with higher fidelity simulation. This key informant demonstrated a belief that the greater the level of fidelity, the greater the risk to students:

‘going from low fidelity to high fidelity, simulation so you have, you have the ones that have elements but are actually quite safe, and I think you get the high fidelity ones that are very very close to what real practice is like, but then you get additional risks that come with that, and that's, there's always going to be risks’. (KI2)

The issue of balancing fidelity and student safety was not restricted to the mental health delivery of skills. One key informant recounted their experience of a simulated ward event which had been delivered by a different organisation.
'but it was very interesting that two of the second years were quite shell shocked about the scenario, from a point of view that really enjoyed it, felt it was very worthwhile, but what actually came out was they questioned their own ability to work as a nurse, erm again we gave them a lot of reinforcement, if you look in the research its recognised that you have this, practice theory gap whatever you want to call it, but there’s this culture shock of once they’ve start qualifying and get into practice they suddenly feel that they’re are completely in the deep end and paddling madly, and we actually managed to get that situation in a simulation, now we didn't deliberately try and engineer it but I think it was quite useful and I think it showed how lifelike the scenario was, that the student, that a few of the students really felt lost'. (KI3)

On the one hand the participant was pleased that the level of fidelity was high enough to be perceived as real enough to promote feelings of inadequacy. On the other, they recognised that these students needed additional support, and explained that they had spent time with them to ensure that the experience was a positive one. So it would appear that there may be a balancing act, in that the level of fidelity needs to be sufficient to be perceived as authentic and promote student engagement, but at a level where the student feels safe. This will be discussed further in chapter eight.

6.4 Summary

The diversity in student perceptions regarding their simulation experience led to the development of a typology which has proposed four student categories. This drove an exploration of the factors identified by students and nurse educators which may have influenced perceived safety, risk taking behaviour and engagement in simulation. These include: group size and dynamic, individual characteristics, facilitator skills, perceived value, authenticity and fidelity. Whilst none of these factors were referred to by all students the dominant cause of anxiety appeared to be observation by their peers. Useful strategies that emerged from these discussions to cope with these issues were smaller group sizes and familiarity with group members. By contrast, several students benefitted from observing their peers and a few educators felt that simulation could be useful to expose weaker students. It would seem that students are more likely to take risks if they value the simulation, whether it is to prepare them for assessments or practice.

It would seem from the evidence presented in this chapter that nurse educators have a number of dilemmas to address when developing simulation, if students’ psychological safety and learning are to be optimised. These include meeting the needs of learners with different learning styles and ensuring fidelity is sufficient to promote engagement but not increase risk. This has been recognised by Stayt (2011) who suggested that there was a paradox when developing simulation, to ensure that
there is a sufficient level of fidelity for students to engage but that there is a risk that students may be over-whelmed, which may impact on the student learning. These findings suggest that an added dimension is that the students may be exposed to a negative experience which consequently undermines their confidence rather than enhances it. Ultimately, the aim of simulation is to increase student confidence to deliver direct care in practice. This issue will be explored in chapter seven.

Chapter 6
Summary:

- Perceptions of student safety varied within and across-cases.
- Educators showed some awareness of a risk of exposure.
- Group size and familiarity appeared to support students to take risks in simulation.
- Different learning styles may be accommodated in simulation.
- Valuing simulation may influence students engaging in simulation.
- Perceived authenticity and fidelity impacted on both student safety and engagement in simulation.
Chapter Seven

Transfer of Simulated Learning to Practice

7.1 Introduction

The previous findings chapters have explored the development and experience of simulation at the university. The findings in chapter six have explored the students’ experience of simulation which raised issues of perceived authenticity and student psychological safety in simulation. In this chapter the question of whether simulated learning is perceived as transferring to practice is considered.

The development of this major theme derived from three minor themes: ‘transferred to practice’, ‘contrast with practice’ and ‘value of practice’. The findings of each case are presented in the first part of this chapter followed by a critical comparison across cases. Table 7.1 provides an overview of this chapter’s major theme.

Table 7.1 Overview of theme development

<table>
<thead>
<tr>
<th>Major theme</th>
<th>Minor theme</th>
<th>Descriptor</th>
</tr>
</thead>
</table>
| Transfer to practice | Transferred to practice   | • Transferred to practice
|                      |                           | • Not transferred
|                      |                           | • Simulation experience
|                      |                           | • Preparation for practice
|                      |                           | • Skill currency
|                      |                           | • Skill development
|                      |                           | • Simulation in practice
|                      |                           | • Confidence
| Contrast with practice |                           | • Contrast with practice
|                      |                           | • Theory practice gap
| Value of practice    |                           | • Value of practice
|                      |                           | • Practice experience
|                      |                           | • Practice learning
|                      |                           | • Links with practice
|                      |                           | • Student development

There is an assumption that simulated learning transfers directly to practice; yet the evidence base is limited and contradictory (Kneebone, 2005, Stayt, 2011). The NMC (2007a) proposal to replace practice hours with simulation renders the question of whether and how simulated learning transfers to practice as one of critical importance. For this reason one of the research aims of this study was to explore the perceptions of both the nurse educators and students of how simulated learning transferred to practice.
Students from the adult and mental health 2009 cases were able to provide examples of the transfer of simulated learning to practice but this was not the experience of any of the mental health 2010 or child students. Students in these cases described having to make adjustments to skill delivery in practice or not having the opportunity to practice their skills in the practice setting. These issues will be considered in this chapter, and the students’ perceptions of the role of simulation in preparing them for practice will be analysed.

7.2 Within case analysis

7.2.1 Key informants

All of the key informants were asked if they felt that simulated learning prepared students for practice and all of them indicated that in their view, it did. Their reasons regarding how it prepared them varied. Several felt that simulation had the potential to bridge the ‘theory-practice gap’ and others felt it could give students confidence and knowledge. None of the key informants expressed a negative view of simulation being used to prepare students for practice. This could be due to the purposive selection of key informants who, whilst not directly involved in delivering simulation, had supported the development of this approach in the School.

Whilst all responses were positive, the reasons for the belief that simulation prepared students for practice varied, for example:

‘I think simulation allows us to take responsibility for 300hrs of preparation so we can let them loose a bit better prepared’. (KI1)

Two of the key informants considered simulation to be a useful adjunct to the theoretical component of the programme. They referred specifically to simulation acting as a bridge between theory and practice that is; linking the theoretical component of the programme with practice learning. For example:

‘you get your theory, and then, you’ve got theory here and practice there, and you’ve got to get between those and so you need a bridge, and simulation is actually quite a good bridge between the two’. (KI2)

‘but in terms of bridging I think it's critical, and possibly the only effective tool’. (KI6)

In contrast, whilst two of the nurse educator participants also discussed the benefit of linking theory with practice, five of these participants focused on simulation providing students with some knowledge and confidence. This, in their opinion came from gaining awareness of both the procedures and equipment in the simulation environment, this data is presented in the following sections.
The key informants considered that there may be a number of factors which would influence the transfer of simulated learning to practice. One of these was related to how simulation was delivered and whether the simulation was intended to replicate practice as explained here:

'yes [they transfer] if they’re done well, end of story. I think the message I give to students, is don’t expect replication unless the simulation is designed to replicate'. (KI6)

It would appear that this key informant perceived that simulated learning may transfer to the students practice but this could depend on the delivery of the simulation. However, this key informant was more confident regarding the transfer of simulated learning in practice:

'I think, I personally obviously think it definitely does [transfers], or I wouldn’t be doing it'. (KI3)

This participant considered that simulation increased confidence in the students’ skills and that this would improve performance and ultimately patient outcomes. The participant provided this example to support their view:

'after that session they became a lot, their confidence grew... and again if their confidence grows presumably they’re going to in a real stressful situation... perform better erm and again patient safety can only be improved’. (KI3)

This participant linked improved confidence directly with the transfer of simulated learning to practice settings. Student perceptions of confidence and the transfer of learning will be presented in the following sections. Another key informant described receiving positive feedback from practitioners regarding the use of simulation to prepare students for their placements:

'I’ve spoken to people they’ve had feedback from practice saying this prepares students so you know it’s not just about the students liking it, it actually does help’. (KI6)

An additional benefit referred to by this key informant is that the students enjoy simulation, which was explored in chapter six and was not always the case. As each of the individual cases experienced a different model of simulation, as described in section 4.4 (page 110), each focus groups’ perceptions of whether and how simulated learning transferred will be presented and analysed separately in the following sections. Section 7.3 will present across-case analysis which will critically compare and contrast perceptions.
7.2.2 Mental health 2009 – Recorded role play

The within case analysis for each case is presented in two sections, the first focuses on the perceived outcomes of simulation and the second on issues explored which related to practice. Throughout the next four sections, data from both the students and nurse educators for each case is presented. This provides an in-depth understanding of each case and how the participants perceived the simulation had prepared them for practice and ultimately, whether simulated learning was perceived to have transferred to practice.

The mental health 2009 cohort had experienced the ‘recorded role play’ simulation model, six students participated in this focus group.

7.2.2.1 Outcomes of simulation

These student participants had differing viewpoints regarding the outcomes of simulation and how their simulated learning had transferred to their practice. For example, this student described how the simulated skills had provided a structured approach which they then applied in practice:

‘I found it did give me the basics, to build on and, it kind of ironed out a few sort of nerves and things like that it kind of, gave me food for thought so when I went to do it for real, I’d already had a practice run with it, so I didn’t feel, it didn’t feel as daunting when I had to do an assessment with a service user on a ward I felt it had given me a bit of knowledge, a basis, a bit structure to… cos I’d already had a few go’s at university it made it a bit easier, doing it for real, did give me a bit of a structure, like a proforma really in my head’. (MH5/09)

The interview transcript recorded that the group agreed that this structured approach was helpful, but that initially it had been difficult to adapt to the more relaxed approach seen in practice. For example this student commented:

‘but I wanted it to just keep it formulised, exactly like skills’. (MH6/09)

These student participants found that the simulated learning needed some adjustments in practice. They perceived significant differences to the delivery of skills than those practiced in the simulated environment. A more relaxed and reflexive approach to patient assessments in practice than in the skills sessions was observed:

‘It’s an interview we are going to do and I thinking ‘oh right yeah its going to be exactly like core capabilities’ and another student with me and as it turned out he went for his, and the nurse came back and said ‘that was far too formal this is a very chilled assessment you can’t be’ ok right we’re going to take a note pad and pen, very similar to this skills environment and so yeah, it was
kind of ‘ok its not like that at all then’, you're going to have to just go in and you know just chat normally every day. So, there's that contrast between practice.’ (MH6/09)

This student appeared to accept this altered approach to the assessment in practice. In the subsequent group discussion it was apparent that the students understood that the 'formulaic' approach to skills was intentional; they recognised that this could then be adapted as they became more experienced.

'I think the university did acknowledge that they wouldn't expect us to stick to such a rigid format once we became more experienced they would expect us to develop our own style of assessment more and be more flexible and we'd know when it's appropriate to ask those sorts of questions and have more of a sense when to, when we needed to ask about risk and when wasn't appropriate, I think they just thought we had to kind of learn more rigidly before’. (MH1/09)

It was clear these mental health students understood that their skill development was a process that developed with experience. One student used an analogy of learning to drive a car; that you did it the way you were taught, but once you passed your test, you developed your own style. Other students in this group acknowledged that the need for a structured approach may be due to their stage of training as they were 'novices'. The group discussed that now that they had developed their skills they were able to be more responsive to their clients’ needs. For example, this student recalled:

'so I said what would stop you (laughs) and you know my mentor said to me afterwards that was her feedback afterwards was you know you don't ask that you shouldn't be asking that if they've said they wouldn't act on that you don't ask what sort of stops them, 'cos they've already said they wouldn't act on it so kind of I felt like maybe 'cos I was a bit of a novice, I was going with the format rather than ...’ (MH4/09)

The format the student referred to was the set criteria which the students were expected to address in each simulated scenario. This structured approach to simulation developed throughout the unit and culminated in a simulated skills summative assessment. Whilst these set criteria were necessary for the purpose of assessment, they did not appear to transfer to their practice experience:

'and they're asking the questions but just in a less formal way they just do it much more naturally, but when we started off it was so rigid and tick box, wasn't it because we had to for the exam’. (MH2/09)

For some members of the group, this more informal approach to client assessments required some adjustment. A second issue was raised; the simulation had a clear
focus each week which was introduced by the lecture. Once the students were in placement they realised that the client assessment was far more comprehensive than those done in simulation:

‘whereas when you are in placement when you’re asking about risk it is more lengthy and in depth, it’s not just about, are they at risk of domestic violence, are they at risk of... It’s not just risk like suicide and harm to self, it’s not just a snapshot like we had to do in skills’. (MH5/09)

The use of simulation to prepare students for both assessment and placement appeared to have created tension for this group of student participants. I explored this with the educator who stated that they had not considered this before, but could see how it may have been an issue for these students. The participant acknowledged that they had a limited time frame in which to demonstrate skills and that this could be challenging:

‘yeah, address risk and come to an end, come to a formulation at the end etcetera and you know I think people were made very aware that if you don’t get to that point, to the end point and you know basically shown certain sort of skills or whatever and come to an end where you’d summarise everything, you couldn’t get that end point and ran out of time, then the chances were that you might not pass that assessment, so that was, that was a real issue and I think that, that’s something that we will probably need to look at in future because it, that obviously takes it a little bit away from what might be a very real practice situation, I mean of course you have time limit in practice as well, but because it was so focused I can see that students were probably, ‘I’ve got to do this’”. (NE7)

Whilst the first student (MH6/09), appeared to adapt to the different approach quite readily, some students found this adjustment problematic. These two students described feeling ‘panicky’ or ‘going blank’ if the assessment did not follow the structured approach that they were used to in skills:

‘so when I was doing assessments in practice at the same time I feel like I was in the similar situation again where, I was being tested and observed and if I didn’t stick to the structure I would have, my mind went blank every time and I didn't know where I was going’. (MH1/09)

‘My experience kind of mirrored that, at one point I was with the crisis team and going out quite often doing these assessments and it was really similar, I’d be getting a bit panicky sometimes thinking ‘oh they’ve not asked what they’re supposed to be doing skills”. (MH2/09)
It was apparent that these two students struggled to adapt when the assessment did not follow the structure which the student had become used to in the simulation. MH1/09 referred to ‘being tested’, although these sessions did not formally assess students. This links to the perception that students were being judged by their peers discussed in section 6.3.1.1 (page 181). In addition, this student described the negative feelings that they had experienced in simulation, which appeared to have transferred to the practice setting:

‘I found that I would go through a phase of being really, really nervous, we were doing assessments in skills and I kind of made me really nervous and, I built it up to be such a big barrier in my mind that every time I tried to do an assessment, if I didn't stick to the structure that I had kind of planned out, my mind would go blank’. (MH1/09)

This student went on to describe the process of adjustment as ‘getting over a barrier’, the mentor had been central in this process. It would seem that for these students there was a strong affective component of their learning which appeared to impact on their performance in practice. This has been recognised by Kneebone et al. (2004) who suggested that previous learning experiences, whether they are positive or negative, can influence the student’s skill development. This student’s negative experiences in simulated skills were perceived by the student to have had a negative impact on their skill delivery in practice.

For this group of students it appeared that the expectation to meet clear criteria in the simulation in preparation for their assessment created some degree of difficulty when transferring their skills to the practice environment. In practice they observed a less formal, less structured and more reflexive approach.

The simulation model used in mental health aimed to address the lack of opportunities in practice for students to develop skills, as described in section 5.2.1.2 (page 137). The nurse educator explained:

‘we felt very strongly that they needed that to equip with some confidence, and a base line of knowledge and understanding and skills sets to, more meaningfully if you like, look at their work, with clients in the practice setting’. (NE2)

Yet, conflictingly this focus group discussed that the simulation had knocked some students’ confidence rather than developed it:

‘I felt if I'd done badly in a session I felt like it really knocked my... I really couldn't do it in practice, cos I felt I’d done badly in the skill so in practice how do I know I'm going to do this? It’s not really the case when it’s quite a
different situation when you're in practice so that I was afraid of failing part of it cos it knocked me a little bit if something did go badly it knocked me a little bit'. (MH3/09)

Seemingly, other students in this cohort had also experience this negative impact on their confidence:

‘there'd been a couple of problems, and a couple of students had the confidence knocked quite a bit’. (MH5/09)

The issue of simulation damaging confidence was also discussed by the mental health 2010 cohort and will be presented in section 7.2.3.1 (page 196). In summary, whilst the students found the structured approach to be useful, the mental health 2009 focus group described skill delivery requiring some adjustment in the practice setting. Two students found this process of adjustment to be challenging. In addition, the group reported that some students had their confidence damaged by the simulation. Two students gave some detail of this, and explained that whilst they were able to recognise that practice was different, the negative experience in simulation had impacted on their skill delivery in practice.

7.2.2.2 Practice Issues

It was apparent across all of the cases that students needed to contextualise their learning in the practice environment. For example in this case, one student described that whilst keen to carry out a patient assessment, they didn't feel prepared to do 'a whole one'. They explained that this resulted from only one aspect of the assessment being addressed each week in the skills sessions:

'I was going to do a risk assessment and I thought 'yeah I'm going to do this' but when it came to it I thought 'no, I can't do this yet', cos I didn't actually feel like I knew what I was doing yet, and I think maybe concentrating more on a full, maybe using some of the documents from maybe some of the trusts. like cos they have specific ones, I didn't feel like I could go down that whole thing without watching someone first,’ (MH3/09)

The student explained that what had concerned them, was how to verbalise ‘new’ questions that is, those that had not been addressed in skills. An important step in this student’s practice learning was to observe their mentor first before attempting the ‘whole’ assessment. An additional difference was the documentation was not the same as that used in simulation. Whilst acknowledging that each Trust had different documentation the student felt that familiarity with this would have facilitated the transfer of simulated learning to their practice.
The role of the mentor appeared to be influential on students’ skill development and the transfer of simulated learning to practice. Students from each case made reference to the mentors’ role in facilitating learning. It would appear from the student data that the mentor could either facilitate or limit the opportunities for skill development. Students in this case had experienced both, for example, this student acknowledged that simulation can offer something to those students not getting opportunities in practice:

‘if you go to a placement and you don’t have a particularly supportive mentor that doesn’t really give you the opportunities then at least you’re getting that [skills practice].’ (MH2/09)

This student links the opportunity to develop skills in practice with the mentor being supportive and facilitating this. Several students described how their mentors had helped them to link simulated skills to their practice experience. This student had encountered difficulty delivering skills in practice and described how their mentor supported them, which resulted in increased confidence in skill delivery:

‘she was really supportive, she said ‘I don’t understand what your problem is you start off and you’re doing really well and you know you make the client feel comfortable and all of a sudden you stop and I can’t see what the problem is’, and I think she was just really supportive and I could feel that I did have the right skills it was just felt like a barrier I had to get over’. (MH1/09)

Another student discussed needing to observe her mentor before attempting to deliver the skill herself:

‘yeah I watched a couple and when I felt like I’d gathered enough sort of tips I kind of...’ (MH3/09)

The mentors appeared to have a role in both demonstrating skills and supporting students in developing their own skills in the practice setting. For those students who had limited opportunities to deliver skills in practice, the chance to develop skills in the simulation environment was valued:

‘Yeah I remember I didn’t feel that bad, because when we first started core capabilities, we were doing the whole suicide thing I was on the acute ward cos it was the acute module, and they went through the risk assessment document, and I remember thinking yeah ok I’m doing these skills sessions, and yeah the fact that I’m not doing the risk assessment, isn’t that bad because at least I’m learning’. (MH6/09)

This student recalled that they did not carry out a risk assessment until the third year, but had not felt disadvantaged because they had practised skills in simulation. So
whilst they were not given an opportunity in practice to carry out the risk assessment, the student felt that they were gaining insight and experience through simulated skills.

The perception that simulation was 'better than nothing' recurred across all of the cases as will be shown in the following sections. However, the experience of transferring simulated learning to practice differed across the cases. This will be demonstrated in the next section.

7.2.3 Mental health 2010 – Seminar role play

This group of three students experienced the 'seminar role play' which had a number of differences in delivery and assessment to the previous cohort. I was able to observe both the simulation and the evaluation of this unit of learning and field notes have been used in this section to supplement the focus group data.

7.2.3.1 Outcomes of simulation

Whilst the mental health 2009 cohort discussed the changes necessary to skill delivery in practice, the 2010 students were able to give examples of when they perceived that simulated learning had transferred to practice. The mental health simulation aimed to develop a set of core skills and values which could be applied to different settings and scenarios:

'veve always tried to convey, that this isn't, this isn't a recipe, this isn't that you start with ingredient A and end up with product cake B, that this is a set of core, core skills, that with knowledge and understanding and evidence back up, you can apply differently, in different clinical situations, and you know adjust them if you like, to the clinical needs of the person you're caring for'. (NE2)

Field notes taken following observation of a skills session recorded a scenario where the concept of touch was explored by the group:

A student volunteered, the scenario unfolded and was stopped three times, first time naturally as both role players laughed when 'Mary' stroked the student's face. The group discussed who would and would not feel comfortable with touch, what the student could do next and then proceeded.

The scenario developed and it was quite emotional and I certainly felt drawn in, 'Mary' was smiling and stroking the students hand and looking at her rings and a student asked to freeze and said 'you're making me cry'.

The educator concluded the session by giving the student positive feedback, someone said it was nice how she was stroking 'Mary's' hand with her thumb and the student had not realised she was doing it.
This seminar explored the concept of touch in some depth and this session was discussed two months later in the focus group. One student said that they felt they had learned from that skills session and had used touch with good effect on two occasions in her practice:

‘Yeah, because, originally I always thought you weren’t allowed to touch people, it was yeah if you’re putting a plaster on, things like that, and then when I realised that there was situations where it was appropriate to touch people, like what [educator] did with [student in skills session] two situations in the last ten weeks where somebody had, a patient had kicked another patient, the patient was so upset, like just holding his hand made him feel better and that was like so powerful for me, that’s one of the times when I thought ‘I can do this, I can do this’. (MH1/10)

The student went on to recall the second incident where touch had been used in practice placement with positive results:

‘the first time that I ever really felt like a nurse was yesterday because everyone else, all the qualifieds were trying to get him up and he got up for me, got in the chair for me, because I was trying to have a laugh with him, like appropriate humour and like holding his hand, like reassuring him, and it was, I was thinking about what I’d done in practice, like in the theory session’.

(MH1/10)

The use of touch is a core skill which can be applied in a variety of situations. This response by this student illustrates that the simulation was informative in imparting an understanding of where, when and how the use of touch is appropriate in practice. By recollecting and linking back to the skills session, the student could effectively apply the newly learned skill in practice and this resulted in increased confidence in their role as a nurse.

Another student in this focus group was able to give an example of her involvement of sectioning a patient, who was expected by their mentor to be challenging:

‘and from using my engagement skills with her, she wouldn’t talk to the social worker who I was with at all, so I had to use my skills with her, to calm her down and this woman, this patient is renowned for having a really hard, difficult sectioning... I just thought, if I didn’t have the skills and I didn’t use active listening or she was swearing and going ... so I’d reflect what she was saying, using language onto a level where me and her built this rapport, and that’s what I found like in the [simulated] skills, say if [educator] was like
aaah! all manic or, something like that, you’d see people and how they’re interacting, and I felt that helped, a lot definitely’. (MH2/10)

This student was able to apply skills which had been demonstrated and explored in the skills simulation to their own practice with good effect. The mentor’s positive feedback further bolstered their confidence to deal with this difficult scenario. Again, this student recalled making conscious links to the skills session whilst in practice and successfully applying the simulated learning to this situation.

These students were able to make links from a practice situation back to the simulation and they recognised that their skill development was on a continuum with input from both the university and practice areas. This student described how they had applied learning from practice to the simulation:

‘there was another situation where, it was being late to a community like assessment and I knew how to deal with it because I’d been in that situation [in practice] before and everyone gave me really good feedback… everyone was like ‘that was really good’ and it made me feel like I could actually do it’. (MH1/10)

Having observed their mentor in practice deal with a particular situation that subsequently arose in simulation, they were able to adapt a similar approach in the scenario. This provided the opportunity to practice an observed skill, which in turn, through positive feedback enhanced their confidence. Therefore, it would appear that not only does simulation have the potential to prepare students for practice, but practice can also prepare students for simulation.

For these two students it would appear that this was an effective approach to skill development. The third student in this focus group chose not to engage with the simulation and could not provide an example of the transfer of simulated learning.

One aim of this simulation model was to develop confidence (see data excerpt, page 193). Field notes taken during the unit evaluation recorded a group discussion about the issue of confidence. There were 40 students present at this session which was approximately 50% of the whole cohort. There appeared to be division in the room regarding the issue of confidence and students expressed strong and opposing opinions. These excerpts from my field notes captured this discussion:
<table>
<thead>
<tr>
<th>Student 7:</th>
<th>Said that there was an overuse of role play in the unit, students were aware that it was artificial, and feel foolish which interferes with their performance. On the other hand you only perform when the educator was present (in first format) and then to show them what they wanted to see. He went on to say that the role play was a ‘rigged game’ which undermines their confidence, whatever you do will be wrong.</th>
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<tr>
<td></td>
<td>This led to general disagreement by the group and the educator challenged the idea that the students were set to fail. She went onto say that it conjures up the feeling that they didn’t get it right if that how students felt.</td>
</tr>
<tr>
<td>Student 1:</td>
<td>disagreed and said that he was wrong to say it</td>
</tr>
<tr>
<td></td>
<td>Educator said that we have failed if this is how the group feels as we aim to provide a safe environment.</td>
</tr>
<tr>
<td>Student 1:</td>
<td>said that’s how we learn, it’s not always good, things don’t always work</td>
</tr>
<tr>
<td>Student 3:</td>
<td>it’s a learning curve</td>
</tr>
<tr>
<td>Student 7:</td>
<td>said the role play goes on and on and he tried every tactic and still was getting it wrong.</td>
</tr>
<tr>
<td>Student 8:</td>
<td>said this happened in practice</td>
</tr>
<tr>
<td></td>
<td>Educator agreed that this was a key point and it can occur in practice</td>
</tr>
<tr>
<td>Student 7:</td>
<td>in skills people feel hyper-sensitive</td>
</tr>
<tr>
<td></td>
<td>Educator said vulnerable</td>
</tr>
<tr>
<td>Student 7:</td>
<td>said that this can knock your confidence</td>
</tr>
<tr>
<td>Student 8:</td>
<td>agreed and said that it felt like hours when you were sat at the front of the class</td>
</tr>
<tr>
<td>Student 1:</td>
<td>said that this reflected life in general, not always good and we need the critical feedback. She said that personally, it had increased her confidence</td>
</tr>
</tbody>
</table>

This dialogue demonstrates the diverse views of this group of the simulation experience and the issue of confidence. The matters raised were explored further in the subsequent interviews with both the nurse educator and the focus group. MH2/10 felt that the simulation had developed their confidence in skills:

‘I felt that that [simulation] helped, because it built your confidence didn’t it’.

(MH2/10)
Two of these student participants felt that simulation had enhanced their confidence following the positive feedback described previously. However, MH1/10 empathised with ‘student seven’s’ perception that simulation could damage confidence:

‘but when I didn’t do well it knocks your confidence, I completely agree with that’. (MH1/10)

This student described a scenario that had not gone well and said that they had ‘felt rubbish’ afterwards. However, this focus group agreed that they learned from the simulation whatever the outcome. The nurse educator felt that the student ‘seven’s’ comments derived from one particular incident and expressed concern that this student had obviously taken away such negative feelings, rather than explore them during the session. In the literature, few authors address the issue of simulation damaging, rather than enhancing student confidence. Rather, simulation is promoted as a tool to enhance confidence.

7.2.3.2 Practice Issues

As presented, the mental health group 2009 found that the formal and structured approach adopted in simulation to be more relaxed and responsive in practice. The 2010 cohort also discussed differences between practice and skills but their discussion focused on the need to respond quickly in practice. As demonstrated in this excerpt:

‘I didn’t have time to think about it... like in practice you just have to...’
(MH2/10)

‘DO IT!’ (ALL)

This contrasts with the simulated skills where these students discussed that in their opinion, there was a tendency to over-analyse behaviours. The group agreed that in practice they behaved more naturally:

‘when you said before when you’re in practice you don’t have time to sit there and think ’right this is how I’m going to sit’, but here you’ve got too much time, over think everything, so you thinking about every little thing when, in practice things like open posture just come naturally because it’s an actual patient and you don’t have to time to think about everything’. (MH3/10)

However, this contrast with practice did not appear to be problematic for these students. It would seem that they appreciated the more instinctive and relaxed approach in practice.

Whilst this was the smallest focus group, two of the students were able to share examples of when they had transferred simulated learning to their practice with good
effect. The adult students were also able to provide examples of this, which will be presented next.

7.2.4 Adult – Adult assessment scenarios

The adult focus group was held with four students who had experienced the ‘adult assessment scenario’ simulation. This simulation model was embedded in a unit of learning; the theoretical component, simulation, on-line learning, critical care placement and assessment strategy were aligned to the unit’s learning outcomes. Essentially the unit aimed to develop the knowledge, skills and attitudes relevant to the care and treatment of adults with a severe and life threatening illness. The theory and practice of using a systematic approach to assess a deteriorating patient were delivered in this unit.

7.2.4.1 Outcomes of simulation

The adult student participants were able to describe applying the systematic approach developed in the simulation and theoretical sessions in university in their practice placements. They recalled this approach being applied not only to the assessment of a deteriorating patient, but also in handovers and in the documentation. They appeared to have a good grasp of the underlying principles of the systematic approach and because practitioners were using it, clear links were made to their practice. When asked whether they had had opportunity to use the skills learned in the simulation in practice, three out of four students said that they had. The fourth student said that whilst they had not, they felt prepared by the simulation session to respond to a deteriorating patient:

‘I feel that if I had a patient that did suddenly go unconscious or if I did find an unconscious patient I’d like, definitely be more confident in like dealing with it’. (A4/10)

‘and what gives you that confidence, where does that come from?’ (AG)

‘just knowing, just having the knowledge, knowing what to do’. (A4/10)

Another student agreed:

‘yeah, I think it gives you confidence as well in your knowledge and your judgement because you know what you’d do’. (A1/10)

Whilst these students perceived that having knowledge raised their confidence, another student added that familiarity with the equipment had also increased their confidence:
so I felt more confident going in A&E cos I knew if somebody asked me for a
gueddel before I wouldn’t have known what one looked like, so when I was put
in resus and I was allowed to’. (A1/10)

These students’ perceptions resonated with the nurse educators who considered
simulation could assist in developing student confidence by developing their
knowledge base:

‘I think it [simulation and practice experience] complements each other don’t
they? I don’t think you can have one without the other, I don’t expect
somebody to be competent, as I said it gives them that confidence, some
underpinning knowledge’. (NE5)

‘I think it does give them confidence, I think it identifies what they don’t know,
and hopefully you’ve given them some confidence’. (NE4)

Those students who had had the opportunity to use their simulated skills were able to
make clear links to their practice experience:

‘I was in A&E and I was with my mentor who was in resus a lot, so spending
more time in resus and get to do CPR a lot, go through the ABC’s and the team
there were really really good with students, they’ll talk to you while they’re
setting up and ask you what they should be doing to set up and talk you
through the ABC of setting up for an emergency and make you go through it
with them’. (A2/10)

This student felt that the simulation and practice experience were a ‘good fit’ and that
the practice experience had actually helped to prepare them for the simulation. This
demonstrates that their learning was on-going:

‘it meant when I came into the skills lab as well, I felt like I knew quite a lot of
what I was doing but I couldn’t obviously check everything with the lecturers,
it’s just all a really good way around of doing it’. (A2/10)

In addition to the focus group data, field notes taken during observation of this
simulation model recorded another student who made a similar observation:

‘Another student said that practice, not the on-line learning had prepared her
for the skills session rather than the skills session had prepared her for
practice’. (Excerpt from field notes, July 2012)

Therefore, students from both the adult and mental health focus groups were able to
give examples of how they perceived simulation had transferred to their practice. In
addition, students in both focus groups described applying learning from practice to
the simulation scenarios. Both of these simulation models aimed to develop a set of skills with explicit underlying principles. The adult simulation aimed to develop critical thinking skills which underpinned a systematic approach to the assessment of a deteriorating patient:

‘I hope they learn through the skills lab, is the ability to think, critically about how they might learn to manage this patient’. (NE6)

The ABCDE approach to assessment of a sick adult is nationally recognised and standardised (Resuscitation Council UK, 2006). It is therefore not surprising that the adult students saw this approach being used in the critical care placements; consequently opportunities arose to enable the students to make clear links between theory and practice. This highlights the potential benefit of aligning the practice placement with the theoretical unit of learning.

This student was able to recognise the systematic approach being applied in different contexts in the practice environment. They described using the systematic approach for handovers and note-taking as well as for assessment:

‘for me the ABCDE stuff we talked about in the skills lab is really good in HDU for handovers and recording notes and things, cos a lot of the staff nurses do the ABCDE when they’re doing written clinical notes and also in recovery in theatre its a good way of writing down what you found with the patient, and that what’s I kind of took from it and not necessarily in an emergency situation ABCDE but just as means of a handover and making sure you’ve got everything down, that’s something I took from the skills labs to placement’. (A3/10)

This student went on to say:

‘yeah, I'm sure it's used on the wards as well I never like come across it on my medical wards and stuff in HDU and recovery and theatres it seems to be the default thing, everyone knows the ABCDE and that's the best way to recall the information...something I hadn't really realised before, from not working in that area but it's something you can take forward into future placements and you know kind of look like you know what you're talking about’. [laughs](A3/10)

Whilst the student had not seen this systematic approach utilised in general wards before, they recognised the potential for the application of a systematic approach to assessment as being valuable for other aspects of nursing care and future placements. This reflected the nurse educator’s view that once the students had learned the principles underpinning their skills they could be applied to different situations:

‘I see it more as learning, and whether learning’s applied in practice or whether it's learning applied to pass an exam, it's learning, and I think that's how it
should be, because once you have the learning, you can apply it anywhere’.

(NE6)

In summary, the adult students considered that the simulation had increased their confidence and they were able to give examples of when and how the simulated learning had transferred to their practice. This is comparable to the experiences of the mental health 2010 cohort.

7.2.4.2 Practice Issues

This focus group also discussed differences between simulation and practice. It was apparent that whilst the manipulation of the equipment was similar to the simulation, the skill delivery was different:

‘It's [inserting nasopharyngeal airway] very similar, the only difference in practice is that a person feels different to a dummy doesn't it, it’s a totally different feel, but you’re doing the same thing, after all this patient was unconscious the dummy's not speaking or gagging you're still doing the same thing, it's just not quite the same’. (A3/10)

Like the mental health students, the adult students also described observing practitioners delivering skills in practice:

‘sometimes as a student it was a good idea to take a step back and just try to work out what everybody was doing, cos you’d have somebody sorting out the airway and breathing and ... somebody else doing something you can’t quite make out cos there's somebody’s head in the way erm so to have the opportunity to step back and thinking, right so go back to what you learned and think 'yeah they're doing all that,' it helped you pull it all together’. (A1/10)

This student applied prior learning of the systematic approach to assessment of patients from both the theoretical and skills sessions in university to make sense of the resuscitation procedures. In contrast with the mental health students, this was viewed as an enhancement of their learning rather than an essential step.

The adult students also made reference to their mentors facilitating learning in practice. For example, this student described how the mentor discussed care prior to receiving patients in the resuscitation room:

‘I was with my mentor who was in resus a lot... [we would] go through the ABC's of setting up for an emergency’. (A2/10)
Students from all three fields of nursing acknowledged that whilst there were
differences between skills and practice there was value in the simulated skills and they
were ‘better than nothing’. This is reflected in this student’s comments:

‘I mean, in practice placement I guess the thing is it’s quite pressurised, in an
emergency situation like that you kind of do what's asked of you and
everything flies by and you don’t ask questions you just do it, and simulation is
NEVER going to be the same as that, but I personally think doing a little bit or
something, ‘well it might be like this’ is better than nothing so putting a naso
pharangeal airway in a dummy is better than not practicing at all you know, at
least it gives you some idea of where you’re putting it you know basics you
know, there’s definitely value in that’. (A3/10)

This student whilst recognising the differences between the simulation and practice
environment; such as pressure and the lack of opportunity to question and discuss the
care delivery, was able to see value in the approach. That is, having the opportunity to
actually perform the psychomotor skill and use the equipment.

Whilst the students perceived that simulation could be effective in preparing them for
their practice experience, they all agreed that they did not want simulation to replace
practice hours. This is reflected by this student’s comment:

‘I think that's pretty much everyone's view is that you learn how to be a nurse
on placements’. (A2/10)

‘I think it should go instead of the lectures, teach the stuff that they just tell us
in the lectures and actually show us rather than just tell us, I think that's
better, and let us practice it, but I think taking away from practice hours, I
think that's a bad idea’. (A4/10)

This viewpoint was shared by students from all three fields, that whilst simulated skills
had value, practice experience had more value. There was agreement that they did
not want to lose practice hours but would prefer simulation to replace teaching hours.

7.2.5 Child – Ward Scenarios and PICU skills day

The child students experienced two different models of simulation; the ‘ward
scenarios’ and the ‘PICU skills day’. These models were not aligned with a specific unit
of learning, therefore there was a lack of theory to underpin the simulation. In
addition, the simulation was not linked to the practice placement. This focus group
had six participants, in addition two second year students were interviewed
individually.
7.2.5.1 Outcomes of simulation

In contrast to the adult and mental health 2010 students this group were ambivalent regarding the value of simulation in preparing them for practice. For example, one student commented:

‘and when I did see it [resuscitation on PICU], and I was in that situation myself, I don’t think theory could have really helped with, unless you know obviously your basic life support and things like that your skills, that did transfer, but not the kind of assessing and deterioration of the baby, I think that just came with experience... but I never think that the deterioration of the doll [simulation scenario], made a difference to any of that, basic life support did, cos you got your skills from it that mandatory training and things’. (C2/09)

I was able to explore with this student what was meant by theory, skills and experience and it was apparent that the mentor’s preparation and their experience of other resuscitations in practice was valued more than the simulation scenario. I continued to seek clarification and found that they perceived that the psychomotor skills and the holistic assessment skills were different; consequently they had transferred in different ways. That is, in this student’s view the psychomotor skill of BLS had transferred to practice but the cognitive skills of assessment and decision-making had not. At this point there was consensus in the group and the transcript records that four of the six students nodded and agreed with this view. One of whom stated:

‘Yes, basic life support yeah [transfers], just not the simulation ’cos it’s not real and I don’t think anyone takes it serious’. (C3/09)

It would appear then, that for this group of students the psychomotor skills transferred but not the learning from the simulated resuscitation. This was not the view of the whole group as this student perceived that the coping mechanisms, rather than the psychomotor skills had transferred:

‘I quite like the pressure of that, cos I think, I don’t really take the clinical simulation away but I didn’t take the clinical skills away from it, it was more coping with the pressure and on placement we are going to be in situations where people are watching us do meds, people being slightly intimidating at times and I think it gives you ways to, as I said a minute ago, it gives you confidence to deal with the situation’. (C4/09)

These contrasting views demonstrate that the students’ perceptions of their learning and its transfer to practice varied even when they were all exposed to the same
simulation model. This diversity of views is comparable to both of the mental health focus groups. Another student in this group was dismissive of simulation and said:

‘it [simulation] did make me aware, but I didn’t take anything with me and what I do learn is what I learn on practice... not from Uni’. (C1/09)

Throughout the discussion this student maintained the view that they learned more in the practice setting. Yet, at the end of the focus group, whilst discussing skill development this student commented that they had never passed a naso-gastric tube. They explained:

‘I know it’s quite invasive, but I know how to measure it, I know how to put it down and I know how to test it, so anything was to go wrong I know it’s not going to, unless I feed the child, I know that I’m not really going to harm the child, so I think that's maybe where my confidence feels OK’. (C1/09)

When I questioned whether this knowledge and confidence had come from the skills session the student agreed that it had. Evidently, simulation had contributed to their skill development in some way and given them some confidence in this particular skill, although the student was reluctant to acknowledge this.

The benefit of simulation in allowing the student to familiarise themselves with the equipment, was recognised by this nurse educator:

‘it just goes down to the basics, manipulating the equipment, you know once you’ve seen and held something, then it’s not foreign to you anymore, is it? you know, you lose that sort of mystique around it, ‘actually I can do this’’. (NE3)

In the child group, there were disparate perceptions of whether and which skills had transferred. Some participants felt that the psychomotor skills had transferred whilst others felt that the cognitive skills had. In PICU the students had varying opportunities to deliver the skills which the simulation had aimed to develop. All of the student participants had performed suctioning and had cared for children with catheters and naso-gastric tubes. However, few students had opportunity to insert naso-gastric tubes or assist in changing a tracheostomy in practice, despite being allocated to critical care. Only two of the students had been involved in paediatric resuscitation. None of the students had the opportunity to catheterise a child and all students felt they would need additional support and guidance before attempting this procedure. Consequently, the students lacked confidence in this particular skill. One of the reasons given for this lack of confidence was that the students had not had opportunity to see it in practice.
‘It’s like you’re taught all these things, but because you don’t see it you can’t do it’, (C1/09)

It is apparent that this student felt that observing a skill and contextualising their simulated learning in the practice environment was an important step in their skill development. In addition, whilst several students felt confident with regard to certain skills, the group were unanimous that they did not feel confident about catheterising a child without additional support or guidance.

‘the catheter one I don’t know, I think I’d prefer to see that in practice’. (CB1/10)

The child students in both the focus group and individual interviews went onto say that this was due to the complexity of this particular intervention. Whereas they felt more confident with comparatively simple psychomotor skills, such as passing a nasogastric tube. This supports the nurse educator’s suggestion that the transfer of simulated learning may depend on the skill:

‘It depends, I think some would say yes, some would say no, some would say ‘no, I’ve only done it on a model’... it depends on the skill doesn’t it?’ (NE1)

The question of whether simulation had developed student confidence was also discussed in the child focus group. Both of the nurse educators responsible for the development and delivery of the child simulation models felt that simulation could develop student confidence:

‘give them opportunities that they may not have had already and give them confidence’. (NE1)

‘so that they have the confidence and ability in their skills to provide that level of care for patients, and to try and give them some confidence to question what they’re doing’. (NE3)

It is interesting to note that the practice educator aims not only to develop confidence in skills, but also for students to challenge practice. The question of whether simulation had increased confidence, as with their views on the transfer of simulated learning were varied:

‘I think it gives you ways to, as I said a minute ago, it gives you confidence to deal with the situation’. (C4/09)

This student felt that simulation had improved their confidence, in contrast C1/09 did not. Furthermore, this student perceived that simulation could damage confidence:
‘Yeah, I think it would like decrease my confidence cos I know the others are watching and then that’s making me think they think, now that I can’t do it, but I know I can’t do it, cos I don’t like the pressure, if that makes sense’. (C1/09)

In summary, the child students had disparate views regarding the outcomes of simulation and the transfer of simulated learning to their practice. As in the previous cases, this focus group also discussed differences in skill delivery in the practice setting.

7.2.5.2 Practice Issues

The child students described physical and emotional differences when delivering skills in practice compared to simulation. Examples given of physical differences included: the gloves being tricky to put on, the suction catheters coming apart and the children wriggling. These students were allocated to critical care placements which can be stressful environments to work in. In addition, there were other sources of stress which impacted on their skill delivery such as the need for expediency. During suctioning there is a risk that the child may require resuscitation if the procedure is prolonged:

‘Yeah its kind of the same [as skills], its tricky when you’ve got to take the, take them off the vent and go down the et tube and the same with the trachy really get them on, mainly the vent cos you’ve got to get them back on fast’. (C1/10)

‘suctioning erm and that wasn’t really any different than what we would do in practice, I think the only pressure that would be, was the fact that they were on the ventilator you'd have to disconnect them being able to do it in a quick amount of time’. (C1/09)

Both of these students referred to this contrast with practice. One of these students (C1/09) was in the focus group and the other (C1/10) was interviewed individually, which is a useful corroboration of findings as both students introduced this issue independently.

‘well its the same procedure, you use the same equipment and things the patient moves, the head doesn’t stay still and it can just be a bit tricky when they’re moving like when your putting the duoderm down’. (C1/10)

This student described additional physical differences between the mannequin in the simulation and a real patient. Students also referred to external sources of stress; for example, these students found that parental presence created additional pressure.
This pressure was caused by parental distress whilst observing an invasive procedure as demonstrated here:

‘it was a lot more difficult, trying to go through the nose, and if the baby's crying, and the parents are present as well and they’re distressed as well, you have a lot of stress’. (C5/09)

Also, parents of children with chronic conditions were perceived by these students as being more experienced and knowledgeable, with a good understanding of their child’s needs:

‘I think sometimes though parents know a lot more about it than you and that makes you feel’ (C6/09)

‘exactly’(C5/09)

‘a little bit more intimidated’ (C6/09)

These students discussed that some parents may not want a student to deliver cares to their child and that they felt intimidated by the parent’s level of expertise. Essentially, one of the main causes of stress in practice compared with skills simulation was that these were ‘real patients’ and therefore the importance of ‘getting it right’ was paramount. As demonstrated by this student’s reflections on performing cardiac massage on a patient:

‘it was a lot harder, because the patient was bigger, so you had to press down deeper and you had to put a lot of strength in it, so, but it was really different from doing it on a mannequin ... obviously its a real person and you're trying to save that person, the mannequin is just a doll, whether you do it right or wrong doesn't really make a difference’. (C5/09)

It is apparent that these students perceived differences to the delivery of clinical skills in practice. These included physical adjustments and also feeling under pressure either from the need for expediency or from parental presence. As parents are encouraged to stay with their child in hospital, parental presence is not unusual in the practice environment and it is important that students are prepared for these differences.

The need for the simulated learning to be re-enforced in the practice environment was discussed by the child focus group. They recalled a skills session in their third year which focused on advanced airway management. This session had not been aligned with their placement, and it was only during their current critical care placements that they were able to make sense of that session:
‘I remember now kind of going over in my head, like the tubes, intubation and stuff and I was like 'what is this? where does it even go' I couldn't even think about it was even though there was describing it for me and there was pictures and everything and I was 'I don't even understand'... I didn't get it at all, until you go on and you look after a child who is intubated and then you understand it’. (C2/09)

There was general agreement in the child focus group about this and the student went on to say that if they had that session now they would learn more from it; because of the nature of their current placement. This suggests that for these students if simulation is to be meaningful, it should be aligned to their practice placement and subsequently to the experiences they are likely to be exposed to. This is supported by the positive experiences of the adult focus group whose practice placement was in critical care areas which linked to their skill development.

The child students were less likely to make links between practice and simulation and were perhaps the most sceptical regarding the use of simulation to develop clinical skills. It was apparent when interviewing the nurse educator that skills were delivered in a more ad hoc manner and that simulation was not embedded in their programme:

‘yes I work with the unit leader, wherever the student is on that programme to try and integrate some time that fits with the programme... it has depended on the particular unit lead as to where they felt that went as well’. (NE1)

The delivery of simulation was determined by the availability of teaching hours; consequently the links to either the theoretical content or the placement allocation were not explicit. It would appear that learning could not be optimised as it did not link to their clinical placement; it was only during the current critical care placement that students could make links to the advanced airway management session delivered previously.

It was clear that the students developed clinical skills in a number of ways. For example, one student described how they changed a tracheostomy with their mentor’s support, despite having received no prior instruction or observing this skill before. It would seem that this student felt comfortable to try to deliver this skill because of the mentor’s support and guidance:

‘it depends what it is and what level of supervision there, I'd be happy to do things when I’ve never done it before, even maybe I’ve not seen it before, if there's someone who knows what they’re doing there next to me, telling me what to do, some things don't come up that often and if you want the experience in it you have to take the opportunities when they come.’ (C4/09)
This quote demonstrates that skill development does not necessarily require simulation as a precursor. This student raised the issue of opportunities for skill development not always being readily available in the practice setting. This is a limitation of practice that was acknowledged by a number of students and in the nursing literature (Moule et al., 2008, Murray et al., 2008).

One child student discussed a benefit of simulation was that they had identified gaps in their learning which they subsequently addressed with their mentor:

> 'but then suctioning definitely, because I was confused about et tubes and how you measured it, and definitely had that clarified and then I've been able to use that, transferred to placement, then I've gone through with my mentor all the dead space and the size so I do more, so I've been able to transfer them'.  
> (C1/09)

As in previous cases the mentor’s role was perceived to be central for students’ skill development. In the child focus group, one student raised the issue of the limited opportunity for some skills in practice and suggested that simulated skills provided students with some knowledge in preparation for delivering skills in the absence of ‘real experience’:

> 'yeah, I don't know, it is, its definitely useful but I would say doing it in practice is more useful and being taught them skills in practice is more useful, but if you don't ever get to pass an ng tube and you've never seen that process then its good to know it beforehand'. (C1/10)

This compares with MH6/09 view (page 195) that whilst they were not developing skills in practice; they were satisfied that they had opportunities in simulated skills. Whilst the child students perceived that simulation could be effective in preparing them for their practice experience; they all agreed that they did not want simulation to replace practice hours. As in the previous cases, simulation was viewed as ‘better than nothing’, in the absence of opportunities in practice. The perceptions of each case have been presented in this section. The following section will synthesis this data and present the across-case analysis.

### 7.3 Across-case analysis

The across-case analysis is presented using the three minor themes; transferred to practice; contrast with practice and the value of practice.
7.3.1 Transferred to practice

Students from all cases felt that simulation had a role in preparing them for practice either by raising awareness or developing basic skills which they perceived had value. A number of students perceived that simulation had given them some confidence, whether this derived from underpinning knowledge and critical thinking skills or familiarity with the equipment. Whilst predominantly from the mental health 2010 and adult focus groups, there were representatives from all cases who shared this view. However, this was not the experience of all students. Several students from the child and mental health 2009 cases reflected that not only had simulation skills not increased confidence but they felt that it had damaged their confidence.

A number of links are apparent across the cases. Students from both the adult and mental health 2010 focus groups were able to provide examples of where they perceived that simulated learning had supported them in providing care in the practice setting. These six students were all categorised in the typology presented in section 6.3 (page 179) as ‘Type A’, this category valued simulation and engaged willingly. In addition, these students perceived simulation as authentic as shown in table 6.4 (page 184). As presented in this chapter the same students felt that simulation had increased their confidence. This indicates a possible link between student engagement, perceived authenticity of simulation, confidence and the transfer of learning, this will be discussed further in chapter eight.

The key informants and nurse educators considered that simulation was a useful adjunct to prepare students for practice. Whilst there was an element of caution expressed regarding the transfer of simulated learning, two key informants and two nurse educators felt that this transfer could happen. The two focus groups which were able to provide examples of simulation supporting care delivery in practice were the adult and mental health 2010 groups. Both of these simulation models aimed to develop a set of skills with explicit underlying principles. The adult simulation aimed to develop critical thinking skills which underpinned a systematic approach to the assessment of a patient. In a similar approach, the mental health simulation aimed to develop a set of core skills and values which could be applied to different settings. For these students it would appear that this was an effective approach to skill development which could be applied in practice.

It was evident that all of the student participants except the adult focus group held quite disparate views regarding whether simulated learning had transferred. A number of factors were discussed which may have impacted on transfer. These included: skill complexity, alignment of the delivery of simulation with placement and the mentor’s style of facilitating learning. The nurse educators demonstrated some insight into these factors. These findings will be discussed in chapter eight.
7.3.2 Contrast with practice

Students from all cases described differences to skill delivery in the practice setting. The child and adult students both discussed physical and emotional differences but held the view that simulation was ‘better than nothing’. Whilst the two mental health focus groups also discussed differences in practice, the 2009 students who had experienced the ‘recorded role play’ found the necessary adjustments challenging. As explored in section 7.2.2 (page 190) the dual focus of preparing students for both practice and the unit assessment may have contributed to this perception; as the students expected the same rigid approach to client assessment to be used in practice. By contrast, the 2010 cohort seemed to prefer the reflexive and informal approach implemented in practice.

7.3.3 Value of practice

A lack of opportunity to observe or deliver the newly acquired skills in the practice environment was identified by students in all cases. Two factors appeared to influence whether the opportunity for this presented, that is the alignment of placement with learning and the facilitation of the mentor. These opportunities may have been limited because of the nature of the placement, the opportunity to develop the skill genuinely not arising during the student’s time on placement or the mentor not facilitating learning. The need to see and contextualise their skills in the practice setting to re-enforce learning was emulated by students in different cases. In summary, it would seem then that the mentors have a multi-faceted role in the practice setting of demonstrating skills, addressing identified gaps in learning and offering support and guidance to students to enable them to become more confident.

7.4 Summary

This study has provided some evidence that simulated learning can transfer to practice but that this process is not straight forward. Students recognised that simulation is not the same as practice, but can be beneficial in preparing them. Alignment between simulation and practice placement was more advantageous in assisting students to contextualise their skills. Students appeared to have some awareness that adjustments were necessary when delivering skills in practice and the practice mentor had a key role in the student’s skill development. If students are taught the underlying principles of skills, they may be more readily transferred to numerous situations.

This insight into how students transferred simulated learning is important as educators need to manage student expectations. If students are aware that ‘adjustments’ to their skill delivery may be required, they may be better prepared for practice and should be able to maximise on available learning opportunities in the practice setting.
Chapter 7 summary:

- Some students were able to provide examples of the transfer of simulated learning to their practice.
- Contextualising learning in the practice setting appears to be an important step.
- Students described having to make adjustments to skill delivery in practice.
- Students do not want practice hours reduced and valued practice learning more.
- Opportunities in simulation are viewed as ‘better than nothing’.
Chapter Eight

Discussion

8.1 Introduction

The findings presented in this thesis challenge three key assumptions made by the NMC when they endorsed the replacement of practice hours with simulation. The first is that there is a shared understanding in nursing regarding what simulation is. Secondly, that simulation is delivered in a ‘safe environment’ and finally that competence demonstrated in simulation transfers seamlessly to practice (NMC, 2010).

The research question for this study asked:

Does simulated learning support nursing students to provide direct care in the practice setting?

On consideration and investigation of this primary question a number of research aims were developed:

- To explore students’ understanding of simulated learning.
- To explore whether simulation has an impact on students’ perceptions of being prepared for practice.
- To explore students’ perceptions of if/how simulated learning transferred to practice.
- To explore nurse educators’ understanding of the term ‘simulation’.
- To explore nurse educators’ expectations of simulation.
- To explore nurse educators’ perceptions of how simulation can be used to prepare students for practice.

As a result of addressing these aims, this study has obtained insight into how simulation can support students to provide direct care in the practice setting, and highlights the fact that this is not always a straight forward process. Chapters five, six and seven presented the findings related to student participants’ perceptions of simulation and its impact on their practice. The views of both nurse educators and key informants on the use of simulation in the pre-registration nursing programme are also presented. These findings challenge the assumptions made by the NMC. They raise a number of issues for further consideration and exploration namely: ambiguity regarding the concept of simulation, student safety during simulation, student perceptions of authenticity and finally the transfer of simulated learning to practice. These will be discussed in the next section followed by exploration of an emerging conceptual framework. The following sections present consideration of the issues of rigour and reflexivity and the strengths and limitations of this thesis. Finally, pertinent
issues for practice and future research which have arisen from this study will be
discussed and questions regarding the use of simulation in pre-registration nurse
education raised.

Ritchie and Lewis (2003) proposed that the final stage of data analysis is developing
explanatory accounts from the descriptive accounts. This is the process of looking for
explanations of the findings and situating these within the current knowledge base. In
the following section, the main findings of this study will each be discussed using
current literature and learning theories to provide possible explanations.

8.2 Main findings of this study

8.2.1 Ambiguity regarding the concept of simulation

One important finding was the level of ambiguity regarding the concept of simulation
and in particular, whether clinical skills and classroom activities were considered to be
defined as simulation. This lack of clarity in the way simulation is labelled has been
noted in both nursing and medical literature, the findings of this study indicate that
this ambiguity still exists. In the nursing literature authors labelled the same activities,
such as recording blood pressure, as both simulation and clinical skills (Baillie and
Curzio, 2009a, Baillie and Curzio, 2009b, Houghton et al., 2012). This lack of clarity
and consistency in the language used has been noted by Harder (2010) and Groom et
al. (2013) when reviewing the evidence base. This has resulted in Groom et al. (2013)
calling for standardisation of the terminology used. The findings of this study have
demonstrated that this recommendation has not been implemented to date. In the
medical literature, Rall and Dieckmann (2005) noted that the term ‘simulation’ was
problematic to define, which indicates that this lack of clarity is not confined to nurse
education.

Qualitative interviews in this case study enabled in depth exploration of the nurse
educator participants and key informants’ understanding of simulation. In chapter five,
table 5.2 (page 146) showed that the majority of these participants described
simulation as an ‘umbrella term’ which included a wide range of activities. However,
there was some ambivalence in these participants’ views regarding the critical
attributes of simulation which were varied and lacked consensus. The critical attributes
of simulation identified by the nurse educators and key informants replicated some of
those characteristics identified by Bland et al. (2011) as shown in table 5.4 (page
157). Whilst this concept analysis was not informed by empirical evidence; the
findings of this study would appear to demonstrate some degree of shared
understanding of the concept of simulation between the participants and the nursing
literature. The study participants referred to replication, experiential learning, linking
theory and practice and providing opportunities for feedback. In addition, they also
referred to a focus on skill development and learning in a safe environment as key attributes of simulation. These were not identified by Bland et al. (2011) and could inform the development of this concept analysis. Not surprisingly, the same attributes are embedded in the definition of simulation adopted by the Schools newly developed simulation strategy:

’a teaching and learning method within which a real life task, event or experience is recreated, with the aim of providing a safe learning environment, for the acquisition of skills, knowledge and behaviours’.

(BN Curriculum Handbook, 2011)

Therefore, if this definition is accepted by the School, the activities discussed by the participants in this study would be considered to simulation. That is, clinical skills would be included within the ‘umbrella term’ of simulation.

It was evident in this study that several participants believed that their colleagues considered that only high fidelity simulation should be labelled as simulation, to the exclusion of clinical skills. This narrower definition of simulation was exemplified during data collection in the practice setting when the manager of PICU challenged the labelling of the ‘PICU skills day’ as simulation (section 5.3.4.1, page 151). This was explored with the educator who described an attitude of ‘exclusivity’ regarding the use of high fidelity simulation on the unit. This lack of shared understanding was considered by several nurse educators to have been a barrier when developing simulation (see data excerpts, page 152).

The way that simulation was introduced to healthcare from aviation may explain the association of simulation with high fidelity simulation. As discussed in section 1.4 (page 19), high fidelity simulation was adapted from aviation and introduced to healthcare (Bradley, 2006). The development of high fidelity simulation since then has been linked directly with improvements in technology (McGarry et al., 2014). The participants in this study described how the manufacturers of the mannequins advertise and promote simulation as an exclusively high fidelity activity (section 5.3.4.2, page 153). Conversely, nursing has utilised clinical skills training and role play for a number of years. As Tanner (2006) suggested, simulation is nothing new in nursing, this view was shared with one key informant who commented that simulation was simply a ‘new bit of the language’ (see data excerpt, page 153). Consequently, two approaches to learning and teaching; one well established and one relatively new to nurse education have been conflated. However, as demonstrated by this thesis, nurse education has yet to reach consensus regarding acceptance (or rebuttal) of an inclusive definition of simulation.
The ambiguity regarding the concept of simulation has been exacerbated by the lack of guidance from the NMC following their proposal to replace practice hours with simulation (NMC, 2007a). In the absence of clear guidance determining which activities can be used to replace practice hours; the use of these hours is open to interpretation at local level. The NMC does however, state that education providers must audit the provision of simulation which ultimately, is monitored by the NMC (NMC, 2007a, NMC, 2010).

The audit tool introduced for this purpose by the NMC (2007a) was not evidence-based but was developed from the evaluation tool used for the Simulation and Practice Learning Project (NMC, 2007b). Nevertheless, the NMC have stipulated that these principles should be utilised to audit simulation provision. It was of interest then to consider whether the NMC have monitored the use of simulation post 2007. A search of the NMC website produced no evidence of this, therefore a key informant was selected to gain further insight of this issue.

This key informant was chosen because of their role as Lead for quality assurance in the School. The School of Nursing at the selected university had been awarded self-monitoring status at the last validation event held by the NMC in 2011. This means that the university is required to complete an annual, self-assessment programme monitoring report. In addition to this, key issues are identified by the NMC each year which approved institutes must report on. This participant reported that the NMC had not scrutinised the use of simulation hours at the validation event, nor asked any questions pertaining to the use of simulation in the subsequent annual reviews.

Importantly, this lack of audit of simulation hours by the NMC was highlighted by Handley and Dodge (2013) who reported a scoping exercise undertaken in the UK. This project aimed to inform the development of simulation at their university in light of the lack of guidance or evidence base. These authors stated that the NMC had not made any efforts to evaluate the implementation of simulation. They argued that it was difficult to justify investment in the development of simulation in the absence of evidence which demonstrates an improvement in nurse education and a positive impact in practice. Interestingly, a report by the Council for Healthcare Regulatory Excellence in their strategic review (CHRE, 2012), commissioned by the Department of Health, has also criticised the lack of clear and consistent strategic direction by the NMC. The CHRE (now known as the Professional Standards Authority) have directed the NMC to focus on their regulatory function and reduce the work on policy and standards. This would suggest that the audit of the use of simulation to replace practice hours will not come under scrutiny any time soon.

The proposal to use simulation to replace practice hours is not mandatory and without clear guidance there is a risk for the development and use of simulation in the nursing
curriculum to be variable and ad hoc. Handley and Dodge (2013) reported that the four leading UK simulation centres failed to meet the NMC audit principles (NMC, 2007a). The authors identified a lack of established partnerships with practice in the delivery and development of simulation. In addition, a lack of evaluation of competency in practice following simulation was reported. These are two of the five principles introduced by the NMC with which to audit the use of simulation. If these simulation centres do not satisfy all five principles, it seems unlikely that any AEI would be able to achieve them.

There has been no clear mechanism to date which ensures that the recommended 300 hours of practice learning are being replaced with quality provision of simulation. In addition, there has not been any national study to evaluate the use of simulation in the pre-registration nursing curriculum in the UK. This lack of evaluation of curriculum change introduced at a national level has been reported previously by Roxburgh et al. (2008). This paper reported a review of the evidence base on curriculum evaluation related to Project 2000 (UKCC, 1999) and Making a Difference (DoH, 1999) curriculum. The authors found that there was a paucity of papers which addressed content, process and outcomes of curriculum (which could usefully be applied to simulation). They concluded that there is a need for evaluation of all three components if future developments are to be evidence-based rather than opinion led. These observations link with this study as the NMC have introduced the use of simulation to replace practice hours but failed to monitor its use and the impact on practice.

In summary, this section has explored the lack of clarity and consensus regarding simulation found in this case study. This centres on whether simulation is considered to be a continuum which includes clinical skills, or is exclusively high fidelity simulation. The findings indicate that whilst the study participants refer to simulation as an umbrella term, there remains a lack of consensus regarding this question. This appears to have had some influence on the perceptions and development of simulation in the School. It has been shown that there is a lack of guidance and evaluation at a national level for the use of simulation in pre-registration nurse education. Consequently, the School has introduced a simulation strategy and defined simulation in order to address this issue at a local level. The next section will explore the participants’ perceptions of student psychological safety.

8.2.2 Student safety in simulation

An emerging theme in this study relates to student and nurse educator perceptions of student psychological safety in the simulation environment. This was unexpected as there is a belief evidenced in both the literature and initial participant responses that simulation provides a ‘safe environment’ for skill development.
Three of the focus groups discussed heightened anxiety during simulation. The child students stated feeling uncomfortable being observed by their peers. This caused an expectation of negative judgements. This case worked in large groups which were unfamiliar. Similarly, the mental health 2009 focus group used very negative language to describe experiences which had happened one year earlier. Their main cause of anxiety and discomfort was also being observed by their peers. This appeared to have been exacerbated by the fact that the groups were newly formed and they had not had time to form supportive relationships. The live feed used in this model concealed the observers and their reactions from the student participating in the simulation; this provoked a sense of dread in several of the students. This translates to a lack of psychological safety in these situations which is not the desired outcome when conducting simulation.

Recent papers have explored the issue of student safety in simulation. Ganley and Linnard-Palmer (2012) questioned how ‘academically safe’ the high fidelity simulation environment was for students, they noted potential risks to students which included academic failure, embarrassment and negative judgement by faculty and their peers. Stewart et al. (2010) found that students experienced raised levels of anxiety being observed by their peers in simulation but, on reflection, recognised its value in preparation for practice. This resonates with the findings of this case study (see data excerpts page 162 and 169), these participants could be categorised as ‘type C’ in the typology developed and presented in chapter six (table 6.3, page 180). These students felt anxious during simulation but in hindsight could see value in the approach. Stewart et al. (2010) also found that one student perceived that the simulation had increased, rather than alleviated, anxiety regarding future placements. This kind of reaction was noted by Nielsen and Harder (2013). They found that increased levels of anxiety may have impacted negatively on performance in simulation and suggested that this may affect students’ long-term performance. This case study has provided some empirical evidence to support their assertions.

By contrast, the mental health 2010 focus group undertook skills in the same room as their peer group, making responses apparent and students could ‘freeze’ the scenario. This approach facilitated both collaboration and reflection on the delivery of core skills and was generally well accepted. An important difference between and the simulation model used for the 2009 mental health focus group was that students were not expected to participate, nor were they assessed in the core skills. However, interestingly, one student, who elected not to participate because of discomfort, still articulated learning from observing the process.

The other group who indicated positive responses were the adult students who worked in small groups of four. These students reported feeling comfortable with their peers
and collaborating to solve the problems presented to them in the scenarios. This excerpt from my field notes demonstrates that students were able to consult with each other during the simulation scenarios:

'at one point she was stuck and asked the other students for help'.
[Excerpt from field notes July 2012]

This observation was corroborated during the focus group. One student, in describing a discussion on care delivery, made a direct link between safety and the small and familiar group, and highlighted the benefit of sharing knowledge and experience (see data excerpt, page 173).

A major strength of using a qualitative approach and collecting data via interviews in this case study, meant that emerging issues were explored in depth. It was apparent that a major cause of anxiety for these students was, as reported in the literature, being observed by their peers. The case of the mental health 2009 students who experienced the ‘recorded role play’ simulation model reported the highest levels of discomfort, suggesting that ‘who’ is observing the students, and in what circumstances, most influenced their anxiety levels. Clearly the group size, familiarity and group dynamics strongly affected students’ level of discomfort. This finding was substantiated by the positive reactions found in both the mental health 2010 and adult focus groups who valued the support given by group members (see data excerpts, page 169 and 173). Student participants generally preferred small groups and appreciated that it was a ‘protected group’ in which friendships could form and they felt comfortable offering advice to each other. Both the adult and mental health nurse educators referred to the importance of promoting group collegiality, which appears to have been an effective approach to supporting these students in simulation. These issues were not discussed by the authors of three papers which aimed to develop recommendations to support students in simulation (Nielsen and Harder, 2013, Ganley and Linnard-Palmer, 2012, Walton et al., 2011).

It is known that there is a strong affective component to learning which can exert a powerful effect on learning (Kneebone 2005). It has been suggested that any new learning experience is likely to cause some anxiety which can enhance performance (Melincavage, 2011). However, if anxiety levels are too high or low this may have a detrimental effect (Yerkes and Dodson, 1908). The student participants in this case study described physical symptoms of anxiety including palpitations, sweating and a dry mouth. These students perceived this anxiety impacting on their performance to varying degrees (see data excerpts, page 161 and 168). Several student participants in this case study perceived raised anxiety to have had a negative impact on learning in simulation. Student nurses are expected to demonstrate competence in delivering skills in practice which usually occurs in a ‘one to one’ situation with their practice.
mentor. By contrast, simulation requires students to ‘perform’ in front of an audience made up of their peers, which apparently was not perceived by these students to be the ‘safe environment’ that is promoted.

Across-case analysis demonstrates that students across three cases experienced varying degrees of discomfort. These findings indicate that whilst there may be an association between the simulation model and student experience, this does not explain all of the variations in student perceptions. There appear to be additional factors which may have influenced the student responses to simulation and their perceived levels of comfort.

As presented in chapter six (section 6.3.1.2, page 181) there was an indication that students had different preferred learning styles. One mental health student described benefitting from observing a demonstration, but felt uncomfortable sitting in front of the group and participating in the role play. By contrast, another student from the same case, appreciated the opportunity for ‘hands on’ learning and felt safe to try ‘new things’ (see data excerpts, page 168). These findings resonate with those of an earlier study. Fountain and Alfred (2009) reported findings which suggested that some students benefitted from observing simulation rather than taking an active role and hypothesised that this may minimise anxiety and promote comfort in these sessions. The authors concluded that simulation may have the potential to meet the learning needs of two diverse groups of students. Whilst the findings of this case study support this assertion, there is limited evidence to draw conclusions. This was reported by Nielsen and Harder (2013) who were unable to find conclusive evidence correlating learning styles and anxiety in a review of the literature.

These different learning styles and needs of students could present a dilemma for nurse educators. Whilst some students find experiential learning to be beneficial, others feel exposed and vulnerable when being observed as reported in chapter six. Currently, there is an expectation for all students to participate in simulation at the university. Adjusting delivery to allow students to choose which activities they participate in, may alleviate anxiety which could ultimately have a positive impact on student learning and confidence.

In summary, it would appear that whilst student safety was an emerging theme in this case study, it is also an emerging issue in the literature (Ganley and Linnard-Palmer, 2012, Nielsen and Harder, 2013). It has been suggested that simulation may not be the optimum learning and teaching approach for all students (Baxter et al., 2009, Fountain and Alfred, 2009). However, there is limited evidence to support this claim. This case study provides some insight into how students experience simulation and the causes of raised anxiety. Being observed was reported as the main cause of discomfort but in particular who was observing the student appeared to be influential.
The students appreciated small and familiar groups, which appeared to promote safety. In addition, it has been shown that the simulation model used can influence the level of exposure experienced by the students. A further consideration is how authentic students perceive the simulation experience, this is presented in the next section.

8.2.3 Authenticity of simulation

How authentically simulation is perceived by a student may affect their response to the activity and the level of learning they obtain from it. There is an assumption in the literature that authenticity in simulation increases in tandem with the level of fidelity. However, they do not necessarily co-exist. As defined in section 1.3 (page 17) fidelity is the ‘degree of exactness which something is reproduced’ and authenticity is how this is perceived by the individual learner. Therefore, whilst the educator may aim to provide high fidelity simulation, the student may, or may not, perceive this to be realistic. The findings of this study have highlighted a number of factors which may influence this perception. These include: involvement of service users and nurse educators in role play, students expected to adopt a different role to their own, the focus on addressing assessment criteria, being observed by their peers and being recorded.

This perception of authenticity was found to be an important influence on students’ engagement with simulation in this case study. Half (n=10) of the student participants representing three cases, made negative comments regarding the authenticity or how ‘real’ they perceived the simulation to be (table 6.4, page 18). The groups which were the most sceptical about the authenticity of the simulation were the mental health 2009 (n=4) and child (n=5) students. Participants from these groups described the simulation as ‘false’ and feeling ‘foolish’ and ‘ridiculous’ (see data excerpts, page 165 and 177). Different elements appeared to influence students’ perceptions of authenticity. For example, one mental health student found it implausible that the lecturer was pretending to be an 80 year old client with dementia. So although the nurse educators used ‘real case scenarios’ to increase the fidelity of the simulation, the students did not perceive this as authentic.

Two second year child students struggled to role play and communicate in a new role with their peers, feeling that they would not be taken seriously. They found that the role change had a negative impact on the perceived authenticity. In contrast, the adult focus group, did not raise the issue of the ‘adult assessment scenarios’ lacking authenticity. Whilst one adult student recognised that the simulation ‘was not the same’ they could see value in the activity and was able to learn from it.
The need for authentic activities for learning is a key concept of situated learning theory. This theory proposed that learning will only take place when embedded in the social and physical context within which it will be used (Brown et al., 1989). Brown et al. (1989) argued that students needed to be exposed to the ‘ordinary practices of a culture’ (page 34) which they labelled as ‘authentic activity’. Whilst simulation may aim to deliver these ‘ordinary practices’, a number of students did not perceive the activity as authentic. Brown et al. (1989) argued that activity, concept and culture were interdependent and for learning to take place, students must be exposed to all three. This is the basis for the model of ‘cognitive apprenticeship’ which Collins et al. (1989) developed in order to adapt the social context of learning to a classroom setting. These authors aimed to recreate the traditional ‘master-apprentice’ model whereby the master demonstrates a skill, the apprentice attempts the skills with the masters’ guidance and eventually the apprentice can deliver the skill independently. These stages are labelled by Collins et al. (1989) as modelling, coaching and scaffolding. Modelling provides the student the opportunity to observe the expert performing the skill and develop conceptual understanding of the process. Coaching allows the student to perform the skill with guidance and feedback from the expert. Scaffolding is the process where the student enforces the learning by practising the skill, with support from the expert which lessens until no longer needed. Central to this model is that the thinking which accompanies the skill is made explicit. In addition, it is recognised by these authors that learners develop conceptual understanding by undertaking real world activities.

The model of situated cognition (Collins et al., 1989) relates to the work of Lave and Wenger (1991) on situated learning; they proposed that learning was influenced by social processes, experienced in a ‘community of practice’. By inter-acting with experts and undertaking real world activities the learner undertakes ‘legitimate peripheral participation’. The central tenet of this theory is that context is of critical importance for learning.

In the simulation environment, the ‘community of practice’ is problematic on a number of levels. All participants are ‘acting’ and as demonstrated in this case study are acutely aware of this, compared to the ‘real world of practice’. Lave and Wenger (1991) believed that skill mastery resides in the community of practice, which students observe initially via ‘legitimate peripheral participation’. In addition the authors proposed that participation shifted from the periphery, as an observer, to a central and fully functional role. This is comparable to students on practice placement, who observe practitioners, then undertake skills with guidance and gradually work independently. However, in the simulation models used in this case study, students were expected to participate fully immediately, for example ‘leading’ the assessment
of an acutely ill adult, or ‘communicating’ with a service user. This was challenging for several students.

In this case study perceived psychological safety and the authenticity of the simulation both appeared to influence student engagement and learning in simulation. Perceptions of authenticity were influenced by a number of factors which were described by the students from three cases. The application of situated learning theory provides insight into the importance of learning being perceived as authentic. There appears to be a link between students’ perception of authenticity and the transfer of learning to practice. All of the students who were able to provide examples of the transfer of simulated learning to practice, perceived simulation to be authentic or valid. Whilst this may seem obvious, the literature and research to date has not focused on the issue of authenticity in simulation. This is worthy of further exploration, and will be discussed in the next section.

8.2.4 Transfer of simulated learning

It has been suggested that if students perceive simulation as authentic there is an increased chance of learning being transferred to practice (Pike and O’Donnell, 2010, Handley and Dodge, 2013); but these are opinions unsupported by empirical evidence. This case study has provided some evidence that this may be the case. Chapter seven showed that whilst some students were able to provide examples of simulated learning transferring to the practice setting, others could not. Of some concern was the finding that a small number of students perceived that the simulation experience had had a negative impact on their performance in practice. Data analysis showed that all of those students who were able to provide examples of the transfer of simulated learning had engaged in simulation and viewed the experience as authentic (see table 6.4, page 184).

The mental health 2009 cohort experienced the ‘recorded role play’ simulation model which was assessed via OSCE. This meant that each week there was a clear focus for the simulation as the students progressed through the unit of learning. This focus group discussed how each simulation session addressed different issues ‘in a rigid and tick box way’ because of the assessment. This approach appears to have conflicted with the preparation of students for practice, in that there was an expectation to address each of these core skills. When these students went into practice, they found a number of differences in the approach to the assessment of clients; staff used a more informal and yet comprehensive approach to assessing service users. Clients frequently had more than one issue that required assessment. Whilst one student was able to adapt to this approach, others struggled to adjust. For example, one student laughed as they had continued to ask the client questions about feeling suicidal when they had already said they did not have suicidal feelings. Another student described
feeling panicky if the assessment did not follow the prescribed format experienced in simulation. One of the nurse educators acknowledged that the focus on preparing for the assessment may have detracted from what could have been ‘a very real practice situation’ (see data excerpt, page 192). This demonstrates that the nurse educator believed the simulation delivered was an authentic activity.

The mental health 2010 cohort participated in sessions which were quite relaxed and the students or educator were able to freeze the scenario to discuss arising issues. Two out of three student participants in this focus group were able to provide examples of how they perceived simulated learning had transferred to their care delivery in practice. Aspects of this were discussed in the group through the collaboration and reflection embedded in this approach. For example, when observing this simulation model, the seminar group froze a scenario in order to discuss different students’ experiences of practice:

‘the scenario was frozen to discuss accepting drinks, how this may establish a rapport’. [Excerpt from field notes May 2012]

Thus, aspects of practice were introduced in to the simulation scenario via this discussion.

The ‘PICU skills day’ focused on psychomotor skill development and was delivered in the practice setting, therefore this simulation was embedded in practice. However, these students did not have opportunities in practice to utilise their simulated learning. One child student (see data excerpt, page 208) considered observing skills in practice as a critical step for learning and this opinion was reflected by the whole child focus group in discussion. This is interesting as students from each case considered observation of skills in practice to be important for their learning. In other words, to see the skills ‘modelled’ by an ‘expert’, in the ‘real’ context of practice.

By contrast, the ‘adult assessment scenarios’ aimed to develop critical thinking skills utilising a systematic assessment. This approach to assessment was observed by all the adult student participants during their practice placements. The focus on cognitive development appeared to facilitate application of this approach to various situations. For example, one student was able to provide examples of the application of the systematic approach in other situations such as handing over patients and documentation (see data excerpt, page 203). These students all perceived the simulation experience as authentic and three students were able to provide examples of where simulated learning had transferred to their practice.

Importantly, the two models which appeared to be perceived as authentic, the ‘adult assessment’ and ‘seminar role play’, incorporated characteristics proposed by Brown et al. (1989) to promote learning. The ‘adult assessment’ utilised actual patient
scenarios and was delivered in a realistic ward environment. Students worked in
groups of four which was reported as facilitating collaboration and given the
opportunity to handover their ‘patient’ at the end of the scenario, encouraging
reflection. Educators gave prompts and answered questions throughout, thereby
coaching learning. Therefore, this simulation model facilitated application of
conceptual tools in an authentic activity, which was supported through collaborative
working and coaching.

The ‘seminar role play’ utilised real life scenarios using service users. This provided
the students with the opportunity to apply the conceptual tools delivered in the lecture
to an authentic activity. Whilst this simulation model was delivered in a seminar room,
the use of ‘freezing’ the scenario facilitated collaboration and coaching. Students were
able to consult with their peers and educators and explored aspects of their practice.

Differences can be noted in the models experienced by the mental health 2010 and
child students. Both of these focus groups included students who did not perceive the
simulation as authentic, primarily because of the role played by either themselves or
by the educator. Neither of these models promoted collaborative working or coaching;
this may begin to explain the differences in student experience. However, it should be
noted that different students perceived the same activities in different ways. For
example, in the mental health 2010 delivery, whilst two of the students perceived the
simulation model to be authentic the third did not. Similarly, in the mental health
2009 focus group, one student perceived the experience as valid.

It would seem that there may be two potential advantages to adopting an authentic
learning environment; reducing student anxiety and increased transferability of
learning. Further research would be necessary to explore this. Chapter six presented
findings which suggest that it is important that students perceive the activities as
authentic or there may be problems with student engagement. This section has
proposed that improving perceived authenticity may result in greater student
engagement and ultimately learning.

It has been reported in the literature by Rourke et al. (2010) and Kaakinen and
Arwood (2009) that there was a lack of theoretical frameworks to support the use of
simulation in nurse education. This finding reflects those in this study, as none of the
nurse educator participants referred to a theoretical framework underpinning the
operationalisation of simulation. These papers argued that the use of theory to
develop simulation could bring coherence and validity to the operationalisation of
simulation. In addition, Kaakinen and Arwood (2009) noted that simulation is
predominantly used as a teaching approach, rather than a learning one. That is
focussing on teaching skills rather than learning concepts. The authors argued that
learning based simulation could develop higher order skills such as critical thinking.
This resonates with the findings of this collective case study as the adult simulation models aimed to develop critical thinking skills which appeared to transfer to practice. It would seem that by incorporating the approaches described above, which are embedded in situated learning theory, simulation may have potential to meet students varying needs.

Ultimately, the goal of nurse education is to prepare students for practice. The concept of ‘teaching for transfer’ is not new in nurse education, this approach has been advocated by Lauder et al. (1999) and more recently by Benner (2009) in the recent publication ‘Educating Nurses: A Call for Radical Transformation’. Benner (2009) stressed the importance of making links with practice explicit and contextualising learning. It is acknowledged by the author that simulation has potential to promote this. However, as demonstrated in this study, the authenticity of simulation and transfer of learning cannot be assumed and learning may only transfer under certain circumstances. The use of a theoretical framework and the development of authentic activities, could enhance this process and warrants further study. Due to the complexity of this process, demonstrated by these findings, this exploration is challenging. This will be discussed in section 8.6.

### 8.3 An emerging conceptual framework

This section introduces the emerging conceptual framework which has been informed by the findings of this study. A conceptual framework is defined in various ways by different authors (Ravitch and Riggan, 2012). Concepts are abstract ideas expressed in words, and a conceptual framework aims to explain the relationships between these concepts. Whilst conceptual frameworks can inform a research study, they can also be the product of a study. Critically, they are constructed rather than discovered and can be a useful way to contextualise and present findings (Ravitch & Riggan, 2012).

The findings of this study have identified three key concepts in relation to the students’ experience of simulation; safety, authenticity and engagement. There is an indication that student perceptions of safety and authenticity in simulation may influence how they engage with the activity. It has been shown that the outcomes of this engagement may impact on both learning and the transfer of simulated learning to their practice. These three concepts are what Layder (2013) referred to as ‘ready-made’ concepts compared with ‘emergent’ concepts. The concepts of safety, authenticity and engagement are already understood and are not the product of this study. Firstly, it is important to define these three concepts in relation to the conceptual framework. Safety refers to student psychological safety rather than physical safety. Student participants described experiencing high levels of anxiety and physical symptoms of this. Authenticity refers to how genuine or valid the student perceived the simulation to be. Finally, engagement refers to the student participating
in the simulation as expected. Miles and Huberman (1994) suggested that a conceptual framework could be explained in either a graphic or narrative form to illustrate the relationships between the concepts. Figure 8.1 is a representation of the emerging conceptual framework:

**Figure 8.1 Emerging conceptual framework of the student experience in simulation**

The relationship between the three concepts will be explored in the following sections.

**8.3.1 Safety and Engagement**

The relationship between safety and engagement was shown to be of importance. If students did not feel safe they were reluctant to engage in the activity. The only simulation model which allowed students to choose whether to participate was the mental health 2010 'seminar role play'. This group contained students representing different viewpoints. Whilst one student chose not to engage, because they did not feel comfortable in front of the large group; another overcame their anxiety, participated in the role play and concluded that the experience was valid (see data excerpts, pages 168 and 169). This student described feeling obliged to participate because of the nurse educator’s expectations and encouragement. That one student could overcome their anxiety whilst another could not demonstrates the complexity of engagement.

The previous mental health 2009 group who experienced the ‘recorded role play’ simulation model, contained three students who described experiencing high levels of
anxiety during the simulation. However, these students engaged as there was an expectation for participation due to the assessment strategy. It would appear that engagement in simulation is multi-factorial. This will be discussed further in section 8.3.4 (see below).

8.3.2 Safety and Authenticity

There is much discussion in the nursing literature regarding the level of fidelity of simulation. Nurse educators strive to deliver simulation at an appropriate level of fidelity for the learning outcomes. However, this study’s findings indicated that perceived authenticity is perhaps more influential in relation to students’ safety and engagement. The anecdotal data collected from K13, indicates that the second year students felt over-whelmed by a high fidelity simulation scenario (see page 185). This study did not include an example of high fidelity simulation therefore it is not possible to theorise further, but it seems logical that the level of realism perceived by the student will impact on their anxiety levels.

8.3.3 Authenticity and Engagement

Different views of the perceived authenticity were expressed by the student participants. Whilst none of the students judged the simulation to be ‘real’, there were diverse responses. For example, one adult student acknowledged that simulation was not the same but was still worthwhile. In contrast, a number of the child students were dismissive of the simulation experience as ‘not real’ and whilst they engaged, they did not feel that they learned from the experience. Field notes recorded limited engagement with one particular group of child students:

   ‘This group were more unsure and giggled and were nervous.’
   [excerpt from field notes, July 2012]

This was reflected in both the focus group and individual interviews with these students commenting that simulation ‘wasn’t real’ and no-one took it ‘seriously’. These students were unable to provide examples of the transfer of simulated learning to their practice. This suggests that nurse educators may need to aim to provide an authentic learning environment when designing simulation to promote student engagement and learning.

8.3.4 Safety, Authenticity and Engagement

This study has demonstrated that these factors are influential on student engagement and learning in the simulation environment. Critically, the students that were able to provide examples of simulated learning transferring to their practice perceived the simulation to be safe and authentic. These students are illustrated in figure 8.1 (page 230) at the inter-section of the three circles which depict the concepts. It is suggested
that if students perceive simulation to be safe and authentic, there is an increased likelihood of engagement. Subsequently, learning may be promoted and this learning then has potential to be transferred to the practice environment. Therefore, it is recommended that nurse educators consider these concepts when designing simulation.

The findings of this study indicate that student engagement in simulation is complex and multi-factorial. Students responded in different ways to the same model of simulation, for example in the mental health 2010 group. Two of these students described the simulation as ‘not real’ and anxiety provoking, one chose not to engage and the other did participate, concluding that this experience was valid. The child students reported that they did not perceive the simulation to be authentic, yet they appeared to engage in the activity. In the mental health 2010 group, students appeared to overcome their concerns in order to satisfy the requirements of the assessment strategy. Whilst the assessment strategy may not increase the authenticity of the simulation, it would appear to increase the validity and thereby promote engagement. Further research is needed to explore the factors which may promote student engagement in simulation and these are discussed in section 8.6.2 (page 241). The next section considers the factors which this study’s findings indicate could influence students’ perceptions of safety and authenticity and ultimately engagement in simulation.

8.3.5 Factors which appear to influence student perceptions of safety and authenticity

The findings of this study have raised a number of issues which are worthy of consideration when developing simulation, namely student safety and their perceptions of authenticity. Box 8.1 below summarises the factors identified in this study which may influence the students’ perception of safety and authenticity:

**Box 8.1 Factors contributing to perceptions of safety and authenticity**

<table>
<thead>
<tr>
<th>Component</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>• Simulation model</td>
</tr>
<tr>
<td></td>
<td>• Group familiarity</td>
</tr>
<tr>
<td></td>
<td>• Group size</td>
</tr>
<tr>
<td></td>
<td>• Individual characteristics</td>
</tr>
<tr>
<td>Authenticity</td>
<td>• Fidelity</td>
</tr>
<tr>
<td></td>
<td>• Alignment with placement</td>
</tr>
<tr>
<td></td>
<td>• Assessment strategy</td>
</tr>
<tr>
<td></td>
<td>• Individual characteristics</td>
</tr>
</tbody>
</table>
As presented in chapter six, the main cause of student anxiety in simulation was being observed. It became apparent that who was observing them and how they were observed were factors which influenced the students’ perceptions of safety. Therefore the simulation model, group size and familiarity with the group were all factors. In addition, the majority of the cases contained students with very different viewpoints. This would suggest that other factors such as individual student characteristics, for example, learning styles and previous experience may influence how students engage in simulation.

Student perceptions of authenticity were also variable. The issue of fidelity was not introduced by the students, rather the focus was on simulation ‘not being real’. The elements which appeared to add value to the experience were alignment with placement and the assessment strategy. In other words, if the students were able to see a clear purpose to the simulation and explicit links to either their assessment or placement, they were more likely to ‘suspend disbelief’ and engage. Once again, individual characteristics could influence how students perceived simulation.

These factors could inform the development of simulation models which may promote student safety and enhance their perceptions of authenticity. Engagement in simulation could enhance opportunities for learning; thereby optimising the potential for the transfer of simulated learning to practice. These will be discussed further in section 8.6.1 (page 239).

In section 3.5.3 (page 67) I introduced the Jeffries/NLN model of simulation (2007). In light of this study’s findings, it is suggested that the Jeffries model is limited in its focus on the student experience. Whilst there is a component of the model which focuses on the student (latterly re-labelled participant), the elements of this are: programme, level and age. Jeffries proposed that these elements may influence the student experience of simulation. Yet, when discussing the participant the narrative focuses on the student’s role and responsibilities in simulation. In other words, how they are expected to behave. The findings of this study would indicate that there needs to be increased focus and awareness of students’ perceptions of and experience in simulation, if we are to shift towards a ‘learning focussed’ delivery as advocated by Kaakinen & Arwood (2009).

This section has introduced and explored the emerging conceptual framework of the student experience of simulation which has developed from this study’s findings. Before considering the resulting recommendations for practice and research; the following sections discuss the issues of rigour and reflexivity and the strengths and limitations of this study.
8.4 Rigour and reflexivity

8.4.1 Rigour

This thesis aims to establish that this research study has been undertaken in a rigorous or trustworthy way. Application of the criteria of credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985) aims to ensure that this study can withstand scrutiny of its value and worth. The next section provides a critical account of this process.

Credibility is demonstrated by accurately representing the participants’ views in this thesis. The use of verbatim quotes is an effective way of satisfying this criteria. However, it must be acknowledged that I have selected these quotes and removed them from the context of the transcripts of the interviews. The involvement of my supervisor in the process of data analysis has enhanced the credibility of this study. They were able to view the data objectively and was able to validate the links between the data, the themes and ultimately the findings presented in this thesis.

I used purposive sampling to ensure that those participants who could provide insight into the use of simulation at the university were selected. Throughout the sampling process I was aware that there were ‘gate-keepers’ who were able to restrict or provide access. For this reason, I took two steps, firstly gaining written permission from the Dean of the School to collect data. I was aware that this could be perceived by the key informants and nurse educator participants as an obligation to engage with this study. For this reason, I introduced myself to the nurse educators prior to the simulation and communicated with them on several occasions in order to develop a relationship and ensure they were clear of the purposes of the research and their role. Awareness of the gate-keepers could also have inhibited the participants in sharing their views. A couple of jokes were made about the anonymity of the participants, which I assured them would be protected. However, review of the transcripts shows that the participants were relaxed and appeared to be quite open in their accounts. For example, social desirability bias might have resulted in glowing accounts of the development of simulation at the university. As presented in chapter five, nurse educators were candid regarding the challenges they perceived.

The nurse educators in turn were themselves, ‘gate-keepers’ of both the simulation and the student participants. I appreciated the access they provided to the simulation sessions which they facilitated. As I did not want the students to feel coerced into participating in the study, I ensured that whilst the educators introduced me to the group; I introduced the study and invited them to participate. It was interesting to note that there was an inverse proportion of student participants to those invited. As
shown in table 4.1 (page 118) forty adult students were invited to join the focus group and four participated. This compared to the child students, all of the eight students invited, agreed to be participate.

The focus on context, which is central to case study research, has resulted in rich detail of how simulation was operationalised at the university being provided. This has demonstrated that the models of simulation used at the university are comparable to those used in the core UK studies post 2007, presented in chapter three. This increases the potential for the transferability of these findings. As nurse educators in other AEIs may recognise some of the issues raised and relate to these findings. In section 8.6.1 (page 239), I have raised a number of questions for consideration when developing and delivering simulation which are intended to be transferable and useful.

The impact of undertaking this study in a reflexive manner and demonstrating dependability is reflected upon in the next section. Confirmability has been demonstrated through the detailed account of each stage of the research provided in this thesis. A further issue and important principle in qualitative research is reflexivity which will be addressed in the next section.

8.4.2 Reflexivity

As discussed in section 4.8.2 (page 132) reflexivity is an important principle in qualitative research; it involves the researcher acknowledging the influence they may have on the research process. Throughout this study, the two principles of introspection and inter-subjective reflection (Finlay and Gough 2003) have been central to undertaking this study in a reflexive manner.

Introspection is the process in which the researcher reflects upon the impact they may have on the research process. The issue of student safety in simulation was unexpected as I had not witnessed evidence of this during my teaching. The strong influence on the affective component of learning and latterly the influence on students’ practice was unforeseen and surprising. It was evident from the responses of some of the nurse educators that this theme was unexpected to them as well (see data excerpts, page 174). However, it was found that other key informants and nurse educators had considered the issue of risk to student safety when using this learning and teaching approach. This led me to question my own views and assumptions regarding the use of simulation in pre-registration nurse education and consider how it could be made ‘safer’.

When transcribing the interviews and reflecting on my interview technique, it was interesting to note that the interview process itself can generate knowledge and meaning as observed by Nunkoosing (2005). Direct evidence of this arose from several of the nurse educator participants who commented that the interview had
helped to clarify their thoughts regarding simulation. In the earlier interviews, I noted that on occasion I had commented on an observation made by the participant which may have directed the ensuing discussion. I became more self-aware and avoided this in the subsequent interviews.

Inter-subjective reflection is the process whereby the researcher shares their thoughts and feelings with others which in this case was facilitated by the supervisory team and monthly meetings throughout the research process in which decisions were discussed and thought processes challenged. In particular, as explained one supervisor assisted throughout the data analysis to question and debate each of the five stages of applying framework technique to the data.

I was aware that my presence may have influenced the student response during the simulation, therefore I consulted with the nurse educators about this. In most instances, the nurse educators reported that student responses were the same whether I was present or not. For example, in the ‘adult assessment scenarios’ the nurse educators felt that the groups responded in the same way, whether I was present or not. My own observations of the groups were recorded in the field notes:

‘Certainly from what I had heard the other groups were interacting in the same way as mine, asking questions, laughing, supporting each other which is reassuring’. [Excerpt from field notes, July 2012]

However, when observing one mental health group undertaking the ‘seminar role play’, I noted that the students were reluctant to volunteer. I discussed this with the nurse educator at the end of the session and it was agreed that I would not return to this particular group. We could not confirm that my presence had influenced student participation but I was unwilling to risk compromising this group’s learning. This may have limited the findings, as it may have been useful to explore this group’s perceptions of simulation; they may have chosen not to participate as they did not value the approach.

The question of whether I influenced the nurse educators’ delivery of simulation was an important issue. All of the nurse educators invited agreed to participate in the study and kindly allowed access to their teaching. I developed a rapport with each nurse educator prior to the simulation, and they appeared relaxed in these sessions. The interviews were quite informal compared to those with the key informants. The majority of the key informants had not met me prior to the interview and held senior positions in the School, consequently these interviews were more formal. However, all topics were explored and this did not seem to inhibit the data collection.

It has been acknowledged that the influence which the researcher has will never be known, but it important that steps are taken to minimise this and are articulated
8.5 Study strengths and limitations

8.5.1 Study strengths

This is the first study to qualitatively explore the perceptions and experiences of simulation from multiple perspectives. One strength of using a qualitative approach is the iterative nature of this type of research and this was clearly evidenced in analysing the student experience of applying simulated learning to practice. The concurrent data collection and analysis facilitated exploration of emerging themes with participants. In particular, as the students discussed the issues of anxiety and discomfort in the focus groups, educator awareness and supportive strategies were explored in the subsequent interviews with the nurse educators who facilitated the simulation. This subject had not been in the original topic guide as it was an unexpected and emerging theme of the research.

This qualitative approach has provided further insight into how simulation is viewed from the perspective of nurse educators. The current evidence base in nursing has been criticised as being mainly descriptive and evaluative in nature (Rourke et al., 2010). Therefore, this study did not aim to evaluate the simulation models used at the selected university, but rather to determine how and why nurse educators were using simulation following the NMC’s endorsement of its use to replace practice hours. Consequently, this thesis has presented new knowledge and developed an argument for caution regarding the use of simulation in pre-registration nurse education.

A further strength of this study was the collective case study approach used. Multiple cases, delivering different models of simulation, were used which had a number of benefits. Firstly, the framework technique facilitated comparison within and across cases (Ritchie and Spencer, 2002). This assisted in identifying possible factors which influenced both the student experience and the subsequent application of simulated learning to their practice. Case study methodology also allowed corroboration of evidence from different sources; for example, the use of field notes to support data from interviews. This proved effective with data from the smaller focus group, as I was able to corroborate this with field notes from the evaluation of the unit.

Finally, the lack of an overlap between the role of researcher and educator is viewed as a strength as it removes the potential for a number of biases: selection bias, social desirability bias and bias in reporting. The majority of the core UK studies utilised convenience sampling and the author, researcher and educator for simulation was the same. As Bradbury-Jones and Alcock (2010) highlighted, researchers should be aware
of power relationships when inviting students to participate in research. Few authors acknowledged this and that students may feel coerced to participate by their nurse educators. As a post-graduate student rather than a nurse educator, this was less of an issue.

8.5.2 Study limitations

The selection of the university, for this collective case study, was determined by the opportunity to understand the use of simulation in pre-registration nurse education. However, the use of simulation was not established nor embedded in the curriculum at that time and as shown in this thesis continues to develop. The consequence of this was that the case selection was limited to low and medium fidelity simulation models. This may limit the transferability of findings, particularly as there is a lack of consensus regarding the labelling of simulation as discussed throughout this thesis. However, as shown in table 3.4 (page 71) the models of simulation used at the selected university are comparable to those utilised in the core UK studies. It would have been beneficial to broaden the collective case study approach to include another site, with well-established simulation programmes which included high fidelity simulation.

Whilst this collective case study was undertaken in one centre only and had a relatively small sample size, it did facilitate in depth exploration of student and nurse educator perceptions of simulation. Nevertheless, findings may have been strengthened if more students had participated. Whilst I considered the lack of a dual role to be a strength, the brevity of my contact with the student groups may have resulted in the small number of participants. In particular, it would have been of interest to interview more students individually. This was not always possible, but it did prove an invaluable way to corroborate data gathered from the focus group.

The nature of volunteer participants introduces a risk of bias as students may only volunteer because they have strong viewpoints. However, data from other sources was helpful to corroborate findings; for example the field notes from the observation of the unit evaluations captured a wider student perspective. Due to the complexity of the curriculum and the ways in which simulation had been implemented there was not a universal approach to evaluating the simulation models observed. When possible I attended the evaluation of the units (adult and mental health 2010) but this was not possible in the child case. However, I was able to explore the student evaluations of the PICU skills day with the practice educator who had used written evaluations. Once again, field notes taken during the unit evaluations were a useful way of corroborating data collected in the focus groups.
Finally, due to the nature of the programme of study, data collection had to be completed within a given timeframe. As indicated previously, additional participants with different perspectives would have added depth to the understanding of the case but this limitation meant that this was not possible.

8.6 Recommendations for practice and research

8.6.1 Recommendations for practice

This thesis has argued that there are a number of assumptions held regarding the use of simulation in nurse education which have been upheld by the NMC and the nursing literature, and called for caution regarding its use. This case study has produced evidence which has challenged these assumptions, and has raised a number of pertinent issues. Section 8.3 introduced the emerging conceptual framework and considered the factors which may influence student safety, their perceptions of authenticity and engagement in simulation. This section makes recommendations for both practice and research to further develop this work.

The considerations for the use of simulation in pre-registration nurse education are presented at both a strategic and operational level. The lack of consensus or consistent use of language appears to have been problematic for the development and delivery of simulation at the study site. In the absence of national guidance, consensus should be reached at a strategic level regarding which activities are to be considered simulation. The development of a School simulation strategy is an example of good practice which aims at reaching consensus in the labelling and use of simulation. In addition, clarity should be sought regarding which types of simulation will be used specifically to replace practice hours, and how many of the 300 hours permitted by the NMC (2007a) will be utilised. It would appear that alignment of simulation with practice placements may promote the transfer of simulated learning. Therefore, it is recommended that there should be alignment of simulation and practice placements throughout the undergraduate nursing programme.

The NMC (2007a) introduced a tool with which to audit the simulation models but have taken no steps to monitor this; despite having the ideal mechanism to do so with the annual review process. Despite the lack of supporting evidence, educators using simulation may find this tool useful to review their use of simulation in the pre-registration nurse curriculum and consider whether it would satisfy these principles. The development of evidence-based standards to guide the development and delivery of simulation would be welcome. However, as noted currently there is a paucity of robust evidence which could inform the development of these.

At an operational level, nurse educators may wish to consider the issues that have been raised in this thesis when developing and delivering simulation. The student
Experience of simulation has been reported in this study as diverse and multi-factorial. As shown in box 8.1 (page 232) student safety appears to be influenced by a number of factors, related to the simulation model and the group. In particular, as discussed in section 8.2.2 (page 220) who is observing their performance appears to influence students’ anxiety levels. When designing simulation, student safety should be considered and steps taken to promote this. For example, students in this study appeared to appreciate working in small groups where collaboration and support were encouraged. Correspondingly, those students working in large or unfamiliar groups found this to increase their anxiety.

Student perceptions of authenticity appear to impact on how students engage with the simulation and consideration of how this can be enhanced is recommended. Whilst fidelity is linked to student perceptions, this is not the only factor. It was noted in the child scenarios that limitations of equipment appeared to reduce the perceived authenticity. For example; when administering medicines or bleeping a Doctor, a certain amount of ‘play-acting’ was necessary, causing students to giggle and/or disengage. However, it would appear that students are prepared to deal with these limitations if they can understand the purpose of the simulation and make clear links with the activity and their practice experience. Therefore, the alignment of the simulation experience with their placement is recommended. The child students recalled not understanding one session on airway management because they had not been to a critical care placement. The group reached consensus that this session would be more valuable if it had been aligned to their critical care placement. In addition, the nurse educator needs to make these links explicit. This was recognised by one nurse educator who reflected that students had complained that the role play used in an earlier unit of learning was ‘completely pointless’.

‘It’s nothing to do with the essay, why should we be doing this?’ and I said ‘what else are we doing? … I said ‘where else are you assessed? you’re not just assessed on your essay are you? where else?’ ‘I dunno’, I said ‘look at your practice assessment document, there are about five outcomes, that are around communication skills’ … and you could see a few of them the penny sort of dropped, they hadn’t thought about how it related’. (NE4)

This nurse educator noted that the students had not made the link between the role play developing communication skills and their practice assessment. They concluded that they would need to be very explicit at the start of the next delivery about those links to practice. This section has explored some issues which this study has indicated should be considered when planning to use simulation as a learning and teaching approach, these are summarised below in box 8.2.
Box 8.2: Summary of recommendations for practice

<table>
<thead>
<tr>
<th>Recommendations</th>
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<tbody>
<tr>
<td><strong>Strategic</strong></td>
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<tr>
<td>• Agreement regarding the labelling of simulation and clinical skills.</td>
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<tr>
<td>• Agreement regarding the use of 300 practice hours at programme management level.</td>
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<tr>
<td>• Agreement regarding types of simulation which are acceptable to replace practice hours.</td>
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<tr>
<td>• Audit of simulation provision to evaluate whether this satisfies the NMC principles.</td>
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<tr>
<td>• Alignment of simulation with student practice placements.</td>
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<tr>
<td><strong>Operational</strong></td>
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<tr>
<td><strong>Safety</strong></td>
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<tr>
<td>• Consider how students’ psychological safety in simulation can be promoted.</td>
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<tr>
<td>• Consider the level of exposure when designing the simulation model.</td>
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<tr>
<td>• Use small and familiar groups.</td>
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<td>• Promote a collegial and supportive environment.</td>
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<tr>
<td><strong>Authenticity</strong></td>
</tr>
<tr>
<td>• Consider how authentic activities and authentic learning can be provided.</td>
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<tr>
<td>• Ensure fidelity is appropriate for learning outcomes.</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
</tr>
<tr>
<td>• Make links to practice placement explicit.</td>
</tr>
<tr>
<td>• Consider how engagement in simulation can be promoted.</td>
</tr>
<tr>
<td>• Consider allowing students to select roles (active participant or observer) in order to meet various learning styles and student needs.</td>
</tr>
</tbody>
</table>

8.6.2 Recommendations for Research

The literature review presented in chapter three has shown that there is a paucity of robust evidence to support the use of simulation in pre-registration nurse education. Further research is needed and this section makes a number of recommendations for future studies. As discussed in section 8.5.2 (page 238) one limitation of this study was that it was a single site study and the selected site did not incorporate high fidelity simulation in the curriculum. A multi-site study which included low, medium
and high fidelity simulation models could develop this work further. By using a similar research design, that is a qualitative collective case study, researchers would be able to study the emerging themes of student safety and perceived authenticity in depth. The use of individual interviews was useful to explore and corroborate issues discussed in the focus group in this study. This approach could be applied to facilitate exploration of the emerging issues with individual students.

In addition, this study has raised two issues regarding the use of simulation which have not been explored in depth previously. Firstly, this study found that some students did not perceive simulation to be safe and described the negative impact of this on their performance in simulation and in their subsequent practice. Whilst this affected only a small number of students this issue warrants further exploration, as simulation is purported to provide a safe environment for learning. Further exploration of the factors which promote student safety would provide useful insight for those utilising this approach. This study’s findings indicated that the group size and dynamic may be influential, this could be explored further by comparing student perceptions of safety exposed to different models of simulation. In addition, a robust measurement of anxiety levels pre and post-simulation using a standardised tool such as the Student Nurse Stress Index (Jones and Johnston, 1999) could be used. By identifying both levels and sources of stress, means to improve students’ psychological safety in simulation could be identified.

The second issue raised by this thesis is that of perceived authenticity, there appeared to be a link between this and student engagement and ultimately, the transfer of simulated learning to practice. Clearly, not all students perceived that simulated learning had transferred to their practice which is the optimal outcome. This issue is complex and appears to be influenced by both internal (student confidence, learning style and previous experience) and external factors (placement alignment, opportunities in practice, mentor). Further research is needed in this area. This could be explored using a longitudinal study which gathered data pre and post-simulation and again following the student’s practice placement.

There is some (albeit limited) evidence that students’ learning style and individual characteristics may influence the way that simulation is perceived and ultimately engaged with. It may be of interest to investigate the relationship between students’ learning styles and their engagement in simulation and subsequent learning. The use of a standardised tool such as the VARK questionnaire (Fleming, 2015) prior to simulation could provide insight into the students’ preferred learning style. Participant observation and interviews following simulation could be used to document and explore student engagement and perceived learning. Comparisons between data sets which explore relationships between learning style and engagement would inform the
development and delivery of simulation. These are some of the recommendations for future research that have been identified in this study.

8.7 Conclusion

For the first time, the NMC proposal to replace practice hours with simulation (NMC, 2007a) has been critically analysed and the implications of this decision explored. The in-depth qualitative case study incorporated multiple models of simulation, student cohorts, nurse educators and key informants which provided the most comprehensive analysis of viewpoints in any research in the UK to date. Deeper understanding was achieved by the use of multiple data collection methods: documentary analysis, participant observation and interviews which enabled findings to be triangulated and corroborated. Most importantly, because these simulation models used were comparable to those used by other AEIs in the UK; there is a possibility of the transferability of findings to similar contexts. Thus this study could be used to inform the development of simulation in the under-graduate nursing curriculum.

The findings presented in this thesis indicate that there are a number of assumptions regarding the use of simulation therefore, clarity and guidance in the labelling of simulation and clinical skills in the undergraduate nursing curriculum are called for. It is important that both nurse educators and students have clear expectations of this approach to teaching and learning. The findings of this case study suggest that it cannot be assumed that simulation provides a safe or effective learning environment for all students. Increased awareness of psychological safety and ways of supporting students is imperative if students are to maximise on this learning opportunity. Finally, while there is an expectation that simulated learning will transfer to practice, there are clearly stumbling blocks to this process, influenced by a number of factors.

A conceptual framework has been presented in section 8.3 (page 229) which explores the relationship between the three key concepts of student safety, perceptions of authenticity and engagement in simulation. It has been suggested that by promoting safety and enhancing authenticity, the potential for the transfer of simulated learning to practice may be optimised. This is important as resources continue to be invested in simulation yet it is questionable as to whether it is effectively achieving its primary goal: that is, to develop competence and confidence in pre-registration nursing students.
Reference List


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Royal College of Nursing (1985) *Commission on Nursing Education. The education of nurses: a new dimension*. (Chair: Dr Henry Judge.) London: RCN.


Yerkes, R. M. & Dodson, J. D. (1908) The relation of strength of stimulus to rapidity of habit formation, *Journal of Comparative Neurology and Psychology,* 18, 459-482.


**The Use of Simulation in Pre-Registration Nursing**

**Topic Guide for Focus Groups**

Thank you for agreeing to take part in this focus group. I would like to hear about your views on the use of simulation in pre-registration nursing. There are no right or wrong answers; I am just really interested to hear what you think.

Introduce and discuss ground rules.

You took part in ... outline relevant activity.

How did this feel?

The learning outcomes were ... list these.

Do you think the session achieved these?

Could you tell me about your practice experience?

How did it feel when you carried out this skill (name skill) in the clinical placement?

Was anything the same as the simulated teaching?

Was anything different?

I am interested to hear about your thoughts regarding how simulation may be used to prepare you for your practice placement?

Sum up and thank the group for their participation.
The Use of Simulation in Pre-Registration Nursing

Research Question:

Does simulated learning support the student to provide direct care in the practice setting?

Research Aims:

To explore nurse educators’ expectations of simulation.

To explore nurse educators’ perceptions of how simulation can be used to prepare students for practice.

Topic Guide for Nurse Educator Interviews

Introduction

Self

Study

Consent

Simulation

Can you tell me what you understand by the term simulation?

What are your experiences with simulation?

How is simulation used in your unit/the curriculum?

Explore specific points noted from observing teaching...

Practice Placement

How do you think simulation can be used to prepare students for practice?

Do you have any evidence/student feedback of its effectiveness?

Could you share your thoughts regarding the NMC proposal to replace practice hours with simulated learning?
Conclusion

Is there anything you would like to add?

Summarise and thank you
Participant Information Sheet for Students

The Use of Simulation in Pre-Registration Nurse Education

You are being invited to take part in a research study as part of a student project which will contribute to the award of PhD at Manchester University. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?
Amanda Garrow, PhD student,
School of Nursing, Midwifery & Social Work, Manchester University.

What is the purpose of the study?
The study is designed to explore your experiences of simulation in the pre-registration nursing programme. In particular, I am interested in your views on how/if this experience has influenced your clinical practice.

Why have I been chosen?
You have been invited to take part because you are a pre-registration nursing student who entered nurse education as part of the September 2010 cohort. I am interested in exploring your views about simulated learning and practice. I would like to interview all students who are willing to participate, if this is not possible I will select a sample of students. If you are not selected I would ask you to indicate whether you are willing to be approached in the future.

Do I have to take part?
You do not have to take part and participation is entirely voluntary. Please read this information sheet and take time to consider whether you wish to participate. You may want to talk to friends/family about your participation. If you choose not to participate this decision will not affect your progress on the nursing programme. Please let me know if you do not wish to take part and I will not contact you again, my contact details are at the end of this document. You do not have to give a reason for your decision.

What does my taking part involve?
I would like to interview all participants regarding their experiences of simulation. These interviews will be scheduled following the simulated learning and your practice placement. The focus of the interview will be how/if the simulation influenced your behaviour in practice. Interviews will be arranged at a mutually convenient time and location and last no more than one hour, but this will depend on what you want to tell me. Some interviews will be carried out in a small group and some as individuals. You may state your preference. The interviews will be audio-taped with your consent and transcribed by the researcher at a later date.

What will happen to my information as part of this study?
The interview recordings will be transcribed by the researcher and your identity will be coded. All data will be stored securely and electronic data will be stored on a password protected computer.
What if I want to take part?
Please contact me via email or telephone, my contact details are at the end of this document. We will arrange a mutually convenient time to meet. I will address any queries you have and ask you to sign a consent form.

What if I want to withdraw from the study?
You are able to withdraw from the study at any time and do not have to justify your decision. Withdrawal will not influence your relationship with the researcher or your progress on the programme.

How is confidentiality maintained?
The focus groups will establish ground rules which should include a confidentiality agreement. Information once collected will be anonymised when transcribed. Consent forms will be stored in a locked filing cabinet and transcriptions will be stored on a password protected computer. Participant’s names and details will not appear in any printed documents, any quotes used will be anonymised. Dr Geraldine Lyte and Dr Hannah Cooke, in their capacity as the researcher’s supervisors, will have access to data but in an anonymised form only. The issue of confidentiality may have to be re-considered if a student raises a concern regarding the actual/potential risk of harm to patients. In this case participants will be directed towards the ‘Raising and Escalating Concerns’ guidance (NMC 2010) and the Student Handbook. The ‘student incident process’ will be adhered to with ongoing support and guidance from the students’ Academic Advisors, Programme Director and the Academic Practice Lead.

What if I want to make a complaint?
If you wish to make a complaint please contact myself or one of my supervisors: Dr Hannah Cooke or Dr Geraldine Lyte, our contact details are at the end of this document. We will do our best to answer your questions. If they are unable to resolve your concern and you wish to make a complaint regarding the study, please contact a University Research Practice and Governance Co-ordinator on 0161 2757583 or 0161 27558093 or by email to research-governance@manchester.ac.uk

Will I get paid for taking part in this study?
If required to make additional travel a refund will be offered on production of a receipt of travel.

Who is funding or organising this study?
This is a self-funded study.

Who has reviewed this research?
This study has been approved by Manchester University Research Ethics Committee. This research will contribute to the award of PhD in Nursing.

Contact details of the researchers
Name: Amanda Garrow
Telephone Number: 0161 3066000
Email: amanda.garrow@postgrad.manchester.ac.uk

Supervisors:
Name: Dr Geraldine Lyte
Telephone Number: 0161 3066000
Email: geraldine.lyte@manchester.ac.uk

Name: Dr Hannah Cooke
Telephone Number: 0161 3066000
Email: hannah.cooke@manchester.ac.uk
Participant Information Sheet for Educators

**The Use of Simulation in Pre-Registration Nurse Education**

You are being invited to take part in a research study as part of a student project which will contribute to the award of PhD at Manchester University. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

**Who will conduct the research?**
Amanda Garrow, PhD student,
School of Nursing, Midwifery & Social Work, Manchester University.

**What is the purpose of the study?**
The study is designed to explore your expectations of simulation in the pre-registration nursing programme. In particular, I am interested in your views on how/if this form of teaching can prepare students for their practice placement.

**Why have I been chosen?**
You have been invited to take part because you are a nurse educator who uses simulation as part of the learning and teaching strategy to prepare nursing students for practice placement.

**Do I have to take part?**
You do not have to take part and participation is entirely voluntary. Please read this information sheet and take time to consider whether you wish to participate. You may want to talk to friends/family about your participation. If you choose not to participate this decision will not affect your relationship with the researcher. Please let me know if you do not wish to take part and I will not contact you again, my contact details are at the end of this document. You do not have to give a reason for your decision.

**What does my taking part involve?**
I would like to interview all participants regarding their experiences of simulation. These interviews will be scheduled following the simulated learning activity. The focus of the interview will be how/if the simulation prepares students for practice. Interviews will be arranged at a mutually convenient time and location and last no more than one hour, but this will depend on what you want to tell me. The interviews will be audio-taped with your consent and transcribed by the researcher at a later date.

**What will happen to my information as part of this study?**
The interview recordings will be transcribed by the researcher and your identity will be coded. All data will be stored securely and electronic data will be stored on a password protected computer.

**What if I want to take part?**
Please contact me via email or telephone, my contact details are at the end of this document. We will arrange a mutually convenient time to meet. I will address any queries you have and ask you to sign a consent form.
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This study has been approved by Manchester University Research Ethics Committee. This research will contribute to the award of PhD in Nursing.

Contact details of the researchers
Name: Amanda Garrow
Telephone Number: (90) 549 3200610
Email: amanda.garrow@postgrad.manchester.ac.uk

Supervisors:
Name: Dr Hannah Cooke
Telephone Number: 0161 3066000
Email: hannah.cooke@manchester.ac.uk

Name: Dr Geraldine Lyte
Telephone Number: 0161 3066000
Email: geraldine.lyte@manchester.ac.uk
The Use of Simulation in Pre-Registration Nurse Education

Researcher: Amanda Garrow

Please initial the boxes to indicate your agreement with the statements below:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I confirm that I have read and understand the information sheet dated............ (version............) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.</td>
<td>☐</td>
</tr>
<tr>
<td>I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my decision affecting my relationship with the researcher and/or my progress on the programme.</td>
<td>☐</td>
</tr>
<tr>
<td>I confirm that I received enough time to make a decision about my participation in the study.</td>
<td>☐</td>
</tr>
<tr>
<td>I confirm that potential risks have been explained to me.</td>
<td>☐</td>
</tr>
<tr>
<td>I agree to taking part in an interview</td>
<td>☐</td>
</tr>
<tr>
<td>I agree to the interview being tape recorded</td>
<td>☐</td>
</tr>
<tr>
<td>I agree to the audiotape being transcribed</td>
<td>☐</td>
</tr>
<tr>
<td>I agree to anonymised quotes being used in any publications</td>
<td>☐</td>
</tr>
<tr>
<td>I understand that my records or transcripts of my recordings may be looked at by the ethics committee, research governance office or regulators as appropriate to make sure that the study is being completed correctly but that such persons will keep all data they examine confidential at all times. In addition, I understand that Dr Geraldine Lyte and Dr Hannah Cooke, in their capacity as the researcher’s supervisors, will have access to data but in an anonymised form only. I agree to take part in the above study.</td>
<td>☐</td>
</tr>
</tbody>
</table>

Name of Participant______________________________________________________ Date________
Signature __________________________________________________________________________

Name of Person taking consent__________________________________ Date________
Signature __________________________________________________________________________

When completed: 1 for participant, 1 for researcher file
Ground Rules for Focus Groups

These ground rules are to be agreed with the group at the beginning of the meeting.

- Respect each group member’s viewpoint; remember there are no right or wrong answers, just people’s thoughts and opinions which are all valuable.
- Allow each group member to speak, it is important to hear everyone’s thoughts.
- Only one person speaks at a time, this will help me to record the discussion.
- Confidentiality is important. Participants are requested to respect this as well as the researcher.
- Participants may leave the focus group at any time they wish.

Does anyone wish to add anything else?