

# Northumbria Research Link

Citation: Geddes, Edward Jonathan (2018) Developing an understanding of informal learning interactions between nurses and final year medical students in the workplace: An ethnographic study. Doctoral thesis, Northumbria University.

This version was downloaded from Northumbria Research Link:  
<http://nrl.northumbria.ac.uk/id/eprint/39774/>

Northumbria University has developed Northumbria Research Link (NRL) to enable users to access the University's research output. Copyright © and moral rights for items on NRL are retained by the individual author(s) and/or other copyright owners. Single copies of full items can be reproduced, displayed or performed, and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided the authors, title and full bibliographic details are given, as well as a hyperlink and/or URL to the original metadata page. The content must not be changed in any way. Full items must not be sold commercially in any format or medium without formal permission of the copyright holder. The full policy is available online: <http://nrl.northumbria.ac.uk/policies.html>

Developing an understanding of  
informal learning interactions between  
nurses and final year medical students  
in the workplace: An ethnographic  
study.

Edward Jonathan Geddes

PhD

2018

Developing an understanding of  
informal learning interactions between  
nurses and final year medical students  
in the workplace: An ethnographic  
study.

Edward Jonathan Geddes

A thesis submitted in partial fulfilment of  
the requirements of the  
University of Northumbria at Newcastle  
for the degree of  
Doctor of Philosophy

Research undertaken in the  
Faculty of Health and Life Sciences

November 2018

## ABSTRACT

Much of a medical student training takes place in the workplace, the clinical ward environment and much of this workplace learning is recognised as being 'informal'. Within this clinical setting nurses are primarily responsible for much of the medical student's orientation into their new role in the workplace and medical students accept the fact that qualified nurses have much more experience. Yet, there seems to be little understanding, from within literature and in the professions of the nature and value of these informal learning interactions between medical students and nurses. There seems to be little research that has considered the nature and perceived values of these informal learning interactions for both groups.

This ethnographic doctoral study's findings led to the identification of four core categories, and related sub themes, that were presented as a conceptual model. These were 1) Recognition of informal learning activities; 2. Context (ward setting); 3 Perceived values and 4. Wider training and role clarity. The first of these categories has helped to develop an understanding of the potential characteristics of these interactions and the other categories are identified as influencing these interactions both at a cognitive and practical level that reflect the participants perceived values.

By increasing understanding of these informal learning interactions, it is hoped that medical students, nurses and relevant others will recognise the importance of "learning to learn". An important skill for medical students in their training, as doctors of the future.

CHAPTER 1: INTRODUCTION .....	1
1.1 Introduction .....	1
1.2 Purpose of study .....	1
1.3. Background .....	1
1.4. Rationale for the study.....	6
1.5. Research aims .....	7
1.6 Overview of the Research Approach.....	8
1.7 Structure of the thesis .....	9
1.8 Reflexivity .....	11
1.9. Contribution to knowledge .....	12
Summary .....	12
CHAPTER 2: LITERATURE REVIEW .....	13
2.1 Introduction .....	13
2.2 Literature Search Strategy .....	13
2.3 Review of Key concepts .....	17
2.3.1 Learning .....	17
2.3.1.1Types of learning .....	19
2.3.2 Informal learning in the workplace.....	30
2.3.2.1The hospital as a workplace setting .....	37
2.3.3 Inter-professional education and medical education.....	41
2.3.4 Medical student and nurses' interactions .....	44
Summary .....	49
CHAPTER 3 METHODOLOGY .....	51
3.1 Introduction .....	51
3.2 The research aim, objectives and question.....	51
3.3 The research strategy .....	53
3.3.1: Ontology .....	55
Summary .....	71
CHAPTER 4 METHODS.....	72
4.1Introduction .....	72
4.2 Preparation before the fieldwork.....	72
4.2.1 Development of infrastructure to support the project.....	72
4.3 Discussion of methods and practicalities .....	79
4.4 Ethical Issues .....	93
4.5 Data analysis.....	97
4.6 Quality and Rigour .....	106

4.7 Personal reflexivity .....	114
Summary .....	124
CHAPTER 5 STUDY FINDINGS .....	125
5.1 Introduction .....	125
5.2 Key findings discussed by core categories and sub themes .....	125
5.3 Core Categories .....	126
5.3.1 Core Category 1: recognition of informal learning interactions.....	126
5.3.2 Core Category 2: Context- The ward setting.....	143
5.3.3 Core Category 3: Perceptions - value of informal learning .....	156
5.3.4 Core category 4- Wider training and role clarity.....	167
Summary .....	175
CHAPTER 6 DISCUSSION .....	177
6.1 Introduction .....	177
6.2 The conceptual model.....	178
6.3 Discussion of core constructs of the conceptual model. ....	183
6.4 Perceptions - Perceived values .....	201
6.5 The context of the ward environment .....	214
6.6 Wider influences training and role clarity.....	232
6.7 The influences of all the core constructs at an individual level.....	241
Summary .....	242
CHAPTER 7: STUDY IMPLICATIONS RECOMMENDATIONS AND CONCLUSIONS	
.....	244
7.1 Introduction .....	244
7.2 Review of the research study .....	246
7.3 Reflections on the research journey and process.....	254
7.4 Conclusions and recommendations .....	266
7.5 Concluding Remarks.....	278
APPENDICES .....	280
REFERENCES.....	311

## List of Tables, Diagrams and Figures

<b>Tables</b>	<b>Page</b>
Table 2.1 PEO application.....	14
Table 2.2: Databases searched.....	16
Table 3.1: Application of characteristics of ethnography .....	68
Table 4.1: Interview themes informed by the literature.....	81
Table 4.2 Summary of data collection methods.....	93
Table 4.3 Core categories .....	104
Table 4 4 Potential threats to quality (adapted from Robson 2002) .....	108
Table 5.1: Coding of participants.....	126
Table 5.2 Topics of interactions.....	137
Table 5.3 Locations and type of interaction.....	146
Table 6.1 Application of Schugurensky Classification to study.....	198
Table 7.1 Examples of interactions.....	249
<b>Diagrams</b>	
Diagram 3.1 Stages of a research strategy and application to this study.....	54
Diagram 4.1 Overall project design diagram.....	78
Diagram 5.1: Core category 1: Informal learning activities.....	127
Diagram 5.2: Core category 2: Context-The ward setting and sub themes .....	144
Diagram 5.3: Core category 3: Perceptions - value of informal learning.....	157
Diagram 5.4: Core category 4-Wider training and role clarity.....	167
<b>Figures</b>	
Figure 2.1: Literature review process (Northampton University 2018) .....	14
Figure 4.1: Example 1 Observation session field notes.....	99
Figure 4.2: Example 2 Transcription of field notes.....	100
Figure 4.3: Example 4 Section from transcribed medical student interview.....	101

Figure 4.4 Screenshot of NVivo8 Nodes.....	103
Figure 4.5 Reflexive review of researcher’s worldview influences.....	117
Figure 5 Ward Lay outs.....	145
Figure 6.1 Conceptual Model .....	181
Figure 6.2 Mattox’s Types of informal learning.....	192
Figure 6.3 Individual Influences.....	241
Figure 7.1 Proposed Characteristics of informal learning interactions.....	249
Figure 7.2 Influencing factors.....	251

## **Acknowledgements**

I would like to thank all those who have helped me throughout this study. Firstly, I'd like to thank my supervisors Dr Alison Steven and Dr Belinda Bateman for all their support, comments and guidance during this entire process. I'd also like to express thanks to the numerous other members of the University and Healthcare Trust who've helped me with this project. In particular, I am ever grateful to the participants of the study, medical students and nurses, and the staff on the two wards for their time, help and for sharing their experiences and know-how. I'd like to thank my family for their time, support and encouragement. This study wouldn't have been possible without everyone's help.

## **Declaration**

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others. The work was done in collaboration with Northumbria Healthcare NHS Trust.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the University Ethics Committee (20.9.18) and IRAS (26.1.18).

I declare that the Word Count of this Thesis is 83,412 words.

Name: Edward Jonathan Geddes

Signature:

Date: 5/11/18

## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction**

This chapter presents an introduction to my study and this thesis. It starts with a brief outline of the purpose of this doctoral study. This is followed by providing background to the study including information concerning informal learning and interactions between nurses and final year medical students in the workplace. The rationale for undertaking this study and the general aim and objectives of this study are also provided along with a brief overview of the research process. The chapter ends with a summary of each of the chapters that make up the thesis.

### **1.2 Purpose of study**

This thesis presents an ethnographic study carried out to develop an understanding of the informal learning interactions between nurses and final year medical students in a workplace, (hospital ward) clinical environment. It explores the perceived values of these interactions for both nurses and medical students. The overall goal of this study is to generate new knowledge and insights regarding the everyday informal learning interactions between final year medical students and nurses with a view to acknowledging and enhancing these interactions in the future. It is hoped that the findings of this study will highlight the significance of informal learning interactions in the workplace as an element of general medical education and call attention to the informal educational role of the nurse with regards to final year medical students in the workplace.

### **1.3. Background**

Within the clinical setting nurses work closely with medical staff in all aspects of healthcare delivery and have a substantial role in teaching final year medical students

(Gilmour et al, 2014). Yet, there seems to be little acknowledgment that informal instruction of medical students in the clinical workplace environment by nurses on a day to day basis is a recognised role. Burford et al (2013) endorse this, identifying that medical students spend a lot of their time in practice with nurses, but that there is little research that has considered informal learning interactions throughout that substantial contact. They also state that nurses are primarily responsible for much of the medical student's orientation into their new role in the workplace and that medical students accept the fact that qualified nurses have much more experience. Wicks (1998) suggests that nurses recognise that medical students need their assistance and that most medical students realise the importance of how important it is to develop good relationships with nurses. However, within the respective professions or the literature there seems to be little formal appreciation that informal learning by final year medical students in the workplace environment is influenced by nurses.

Within the nursing profession there is no recognition of this informal educational role as there seems to be no planning for this in a nurse's pre- registration training or reward given for carrying out this role, actually, it may not even be given a thought and taken for granted that this will happen. Gilmour et al, (2014, p 173) state that the 'nursing contributions to medical education in the clinical environment is under researched and poorly understood'. It is on this basis that this study was founded.

A study by Freeth (2010) found that nurses played an important role in the education of first-year residents in the USA, noting that the teaching of residents by nurses was both workplace- placed and 'truly informal'. It is acknowledged that this research is within a different country with a different health system and that it does not involve medical students but 'residents', however, it demonstrates recognition of informal learning interactions in a clinical workplace environment between nurses and the medical profession. Although there is literature (Freeth 2010, van de Wiel et al, 2011; Teunissen

et al, 2007) that confirms, in clinical settings, informal learning is taking place both intra-professionally (in physician– medical student interactions) and inter- professionally (in nurse–medical student/ physician interactions), van de Wiel et al (2011) argue that there are significant gaps in our understanding.

Werquin (2010) states that people are constantly learning all of the time and everywhere. Not a day goes by where extra skills, knowledge and/or competencies may be developed by everyone. For adults it is likely that this learning takes place at home, at the workplace or elsewhere outside the initial education and training system, and may be a lot more important, pertinent and meaningful than the kind of learning that occurs in formal settings (Werquin, 2010). However, learning that occurs outside the formal learning system is not well understood, obvious or, probably as a result of this, suitably valued. This study explores informal learning interactions between nurses and final year medical students within the workplace in an attempt to recognise, raise awareness of and develop an understanding of this concept.

According to Callahan (1999) cited in Marsick and Watkins (2015) the issues concerning informal, non-formal and formal learning are multifaceted, ambiguous and vast. McGivney (1999) identifies that there have been frequent attempts to see informal and non-formal learning as distinct from formal and that much of the literature uses one or more of the terms without clear definition. Colley and Hodkinson (2003) and Marsick and Watkins (2015) state that it is clear that informal and incidental learning are relevant to practice in many cultures and contexts including hospitals and healthcare settings. Colley and Hodkinson (2003) also state that the terms informal and formal learning have a long history and that the terms informal, non-formal and formal were assigned to learning by many scholars and often linked to their academic interests in particular pedagogical and/or learning practices. What is clear, is that many texts use

one or more of these terms often interchangeably and without any clear or consistent definitions.

Coombs et al (1973) and Fordham (1993) have, like many other writers, presented the view that definitions between non-formal, informal and formal learning do not imply hard and fast categories and that in particular there may be overlap between informal and non-formal. There is little conformity about how these terms should be defined or used. There is often overlap between the terms used and meaning given. As Colardyn (2002, p5) states 'Often it can be considered that non-formal and informal definitions are frequently found interchangeable with different authors. Therefore, it is important to develop definitions for use within different situations and this will be vital within the context of this study. It is felt that the definition of informal learning proposed by Eraut (2004, p. 250) who described informal learning as 'implicit, unintended, opportunistic and unstructured learning and the absence of a teacher', lends itself to the context of this study. By identifying this definition, it will help to minimise assumptions and misunderstandings of the meaning applied to informal learning within this study context.

In their influential work, Marsick and Watkins' (2001) definition of informal learning refers to it being experiential, non-routine and tacit. They identify that informal learning occurs as part of everyday workplace interactions and is mainly unstructured, and experiential in nature. It was also considered to be often incidental and to occur without people being knowingly aware of it. Informal learning is not confined by pre-determined times, places or content for learning. Instead, it generally occurs spontaneously, through interactions with others outside the formal classroom setting, and without stipulated knowledge to be acquired (Le Clus, 2011). In medical education, it is recognised that informal learning regularly occurs when medical students participate as part of clinical care teams (Vapiro et al, 2014). This clinically based informal learning is

celebrated as a fundamental and vital element of medical students education and has been the subject of study. For example, the research of Teunissen et al (2007) identified an evidence-based theory of medical graduates or residents learning, which recognises work-related activities as essential and acknowledges the crucial functions of informal learning. Although Teunissen et al's study does not involve final year medical students but 'residents' in the USA, they are a close comparison and so the findings are worthy of consideration. Research into inter-professional education (IPE) by Freeth (2010) suggests that in addition to valuing the important contributions of formal IPE, the value of the contributions of informal inter-professional learning should also be considered.

Van de Wiewl et al (2011) recognised that an important aspect of the professional development of medical students is informal learning in the context of medical education. Jeong et al (2018) carried out a recent literature review concerning informal learning and identified that participating in informal learning activities such as collaboration with colleagues, results in changes in people's attitudes and beliefs (Meirink, et al, 2009) and that it cultivates new, practical knowledge from informal learning activities in the workplace (Berg and Chyung, 2008; Jeon and Kim, 2012). They also identify that there is a need to develop and support informal learning in the workplace as a key learning process. Rather than explaining what doctors actually do the information on doctors' learning in clinical practice is dominated by theoretical work, examining and recommending what doctors should do. Only a few empirical studies have focused on the way doctors learn in practice (Mamede and Schmidt, 2004; Sargeant et al., 2006; Slotnick, 1999). Some research is available on learning by residents (Hoffman and Donaldson, 2004; Stok-Koch et al., 2007; Teunissen et al., 2007), who are trained whilst doing their job, and medical students who contribute as assistants in clinical work (Deketelaere et al.,2006; Dornan et al., 2007; Sheehan et al., 2005). These studies show that learning in medical practice is greatly embedded in

work activities. Medical students and physicians also showed that they learned from the patient cases they were involved in and their collaboration with colleagues and other specialists in daily work routines (Hoffman and Donaldson, 2004; Sargeant et al., 2006; Slotnick, 1999; Stok-Koch et al., 2007; Teunissen et al., 2007). Therefore, there is a strong case to be made for developing research that attempts to develop more of an understanding of informal learning interactions and activities in the workplace for medical students and this rationale for this study is discussed further in the next section.

#### **1.4. Rationale for the study.**

This research focuses on informal learning interactions during everyday activity in the workplace, when the emphasis is on work rather than education (Eraut, 2007). This is in contrast to explicitly educational interventions that are often the focus of research into inter-professional learning within the healthcare setting. Doctors spend more time in practice than in formal educational settings and so the importance of understanding what is learned simply because people work together should not be underestimated and the significance of this learning undervalued (Burford et al, 2013). Nurses are generally aware of the numerous informal learning opportunities that exist in the clinical setting (Bjork et al, 2013). According to Marsick (2006) approximately eighty percent of skills and knowledge at work are learned during informal day-to-day interaction. Bleakley (2002) recognizes that studies which specifically explore informal learning by nurses are not common and that research into informal learning in medicine tends to focus on the professional, apprenticeship model of learning. Over 20 years ago, Dowling and Barrett (1991) suggested that the nurses' educational role with medical students should be formally recognised. This is still perhaps the case. It is therefore, still important to try and develop an understanding of the characteristics of informal learning interactions and any factors which may influence these interactions between final year medical students and the informal educational role of the nurse.

This study has the potential to help to increase both final year medical students' and nurses' awareness and understanding of the importance of informal learning interactions in the workplace. It may provide an opportunity to recognise the use of a potentially effective form of learning in a constantly busy workplace that incorporates inter-professional staff with limited time and resources. Recognition of informal learning also has the ability to be an important means for reforming learning to better match the needs of final year medical students in the 21st century. Despite an explosion of interest about informal learning, few studies have synthesized the core concepts, particularly identifying the characteristics and influencing factors of informal learning interactions. Thus, this empirical study which explores these issues is justified as required to add to the present body of knowledge in the field.

### **1.5. Research aims**

The research question, aims and objectives are supported by the points made above and the literature reviewed in chapter 2. The study attempts to address some of the gaps in existing knowledge through generation of an understanding of the characteristics and influences of informal learning interactions that take place between final year medical students and nurses in a hospital ward workplace environment. The study appears to be one of the first such studies exploring these issues in an NHS Healthcare Trust in the North East area of England. It is hoped that it may provide new knowledge and add to the limited existing body of knowledge in this field. Please note that for succinctness the term 'medical student(s)' will be used within this thesis to refer to 'final year medical students'.

#### **1.5.1 Overall study aim and objectives:**

##### **Study research questions:**

What is the nature of informal learning interactions between nurses and final year medical students in the workplace?

What is the perceived value of these interactions for both of these groups?

**Overall study aim:**

To develop an understanding of informal learning interactions taking place between nurses and final year medical students in the workplace and to explore the perceived values of these interactions for both the nurses and final year medical students.

Objectives:

1. To increase awareness and knowledge of informal learning interactions between nurses and final year medical students in the workplace.
2. To gain an insight into the characteristics of informal learning interactions between nurses and final year medical students in the workplace.
3. To consider the factors that influence informal learning interactions between nurses and final year medical students
4. To explore the perceived value of these informal learning interactions for both nurses and final year medical students.

The aim and objectives were met by conducting a qualitative ethnographic research study on two wards where final year medical students were on placement in a district general acute hospital in the North East area of England.

**1.6 Overview of the Research Approach**

The crucial methodological question for any study is how can the researcher find the desired knowledge and understandings in order to achieve the objectives of the research? The key phenomena of this research is to develop an understanding of informal learning interactions taking place between nurses and final year medical students in the workplace and to explore the perceived values of these interactions.

This has informed the research position that has been adopted for this study which is the interpretive paradigm. The interpretive paradigm embraces a number of research

stances which have a central purpose of seeking to interpret the social world (Higgs, 2001). Within the interpretive paradigm there are a range of research approaches available. Ethnographic methodology was chosen to develop the required understanding of informal learning interactions between nurses and final year medical students. A more detailed description and discussion about the study methodology can be found in chapter 3.

For the purpose of this study data collection methods included observations; field notes and one to one semi -structured interviews. Data analysis was informed by content and thematic methods that involved in-depth, repetitive reading and interpretation to identify categories and themes in the data. Further detail about the adopted research methods used is provided in chapter four.

The use of a quantitative research approach would not have been compatible with seeking to understand individual experiences. The quantitative research epistemological (dealing with the nature and origin of knowledge) and ontological (dealing with what constitutes reality and being) positions are not appropriate with the study of individual experiences from the perspective of participants. In a quantitative paradigm, truth and meaning are considered to exist independently of the knower (Grotty, 1998). Researchers use the evaluation criteria of objectivity, reliability and validity in an attempt to predict and explain the objects of their research (Higgs, 2001). However, observations, experiences and perceptions of nurses and final year medical students of informal learning interactions in a workplace environment cannot easily be condensed or determined as required in quantitative research.

## **1.7 Structure of the thesis**

**Chapter 1:** This chapter presents a general introduction to the thesis. It offers background information about informal learning interactions between nurses and

medical students in the workplace; outlines the purpose, rationale and general aim and objectives of the study; followed by brief outline of the rest of the chapters in this thesis.

**Chapter 2 (Preliminary literature review):** Chapter 2 provides an exploration of relevant literature from a theoretical perspective and a review of some relevant research information. The chapter begins with an exploration of learning, definitions of informal, formal and non – formal learning, medical education and learning in the workplace environment. These examinations identify key issues and gaps in literature and the consequent development of the study's research objectives.

**Chapter 3 (Methodology):** This chapter discusses the philosophical assumptions underpinning this study, and justifications for the methodological approach taken. An ethnographic methodology has been employed which sits within social constructionism. This enabled the exploration of the practical experiences of informal learning interactions in the workplace environment. A brief discussion of ethnography, its strengths and limitations are also outlined in this chapter.

**Chapter 4 (Methods):** The purpose of this chapter is to provide a detailed description of all the activities undertaken in this study for generating data using an ethnographic approach. The activities required in planning and preparing the study such as ethical matters, recruitment and sampling approaches are detailed. There is an indication of the field work undertaken encompassing the process of actual data collection. Finally, the data analysis process is discussed.

**Chapters 5 (Study Findings):** This chapter reports on the key findings drawn from the data collected in the study. The chapter brings together the findings from both the ethnographic observational sessions and the one to one semi structured interviews. It also involves findings from the focus group and ad hoc interviews carried out with medical students that were an additional part of the feedback component of the data collection process. The chapter is structured around a number of core categories and sub themes identified.

**Chapter 6 (Discussion):** This chapter provides a discussion and interpretation of the key study findings identified in chapter 5. The discussion points made are located within wider literature and research to strengthen their critical relevance. The proposed conceptual model derived from the findings is presented and discussed, providing insights into understanding informal learning interactions between medical students and nurses in their workplace. The characteristics of these interactions and the core constructs influencing these are described and analysed.

**Chapter 7 (Study implications recommendations and conclusions):** This chapter begins by restating the aims and objectives of this research and assessing the extent to which they have been met. The methodological strengths and limitations of study are appraised to allow an appreciation of the effect of methodological restrictions on the findings. I also justify my claim of making some contribution to existing knowledge and I also present a personal reflection of my doctoral journey. This chapter also offers recommendations arising out of the study findings in relation to policy and practice as well as suggestions for further research.

### **1.8 Reflexivity**

My underlying suppositions as researcher were identified at the beginning of the research process (APPENDIX 1) and I have used a reflexive approach throughout my research journey to address my beliefs and ideas. This has helped me examine my position and to try to ensure frankness and clarity, all of which will contribute to quality and rigor of the study (discussed in Chapter 4 section 4. 6). I used a reflexive diary approach to record and appreciate decisions made (Etherington, 2004; Dowling, 2006) (see APPENDIX 2 for evidence). This approach addressed the issues of transparency, the limiting of presumptions and prejudices and the need to meet deadlines determined by both funding and the needs of the hosting organisations.

Rather than explain points of reflexivity throughout my narrative, I have chosen to address the concept of reflexivity within the methodology chapter (Chapter 4).

### **1.9. Contribution to knowledge**

This study makes original contributions to knowledge in three main ways: conceptual, practical and methodological. At the conceptual level, the nature and characteristics of informal learning interactions and the factors influencing these informal learning interactions between nurses and final year medical students in a ward environment are presented. At a methodological level, the use of ethnography framed within social constructionism and symbolic interactionism offers a unique contribution to knowledge creation within a hospital ward workplace setting. This is because it approaches understanding from a qualitative stance with meaning constructed from experience of interaction between individuals and language. It offers something a quantitative approach would not have allowed. At a practical level this study has the potential to help scholars and practitioners understand the scope of informal learning interactions in a clinical environment based on empirical evidence. This may lead to changes in practice in terms of preparation for placement opportunities and inter professional education activities.

### **Summary**

In this chapter, I have provided an introduction to the study area and the research questions. This research aims to give insight into informal learning interactions between final year medical students and nurses in the workplace. The principal purpose of this research is to develop an understanding of these informal learning interactions, their characteristics and influences upon them. The research paradigm that was adopted is the interpretive using an ethnographic approach. The next chapter provides a review into underpinning literature.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

In this chapter literature is reviewed to provide a theoretical background to the research. This review draws upon both theoretical and empirical literature and is structured by thematic separation into three major categories. The first category explores understanding conceptualisations of learning and in particular informal learning. Secondly, learning in the workplace setting literature is reviewed and finally the third category concentrates on inter-professional education and interactions between medical students and nurses. The chapter concludes with a summary synthesis of the literature reviewed and how this has shaped the study and provides a justification for the research study and its conduct. This supports the view of Machi and McEvoy (2010) who identify that the purpose of the literature review is to make a well-argued case for the research and to provide context and background for the area of study. The strategy used to conduct the literature search will be discussed initially.

### **2.2 Literature Search Strategy**

Reviewing the literature takes a lot of time, is daunting and at times challenging, but it is also valuable. This literature review is a vital part of the research process and has an important and vital contribution to almost every operational phase of the study (Kumar 2014). The initial search for literature was focussed around three key areas: informal learning, learning in a workplace setting and inter-professional education involving medical students and nurses. These areas were in response to the research question and aims and objectives of the study (see chapter 1). As the areas are quite wide-ranging and there were time and resource limitations, a clear strategy was required. The model below demonstrates the literature review process undertaken. This process involved a number of stages of activity as identified in figure 2.1.



**Figure 2.1: Literature review process (Northampton University 2018).**

In following the literature review process the topic area, informal learning interactions between medical students and nurses, was identified and the Population Exposure Outcome (PEO) method was used to help determine keywords. The PEO format is used extensively in nursing and health research to help manage and break down research questions. It helps to identify the key concepts and develop appropriate search terms to describe these. The PEO question format is useful for qualitative research questions. Questions based on this format identify three concepts: (1) Population, (2) Exposure, and (3) Outcome(s). In relation to this study the main concepts in the research question are ‘nurses’, ‘medical students’, ‘interactions’, ‘informal learning’, and ‘workplace’ and the PEO format was applied as shown in the table below. However, it is important to acknowledge that this framework informed but did not drive my searching. Its use was part of the process of helping to develop an effective search strategy.

**Table 2.1: PEO application**

<b>Search strategy</b>	<b>Key concepts</b>
Population (P)	Medical students Nurses

Exposure (E)	Workplace/ clinical environment/ informal learning opportunities/ interactions/education/ learning
Outcome (O)	Characteristics/ nature of Informal learning interactions/practices

The literature reviewed was obtained in variety of ways. Initially electronic database searching was conducted using the university library search engine. Basic initial search terms included combinations of key words including informal learning, nurses, medical students, workplace, practices, interactions and combinations of these. The literature search was then performed applying the following combinations of search terms; 'informal learning (or training) at work', 'informal learning (or training) in the workplace', 'informal learning (or training) in the clinical environment/ on a hospital ward', 'workplace learning culture in a clinical environment', 'informal learning medical students and nurses', 'medical students learning in practice', 'informal workplace learning nurses medical students', 'informal learning interactions/practices' 'informal learning interactions medical students and nurses', 'general medical education and informal learning 'and inter professional education medical students and nurses'. This approach identified how these constructs were articulated in the titles and abstracts of peer-reviewed journals from both domestic and international educational journals. This step resulted in an abbreviated list of scholars, research topics, journals and search criteria that were used to narrow the search. There was no restriction on the country of origin but only literature offered in the English language was accessed. There were no time limits on search parameters.

This electronic searching was complemented by hand searching and searching electronically within appropriate journals (health service, nursing, medical, education and sociological journals) and government publications. Once a useful source was

found cited references from the article or book were acquired and reviewed. Internet searching yielded results that the electronic database searching did not, including government publications and web -links to articles published in peer-reviewed journals. Literature was acquired throughout the whole time that the study was undertaken by following up suggestions as a result of conversations with colleagues, feed-back after poster presentations at conferences and regular re-searching of electronic databases, the internet and paper sources.

The literature obtained has been used for different purposes within the thesis. Searching the literature has been an ongoing process that began at project proposal development and approval and continued through to the literature that has contributed to the final discussions.

The following databases and sources were used:

**Table 2.2: Databases searched**

<ul style="list-style-type: none"> <li>• Web of Science</li> <li>• Zotec alerts and RSS feeds.</li> <li>• Google Scholar</li> <li>• Department of Health</li> <li>• NHS</li> <li>• NHS England</li> <li>• Gov.UK</li> <li>• NMC</li> <li>• RCN</li> </ul>	<ul style="list-style-type: none"> <li>• GMC British Education Index</li> <li>• CUREE Education-line</li> <li>• ERIC</li> <li>• Higher Education Academy website</li> <li>• International Education Research Database.</li> <li>• JISC Mediahub</li> <li>• JSTOR</li> </ul>
---	---

As the first stage literature review developed, I followed up key pieces of literature through citation searches, as suggested by Booth et al (2012), and other sources of literature including books and policy documents. This approach led to an expansion of

the initial literature review. A methodical review of the literature was undertaken with the use of a critical review model (APPENDIX 3). In line with Booth et al (2012), this was in order to exclude poor quality and irrelevant research.

The literature analysis and synthesis attempted to get a different perspective on this study by looking for similarities and differences within the literature regarding particular themes. Booth et al (2012) described this process as rearranging the bricks (existing literature) in new ways, which therefore helps to explain what is already known in addition to identifying any gaps in the literature (Machi and McEvoy, 2012).

## **2.3 Review of Key concepts**

### **2.3.1 Learning**

Definitions of learning vary widely across different academic disciplines, steered principally by the different subjects and different approaches used to assess its occurrence (Barron et al 2015). Barron et al (2015) argue, that many of these definitions can be aligned with a common 'umbrella concept' of learning that can be applied across these different disciplines by considering learning as 'the processing of information derived from experience to update system properties' (Barron et al, 2015p 405). Educational psychologists inform us that any activity which leads to a change in our behaviour is 'learning' (Prozesky, 2000). Eraut (2000 p114) states that 'learning is defined as the process whereby knowledge is acquired' and more recently Cobb (2018) on his personal internet site defines learning as 'the lifelong process of transforming information and experience into knowledge, skills, behaviours, and attitudes.'

Several learning theories have been used to describe how learning occurs that are useful to help to explore types of learning. Masethe et al (2017) identify that a number of learning approaches are discussed in the literature. Researchers while trying to

clarify the concept and process of learning have reached different theories. (Pange Lekka and Toki 210). Therefore, many approaches and viewpoints have been developed about trying to understand learning, the most popular are (a) behavioural (stimulus-response behaviour); (b) cognitive (cognitive constructs and mental processes); (c) constructive (knowledge is constructed by the learner); (d) human (the focus is on the whole person and the uniqueness of each individual); and, (e) critical (the learner as critiquing the society) (Weibell, 2011).

Behaviourists generally view the learner as passive and that they only respond to environmental stimuli. It is this basic stimulus-response relationship that leads to an observable change in behaviour (Ormrod, 1999). Alternatively, cognitive psychologists argue that learning cannot be described in terms of a change in behaviour. Within cognitive thinkers there is a distinguishable difference between learning and memory and learning is viewed as the attainment of new information. Cognitive learning theories explain that learning occurs from a change in mental activities, and that learning can occur whether or not there is an observable change in the learner. Under this perspective learning can be produced by transferring information to the learners from an instructor, learners then become information processors and in turn knowledge is organized, coded and recalled later when necessary (Barrett and Erin, 2003).

Constructivism sees learning as an active process where the learners build on their own interpretations by drawing on their prior knowledge (Pange and Markis, 2000).

Humanism considers learning as a personal act to fulfil one's potential. An independent intentional action related to the values an individual develops through the lifespan (Rogers and Freiberg 1994; Huitt 2009). In humanism, learning is student centered and bespoke to that individual, and the educator's role is that of a facilitator. Finally, social learning theory focuses on the learning that occurs within a social context. It proposes that people learn from one another, by means including observation, imitation, and modelling (Ormrod, 1999).

These learning theories are normally associated with practice in the sense that theory drives practice and as such are considered relevant in aiding an understanding of learning types and in particular within this study informal learning. However, much of the literature demonstrates that since learning is a recurrent and dynamic process, any effort to classify it is problematic with boundaries being imprecise, making distinctions between them subjective (McGivney, 2002; Colley, Hodkinson and Malcolm, 2002; Livingstone, 2001). On the other hand, categorization can be valuable in breaking down broad phenomena such as learning in order to understand how and what people learn. Thus, recognizing these limitations of classifications as well as the similarity between each theory, I will investigate different types of learning.

### **2.3.1.1 Types of learning**

Rogers (2004) identifies that there is a tendency to see learning as participation in learning activities, although it is recognised that people may participate in learning but actually learn little of what is being taught. However, in order to conceptualise informal learning interactions, the key concepts of formal, non-formal and informal learning need to be explored. The next section discusses each of these.

#### **Formal Learning**

Formal learning is considered to be the type of learning which occurs in formal schooling systems, ranging from early childhood to university levels. It is, hierarchically structured, highly institutionalized and chronologically graded and certified (e.g. Coombs and Ahmed, 1974; Schugurensky, 2000; Hodinkson, Colley, and Malcolm, 2002; Jarvis, 2010; Livingstone, 2010). Schugurensky (2000) identifies formal learning as an institutional ladder that goes from preschool to higher education. This system he argues has the following features:

- a) It is highly institutionalized;
- b) It includes a period called 'basic education' (which varies from country to country, and usually ranges from 6 to 12 years) which is compulsory, implements a prescribed

curriculum, with explicit goals and evaluation mechanisms. It involves certified teachers, and institutional activities are highly regulated by the state.

c) It is propaedeutic in nature which means that each level prepares learners for the next one, and that to enter into a certain level it is a prerequisite to satisfactorily complete the previous level.

d) It is a hierarchical system, usually with ministries of education at the top and students at the bottom

e) At the end of each level, graduates are granted a diploma or certificate that allows them to be accepted into the next grade or level.

Similarly Eraut (2000) identifies with a broad definition of formal learning, as a situation that has any one of the following characteristics of a learning situation: -

- a prescribed learning framework
- an organised learning event or package
- the presence of a designated teacher or trainer
- the award of a qualification or credit and
- the external specification of outcomes.

In making this distinction, Eraut (2000) argues it is important to avoid giving formal learning a negative inference as there are many types of formal learning and many circumstances where these different modes are applicable.

### **Non-Formal learning**

Non-formal learning occurs through planned and organized educational activities and programmes which are located outside the formal schooling structure. Non-formal learning usually is short-term and voluntary. Examples may include learning in a wide variety of programmes such as language courses, arts or sports classes, various community workshops and training. Like formal learning, non-formal often, learning requires the presence of a teacher and some form of a curriculum (e.g. Coombs, Prosser, and Ahmed, 1973, Schugurensky 2000, Bjornavold, 2000, European

Commission Communication, 2001). For Eraut (2000) the most fundamental distinction of non – formal learning is the level of intention to learn. He argues that at one extreme there is the phenomenon of implicit or tacit learning, at the other there is planned deliberate learning in time especially set aside for that purpose. Eraut's discussion of non-formal learning is therefore concerned with identifying different kinds of situations in which tacit knowledge may be gained or used, simultaneously or otherwise.

Although it doesn't result in formal certification such as a degree or diploma, non-formal education is highly enriching and builds an individual's skills and capacities (Eaton 2010). The European commission (2001 p32-33) defined non-formal learning as 'learning that is not provided by an education or training institution and typically does not lead to certification.' It is, however, structured in terms of learning objectives, learning time or learning support. Non-formal learning is intentional from the learner's perspective. The EU category of non-formal learning is influenced by Eraut's stance combining parts of Eraut's definition of formal learning (a prescribed learning framework and an organised event) with parts of what he terms non-formal learning (no certification, not provided by a training or educational institution). Livingstone's (2001) review of literature on adults' formal, non-formal and informal learning draws upon the traditions and writing around adult and continuing education. He identifies that non-formal learning occurs 'when learners opt to acquire further knowledge or skill by studying voluntarily with a teacher who assists their self-determined interests, by using an organised curriculum, as is the case in many adult education courses and workshops' (Livingstone 2001 p2).

Whilst Eraut's work is firmly located in the workplace, and that of the European Union (EU) in a lifelong learning policy context, Livingstone draws upon the traditions and writing around adult and continuing education (Colley, Hodkinson and Malcolm 2002).

All provide useful insights into defining non- formal learning. Not least in the sense that they are all striving to make non- formal learning visible and recognised.

### **Informal learning**

Several scholars have defined informal learning, often in contrast with formal and non-formal learning, but no consensual definition has emerged (Clarke, 2004). Whereas formal learning is characterized as highly structured, institutionally sponsored, and classroom- based learning with an educator or trainer, informal learning is characterized as 'predominantly unstructured, experiential, and non-institutionalized' as individuals make sense of their everyday working experiences (Marsick and Volpe 1999, p.4).

As Jarvis states 'learning is intrinsic to being' (Jarvis 2010, p.63) and Doyle (2001), identifies that learning is part and parcel of our lives. The focus for this study and thesis is the ever-present form of learning; known as Informal Learning. As Livingstone (1999 p 51) points out, informal learning can be defined as 'any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions, or the courses or workshops offered by educational or social agencies.' In other words, as Schugurensky (2000) identifies, informal learning includes all learning that occurs outside the curriculum of formal and non-formal educational institutions and programmes. He argues that if informal learning is defined as something that takes place outside formal learning and non-formal learning and so discussion about these two concepts are needed to help our understanding of informal learning. This is important in the context of this study, as it is considered that a great deal of a medical student's valuable learning takes place within medicine's informal and hidden curriculum (Stefaniak 2017) and so it may follow that potentially, medical students' interactions with nurses in the workplace have a role to play with this informal learning process.

*'If all learning were to be represented by an iceberg, then the section above the surface of the water would be sufficient to cover formal learning, but the submerged two thirds of the structure would be needed to convey the much greater importance of informal learning'.(Coffield ,2000p 1).*

In Coffield's statement above, informal learning is often invisible and unknown even to the learners. As Tough (2002), Jarvis (2010) and many other researchers have suggested, it is the most common form of learning. Tough's decade of research found that a great part of what adults learn falls within this category. His results showed that around ninety percent of adults do some form of intentional (self-directed) informal learning in a year. He also found that seventy percent of what adults learn is self-initiated and self-guided (Tough, 2002). The focus for this study and thesis is therefore the ever-present form of learning; known as Informal Learning, Marsick and Watkins (2001) state that informal learning is relevant to practice in many cultures and contexts including hospital and healthcare settings the focus of this study.

Informal learning is used to refer to any learning which occurs outside the domain of formal and non-formal educational programmes. It is a lifelong process, which covers the everyday acquisition of values, experiences and building of skills and knowledge (Coombs, Prosser and Ahmed1973, Schugurensky 2000, Foley, 1999, Richardson and Wolfe 2000). As Livingstone (1999 p 51) points out, informal learning can be defined as 'any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions. In other words, as Schugurensky (2000) identifies, informal learning includes all learning that occurs outside the curriculum of formal and non-formal educational institutions and programmes. He argues that if informal learning is defined as something that takes place outside formal education and non-formal education, discussion about these two concepts are needed to help our understanding. This is also important in the context of this study to allow a rationalisation for the study and to help to compare and contrast how my study fits into the context of existing research and understanding.

In the concept of informal learning it is important to note that the word learning and not education is used, because in the processes of informal learning there are not educational institutions, institutionally authorized instructors or prescribed curricula. It is also pertinent to note that this also leads to saying, outside the curricula of educational institutions and not outside educational institutions, because informal learning can also take place inside formal and non-formal educational institutions. In that case, however, learning occurs independently often against the intended goals of the explicit curriculum.

Van Noy James and Bedley (2016) propose that a useful framework for understanding informal learning is to view learning as occurring on a continuum of formality based on the following attributes: the location in which learning occurs, whether learning is instructor or student led, the extent to which the content learned is an organized curriculum, and one's purpose for seeking knowledge. Learning that is most formal can be characterized as learning that occurs in schools that award credentials, is instructor led, covers an organized curriculum, and where knowledge is intentionally sought. Based on this framework Van Noy James and Bedley (2016) categorize informal learning into broad categories. Organized informal learning can occur in a range of settings including schools, work, the community, and home. It is intentionally sought by learners, employs a curriculum and an instructor, but does not lead to an educational credential. Everyday informal learning also takes place at work, community, school, or home. It does not have an organized curriculum or an instructor, and learners have a range of intentionality in which the learning can be either self-directed, incidental, and/or embedded in the process of socialisation.

Eraut (2010) prefers to define informal learning as learning that comes closer to the informal end than the formal end of a continuum. The informal end of the continuum is characterised and includes implicit, unintended, opportunistic and unstructured

learning. There is also the absence of a teacher. In the middle, come activities like mentoring, while coaching is considered as a more formal activity (Eraut, 2010) It should be noted that although there is no fundamental hierarchical relationship between formal, non-formal or informal learning, the fact that informal and non-formal learning are defined by many by what they are perceived to lack in relation to formal learning suggests the dominating influence of formal education and the comparative subordination of non-formal and informal learning (Schugurensky 2006, p 164-165, Hager and Halliday, 2009 p. 24). Colarydin (2001 p 10) perceives, the terms informal and non-formal learning to carry a negative association in the sense that 'they are the negation of something else: they include what is not covered in formal education and training'. This hierarchical view of different forms of learning has been both a product and a cause of the imbalance in the provision of learning opportunities. More emphasis is given to formal learning than to the value of non-formal and informal learning. This is demonstrated by Hager and Halliday (2009) who state that 'a rich understanding of learning needs to recognize that both formal and informal are indispensable and neither reducible to the other' (Hager and Halliday 2009 p 23).

Although the above organization of learning into formal, non-formal and informal is widely recognized some academics believe that it is too simplistic and flawed (Hager and Halliday, 2009, Smith 1988). Some would critique this categorization as more concerned with the context of learning, i.e. where learning takes place, than with other characteristics such as process or content. This can be exemplified in the fact that, informal learning can and does happen in formal institutions as not everything that we learn in schools is through formal lessons or is planned in the curriculum. To help move away from this focus on the situation Jarvis (2010) makes such a distinction by introducing intended and incidental learning across the spectrum of formal - informal thus taking into consideration the degree of intention or deliberation that can distinguish different forms of learning. These considerations are important within the context of this

study in two main ways. Firstly, as the study is located within a particular setting or situation, in that, medical students are on placement in the clinical environment. Secondly as the study is attempting to develop more of an understanding of informal learning interactions there may be the possibility of these interactions occurring intentionally or deliberately.

Schugurensky (2000) identified three forms of informal learning depending on the level of consciousness and intentionality on behalf of the learner. These are (a) self-directed learning which is can be both conscious and intentional, (b) incidental learning which is conscious but not intentional such as learning as a by-product of working, and (c) tacit learning, sometimes also referred to as socialisation, which is neither conscious nor intentional. Bennett (2012) suggested adding a fourth form of informal learning, termed integrative learning. This type of informal learning is non-conscious but intentional as it involves inherent processing of tacit knowledge and sudden insights generated from instinct or so called 'aha' moments. For these reasons, Jeong et al (2018) argue, tacit, implicit knowledge such as practical know-how can only be gained from informal learning whereas explicit conceptual knowledge and skills may be gained from formal training.

The wider literature also identifies types of informal learning activities and practices. Crouse, Doyle, and Young (2011) and Clarke (2004) identified doing new tasks, working with others, observing others, trial and error, reading/ researching, surfing the web, reflecting on action, mentoring, job rotation, job shadowing, and networking. Lohman (2000, 2006) included, sharing materials and resources, asking questions, sharing and reflecting on other's practices and experiences, searching the internet, scanning professional magazines and journals, and trying out new ideas and techniques. Chan and Auster (2003) additionally discussed on-the-job training, attending conferences and self-directed projects.

Van Woerkom, Nijhof, and Nieuwenhuis (2002) emphasized critical reflective behaviours at work for effective informal learning, and highlighted, challenging group think, learning from mistakes, asking for feedback, and evaluating findings from research. These examples indicate that informal learning occurs in a number of different ways, involving individual cognitive processes as well as socio-cognitive for example, influenced by Kolb's (1984) experiential learning theory, Marsick, Nicolaidis, and Watkins (2014) claimed that as the learning process starts with recognizing difficulties between what is expected and what actually happens in everyday life reflective strategies are vital for helpful informal learning. In this view, informal learning identifies personal experiences related to daily routine work with a process of action and reflection.

Marsick (2009) suggested enablers of informal learning that develop an individual's analytical thinking that challenges fundamental beliefs and assumptions include intentionality, conscious thought, planning, and proactivity. In comparison, drawing from Wenger's (1998) community of practice, Poell et al (2000) proposed learner-network theory states that informal learning occurs in relationships and interactions with various social contexts (e.g., people, job. tasks, and organizational culture), and that depending on the different types of learning networks different kinds of informal learning needs and patterns can emerge. Joeng et al (2018 p 132) suggests that taken together, ' the informal learning process; is not linear, nor does it indicate personal meaning-making in a vacuum; rather, it is highly contextual and emerges from self - perceived cognitive gaps and task-dependent social interactions.'

Several scholars have defined informal learning, often in comparison with formal learning, but no agreed definition has emerged (Clarke, 2004). This seems to have also been the case in relation to this literature review. Whereas formal learning is characterized as highly structured, institutionally supported, and classroom- based

learning with an educator or trainer, informal learning is characterized as 'predominantly unstructured, experiential, and non-institutionalized' as individuals make sense of their everyday working experiences (Marsick and Volpe 1999, p. 4). Informal learning is initiated by the learners, either individually or with others, in pursuit of knowledge and skill acquisition to serve the individual's as well as the organization's objectives (Jeong et al, 2018). By definition, informal learning involves non-institutionalized and unstructured learning, and occurs deliberately or spontaneously, encompassing broad learning behaviours, activities, and theories (Marsick, 2009). Informal learning activities are seen to be largely 'self-directed, intentional, and field-based' (Cerasoli et al, 2017, p. 2). Similarly, Eraut (2004 p. 250) described informal learning as; implicit, unintended, opportunistic and unstructured learning and the absence of a teacher'. Prozesky defines informal learning as 'we learn informally from what we experience day by day: things which happen to us make us change the way we think and act. We may not even be aware that we are learning, which may cause problems - for example, health workers may learn bad attitudes from the example of others' (Prezesky 2000, p 30).

Therefore, informal learning is an individual learning process that is embedded and incorporated with daily work undertakings, primarily provides tacit, implied knowledge, and can be deliberate, spontaneous, unconscious, unplanned, and unintended or conscious, planned, and intended, resulting in an improvement of knowledge and skills. It is a complex phenomenon that is relevant to everyone. Another path into the notion of informal learning is to view it simply as implicit learning. Such learning results in what Polanyi (1967) calls tacit knowledge – 'that which we know but cannot tell'. However, as Eraut (2000 p16) again points out, a string of writers have explored how 'what they talk of as tacit knowledge can be made explicit and how explicit learning can lead to tacit knowledge. It may be that no knowledge is totally implicit or explicit'. Eraut (2000) himself identifies three different forms of tacit knowledge. The first of these is

situational understanding; this is based largely on practical experience and remains mainly unspoken. The second he refers to as standard, routine processes which he argues are developed for coping with the demands of work without suffering from information overload. Some of these may have begun as explicit procedural knowledge then become automatic and so increasingly tacit. The final form that Eraut identifies is intuitive decision-making.

Van Noy, James and Bedley (2016 p 2) identify that 'key literature reviews and theoretical frameworks from multiple fields provide a variety of definitions of informal learning'. This has also been demonstrated within this literature review. Several subjects areas have examined informal learning, including those directly focused on informal learning (Colley, Hodkinson, and Malcom, 2003; Misko, 2008; Schugurensky, 2000); on adult and lifelong learning (Livingstone, 1999; Merriam, Caffarella, and Baumgartner, 2006); and on workplace learning (Eraut, 2007, 2009; Hann and Caputo, 2012; Le Clus, 2011, Noe, Clarke, and Klein, 2014). Each of these fields of enquiry provides different ways a unique perspective of defining informal learning. For example, the informal learning and adult and lifelong learning literature characteristically examines informal learning from the individual learner's point of view, whereas the workplace learning literature often takes an organizational standpoint. This literature review recognizes this variety of viewpoints in the existing literature, but it is felt that as the setting of the study is a workplace environment that this area needs greater consideration. Therefore, the next section will focus on informal learning in the workplace. As this study is focussed in a workplace environment the work of Eraut (2000;2004;2010) is intrinsically important and will be discussed in more depth in the next section which will explore issues relating to workplace education and in a particular informal learning in the workplace.

### **2.3.2 Informal learning in the workplace**

Workplace learning refers to learning located in a setting primarily designed for practice, that is, work (Tynjälä 2008). Learning in a workplace is not restricted to individuals considered as learners but can include all individuals participating in work (Teunissen 2015). Therefore, workplace learning in the wider literature is primarily concerned with professionals developing practice by participating in work activities (Malloch, Cairns, Evans, and O'Connor 2011). Workplace learning is also referred to as 'work-based' (Morris and Blaney, 2010) or 'practice based' (Teunissen, 2015) learning, though with similar meanings. Workplace learning might involve courses, and at other times, it is part of a professional's everyday work. The workplace can also refer to a range of settings and is not necessarily constrained to a location where an individual is employed to perform certain tasks (Cairns and Malloch, 2010). However, this thesis will refer to a workplace setting, a clinical area often referred to as a ward in a general acute hospital in which patient care is delivered, whereby teaching and training are undertaken and where research is occasionally performed.

Today's students are taught practically relevant theory in lectures and seminars using well theorised methods supported by evidence of effectiveness. They are taught and learn skills through high-fidelity simulation. The workplace is where competence eventually has to be applied, shown and developed, it is the theatre for much of a doctor's undergraduate and postgraduate education; workplace education is therefore self-evidently important. Learning in such a work-based setting, the clinical environment, presents specific opportunities, challenges and situations (Morris and Blaney, 2010, Tynjälä 2008). Although medical education has been dealing with, and also investigated, learning in the clinical setting for a long time, the concept of workplace learning has only recently been used in medical education (Dornan, Boshuizen, King, and Scherpbier 2007; Mann 2011, Teunissen, 2008). Hager (2011) argues that this interest in workplace learning has arisen from dissatisfaction with

formal vocational training. Despite efforts to close the gap between formal courses and clinical practice, practitioners continue to feel unprepared and insufficiently knowledgeable (Morris and Blaney, 2010). This section will therefore provide an overview of the theoretical basis for workplace learning.

Learning in the workplace is typically highly appreciated by learners however research has shown that the workplace as a learning environment also offers many challenges (Morris and Blaney, 2010). As workplaces are primarily organised and concerned with practice, learning often takes second place to work (Fuller and Unwin, 2011). The organisation of workplaces also makes the process of learning challenging to structure and understand, as learning can go undetected (Eraut, 2004). Learning in workplaces is also known to be typified by undesirable outcomes as the influence of role models may be considerable (Bleakley and Bligh, 2008). In medical education, this is seen as part of what is often referred to as the hidden curriculum (Hafferty and Franks, 1994). Nonetheless, workplaces as learning environments also offer some important advantages. What is learnt in a workplace setting is often highly appropriate to learners as it will be used in the same setting as it was learnt (Billett 2002a). Also, the workplace allows the learning of knowledge and skills that are more situated and contextualised than are offered in a formal setting (Tynjälä 2008). For professional education, the workplace can often contribute to the development of a professional identity and vocational belongingness in a way that formal education in no way can (Tynjälä, 2013).

Though workplace learning takes place both formally as well as informally, research has found informal learning to be more dominating than formal arrangements in business organizations (Ellinger 2005, Ellinger and Cseh 2000, Marsick 2009, Mattox 2012). The contribution of informal learning in the workplace has been identified by Eraut as increasing employee retention, improved individual performance, and enhanced organizational performance (Eraut, 2007). Informal learning is felt to be

powerful in any organization to improve overall occupational ability (Van der Heijden, Boon, Van der Klink and Meijs, 2009). Individuals learn from their work, and from the people who they work with (Strimel, et al, 2014). Individuals also learn in different situations, including their continuous interactions with others as well as their own experience. When people interact with their work colleagues, they can learn by asking questions and receiving immediate feedback on their shared activities and actions (Lohman, 2005, Eraut 2011).

It is often difficult to distinguish informal learning from usual work life as it is embedded within individuals' day-to-day activities (Merriam, Caffarella and Baumgartner 2007, Marsick 2009). However, when the nature of such knowledge is implicit the transfer of knowledge is not easy through informal learning across the organization (Nonaka 1994, Nonaka and Takeuchi 1995, Nonaka and Toyama 2003). Workplace informal learning is therefore usually unplanned, unstructured, and may not use traditional approaches of formal learning but may be incorporate off-the-job methods, such as training courses, seminars, coaching, and other educational programmes (Marsick, et al 2006, Strimel et al. 2014). The formalized approaches of this type of learning may not always be compatible with the learning purpose and the learners' needs. It is apparent that formal learning methods often lack the ability of transferring new learning to be applied 'on the job' (Chen et al 2001, Garvin, Edmondson and Gino 2008). On the other hand, informal learning is attractive because of its efficient use of time and money (Halliday-Wynes and Beddie 2009), and frequent new at work knowledge accumulation (Berg and Chyung 2008, Lucas and Moreira 2009).

Smith, Oczkowski, and Smith (2008) identify that informal learning provides the opportunity for individuals at work to learn from the work culture more than any formal arrangements. Similarly, informal learning has been found to be more adept in the workplace setting compared with formal learning programmes (Billett 2002a, Berings,

Poell and Simons 2005, Van der Heijden et al. 2009, 29). The tendency, therefore in work-based learning, has shifted from formal learning to informal learning (Boud and Garrick 1999, Tjepkema, et al 2002).

The recognition of informal learning in the workplace contributes to satisfy mutual interest both from the individual and organizational perspectives (Kim and McLean, 2014). As the individuals in an organization initiate and drive their informal learning while they are working, it saves money (Enos, Kehrhahn and Bell 2003, Hoffman 2005, Merriam et al. 2007), capitalizes right use of time, and satisfies learners-specific needs (Hoffman 2005, Neal and Hainlen 2012) compared with formal learning. In addition, when employees develop their competences and proficiency from their informal learning experience at work, they can increase their employability and are able to tackle work-related internal and external challenges (Joo and Ready, 2012).

Informal workplace learning is broadly described by the behaviours of the individual learner who generally trigger and engage context-specific informal learning processes and activities (Lohman, 2005). Three categories of informal learning activities have been identified and include learning on your own and independently from others, learning from or with others, and learning that is not interpersonal or socially dependent (Noe, et al, 2013). Reflection following actions, and personal experimentation, are examples of informal learning on your own (Jeon and Kim 2011, Lohman, 2005). Learning from others includes activities such as asking for feedback, sharing personal experiences, stories and lessons learned, and through peripheral participation that results from working alongside more experienced co-workers (Bjork, et al 2013). Searching for information in journals and online are examples of activities that are non-relational (Lohman, 2009).

Workplace contextual factors can help or hinder individual learners' participation in informal learning processes. This can influence the frequency of individual engagement in informal learning activities (Doornbos et al 2008, Kyndt, Dochy, and Nijs 2009, Noe et al. 2013). Contextual factors are categorized by Marsick and Watkins (1999) as social-relational, structural-hierarchical, and work conditions. Social-relational factors are described as the ways in which relationships are formed and maintained amongst employees and employee groups (Korte, 2009; Van der Rijt, et al 2012). Examples include building trustworthy relationships, informal feedback, and knowledge sharing among others (Connelly et al 2012; Wang and Noe, 2010). Structural hierarchical factors include how the organization arranges its staff and managers to accomplish work tasks (Bjork et al. 2013). Examples include functional and physical job tasks and reporting structures, distribution of authority and roles, and access to information and technology. Work conditions include subtle aspects of work being performed, for instance, how frequently a given work task might be required or performed, the relative risk of performing specific duties, and the types of equipment or tools required to perform work (Marsick and Watkins 1999).

It is further argued that the process of learning cannot be assumed to look the same in workplaces as it does in formal environments (Tynjälä, 2008). Billett (2002a, 2004) argues that even though processes of learning are not always formalised, they can be highly structured and inherently pedagogical. For example, in many professions, such as medicine, there are pathways from junior positions, to more senior ones and eventually to a leading position, although the specific requirements for each position are not written anywhere except perhaps in specific job descriptions. Furthermore, Billett (2002a) argues that describing learning at work as informal simply describes the circumstances in which learning takes place rather than the 'what' informal learning at work consists of. Therefore, workplaces can be, and often are, important environments for learning even though originally designed for work.

For students involved in vocational training, such as medical students, workplace learning can be structured in a number of ways. Guile and Griffiths (2001) identified five different models of work experiences in their analysis of the relationship between work and learning within education.

1. The traditional model merely launches students into work, with supervision aimed at adapting students to work practices. The outcome of this work experience is the acquisition of required skills.
2. The experiential model adds an element of reflection on experiences into the process for the appreciation of experiences and realizing relevance for students. Students are thus briefed to make them aware of expected learning and to record experiences.
3. The generic model uses work experiences for students to learn key skills and competences. There are well-defined learning outcomes which students are assessed on. In this model, students' activities are managed by supervisors who act as facilitators collecting evidence on learning through systems such as portfolios or log books.
4. The work process model focuses on students' holistic understanding of the work context. The primary focus in this model is to enable students to adjust themselves to the work context in order to become attuned to work.
5. The connective model is proposed as an alternative to compensate for the limitations of the former four models. In this model, a reflexive connection is made between formal and informal learning as well as students' conceptual development and their ability to work in different contexts. This requires educational institutions and workplaces to work closely together to create environments for learning in order to empower students to make use of work experiences in their conceptual development.

The five models can be helpful when considering how workplace learning is arranged for students.

In its early stages, workplace learning was theorized primarily from a psychological perspective, meaning that there was a focus on what individual learners obtain in terms of knowledge and skills and the extent to which these are transferable to similar settings (Hager, 2011). Learning is referred to as what individuals do, and tools to support learning include reflection, as suggested by Schön (1983). Social and cultural aspects of learning can be acknowledged as factors influencing learning; however, these factors are limited in the extent to which they locate workplace learning. Workplace learning from the psychological perspective therefore highlights many similarities in terms of how learning is dealt with in formal settings (Hager, 2011) as learning is seen as relatively simple, basically as a subject of attainment.

According to Hager (2011), critiques of this cognitive view have argued that it underestimates the influence of contextual, social and organisational factors. The socio-cultural perspective offers an alternative and appears to be rapidly emerging as the dominant perspective in the literature on workplace learning. The socio-cultural perspective views learning as individuals' participation in learning where the context is considered a significant dimension, and not simply as a background factor (Hager, 2011). The work by Lave and Wenger (1991) on communities of practice (CoP) and legitimate peripheral participation is understood to have had a strong influence on this theoretical turn towards socio-cultural perspectives on workplace learning (Hager, 2011). Identifying workplaces as a CoP directs focus to relational and social aspects of the workplace and views all its members as co-constructors of knowledge (Wenger, 1998, Wenger et al 2002).

Studies of workplace learning have often noted the relationship between collective learning processes and the individual in work activities (Fenwick 2008). According to Lave and Wenger (1991) and Wenger (1998), members of a work community engage in a collective process of learning. These have been termed communities of practice

(CoP) and are embedded in the relationships of the workplace. They create identity and give meaning to professional practice. Central to the development, function, and sustainability of a CoP are themes of belonging, participation, and collaboration. Thus, a CoP is about something, rather than simply a set of informal relationships (Alvsvåg 2008; Andrew et al. 2008). It is important to understand the factors that shape ongoing learning for medical students and nurses and as how to most effectively sustain this learning in the dynamic and demanding work environments in which they practice.

So far, this chapter has demonstrated that workplaces as learning environments can be defined in various ways depending on the theoretical perspective chosen. While having previously been described as informal and unstructured, there are indications that workplaces are powerful learning environments, though in different ways than in formal locations (Billett, 2002a).

Many of these general themes are important for consideration in helping to formulate and develop this study and the next section will focus more on informal workplace learning within a hospital setting in order to help contextualise this study.

### **2.3.2.1 The hospital as a workplace setting**

According to the World Health Organization (WHO, 2018) a health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health. Healthcare systems vary by country and are financed by varying arrangements of public and private sector funding. In the UK there is the publically funded National Health Service (NHS). Hospitals and university affiliated teaching hospitals are health care organizations that form a major component of the NHS.

Hospitals are made up of health care professionals from multiple professions forming several interrelated care teams that strive to provide safe and consistent care. Care teams have to coordinate and communicate amongst their own team members and

with other teams to carry out patient care. Compared to learning within a university, learning in a work-based setting, such as a clinical environment, presents other opportunities, challenges and conditions (Morris and Blaney, 2001, Tynjälä, 2008). Although medical education has been dealing with, and also investigated, learning in the clinical setting for a long time, the concept of workplace learning has only recently been used in medical education (Dornan, Boshuizen, King, and Scherpbier, 2007, Mann, 2011, Teunissen, 2008).

It is well known that the hospital ward is a workplace is a major clinical learning environment for student nurses and medical students (Burns and Paterson 2005; Charleston and Happell, 2005, Elliot, 2002, Hand, 2006). The clinical workplace is varied with each setting having its own unique social identity, culture and behaviour. They are highly complex social environments that provide irreplaceable experiences for student learning. However, as an example of an alternative view, Chan's (2002) investigation of the clinical learning environment of nurses, also suggested that students were vulnerable in this setting and that effective communications between all persons involved in the design and the delivery of clinical learning was absolutely necessary and highly significant. Various studies have indicated that not all practice settings are able to provide a positive learning environment (Windsor, 1987; Lofmark and Wilkblad, 2001; Espeland, and Indrehus, 2003).

Today most healthcare professional education programmes including medical students and nurses have a substantial emphasis on learning in the clinical setting. In clinical learning environments the intention is that students will learn knowledge, skills and attitudes necessary for their future professional work. It is therefore deeply embedded in healthcare professional education that substantial learning takes place in clinical environments. In the medical education literature, the concept of learning has been broadened in the last decades to include activities in various settings, and the

workplace has been upgraded as an important learning environment (Isba and Boor 2011, Morris and Blaney, 2010). The workplace has long been a significant site for medical student learning at all stages of education and training and there are increasing concerns about new graduate's preparedness for professional practice and lack of hands on work before graduation (Illing et al. 2008).

The report of the General Medical Council (GMC) 'Tomorrow's Doctors' (GMC 2009) strongly encouraged learning in clinical settings and required that medical schools integrate clinical and non-clinical learning. Learning was largely formal in the university medical school facilitated by lectures, tutorials and anatomy sessions. Learning is now increasingly based within the NHS, facilitated by bedside teaching, ward rounds and patients. It also became clear that boundary crossing skills were needed like communication skills with patients and other professionals and simulations experiences were introduced. Historically, medical students were given hands on experience of increasing complexity during clinical placements, they shadowed qualified doctors during rotations and they were given junior doctor status immediately after qualification. Tomorrow's Doctors (2009) reinforced the requirement for integrated learning with organized practical experience of working with patients throughout all years of a doctors training. It also specifically required at least one period of student assistantship before graduation when a medical student acts as an assistant to a junior doctor.

While medical schools already offer clinical placements, there are differences in duration, the role of students during the placement, and how the placement is monitored, and learning evaluated. Graduation of different UK medical schools shows substantial differences in performance (Mc Manus et al 2008). Tomorrow's doctor's, Lewington (2012) states signalled a change in delivery of undergraduate medical education, with emphasis moving from gaining knowledge through memorising and reproduction of factual data of lectures and seminars to a learning process that

included critical study of principles and the development of independent thought and by providing opportunities to develop skills to interact with patients and colleagues.

Workplace training in medicine is central to developing work-ready graduates and to help prepare medical students for work life (Kilminster and Jolly 2000, Delany and Molloy 2009, Newton et al. 2009, Strand et al. 2015,). Through immersion in authentic clinical environments, learners observe standards of practice, and partake in work-based activities that promote translation of theory to practice. Workplace education often occurs in an informal and idiosyncratic fashion due to the lack of predictability of learning environments, learning stimuli and resourcing and support.

Liljedahl et al (2015), state that learning at the workplace also has the potential to contribute to a socialisation process of students into their future profession.

Socialisation occurs when an individual acquires the social knowledge and skills necessary to be a practitioner in a specific workplace (Van Maanen and Schein, 1979). In the study by Liljedahl et al medical students felt that they grew accustomed to switching supervisors and placements often, and that they learnt how to adjust to new situations though they frequently experienced new environments. Seabrook (2004) identified that medical students also expressed that they often felt that they were in the way, and that their individuality was not valued. Medical students were more patient centred in the middle of their education than at the end of their educational programme. Further, they became more focused on their medical profession at the end of the programme.

According to Mann (2011) the years as a student are central to the evolvment of an individual's professional identity. It is during this period that the progression into a profession takes place. Early placements are seen to be beneficial to students, such as early opportunities to observe the future profession, contextualise learning and

opportunities to improve clinical skills (Kamalski, et al 2007). Medical students rated to learn their profession and to develop professionally as vital during their early clinical practice (Dyrbye, et al 2007).

In their project on early- and mid-career learning, Eraut et al. (2004) studied informal learning among engineers, accountants and nurses. They found four main types of work activity that usually resulted in learning: working alongside others, participation in group activities, tackling challenging tasks, and working with clients. There is still a need for additional and deeper understanding of students' learning in real world workplaces and this study will partly add to this albeit in a specific way in terms of exploring understanding of informal learning interactions between final year medical students and nurses in the workplace.

### **2.3.3 Inter-professional education and medical education.**

The Lancet Commission (Frenk et al. 2010) reported that globally, health professions education has not prepared graduates for addressing the health challenges of the twenty-first century, largely because of fragmented, outdated and static curricula. Health professionals' education has traditionally been conducted separately in silos that focus on discipline-specific contents (Lennon-Dearing et al. 2009). In order to improve healthcare services and outcomes and to prepare a collaborative practice-ready workforce it is important to learn inter-professional (IP) teamwork skills during undergraduate studies (WHO 2010; Bridges et al. 2011; Hammick et al. 2007). In inter-professional education (IPE), the idea is, that students with different professional educational backgrounds learn with, from, and about each other during certain periods of their training, interaction being seen as an important aim (Barr et al. 2005; WHO 2010; WHO 2013). There is evidence that IPE can help to challenge and break down the stereotypical views that professionals hold about one another. It can also result in greater understanding of the roles of other professions, their responsibilities, strengths and limitations (Parsell and Bligh 1999; Barr et al. 2005). It is suggested that

professionals working in teams to deliver health services not only improves quality, but also leads to better patient outcomes, greater patient satisfaction, improved efficiency, and increased job satisfaction for health professionals (Frenk et al. 2010).

One of the most recent drivers for IPE within the United Kingdom has been the introduction of the Health and Social Care Act (2012) and Public Bodies (Joint Working) (Scotland) Act (2014). The act aims to provide a more coordinated, cost effective approach to the provision of health and social care, by integrating services from health boards and local authorities. In medical training, there is an awareness amongst educators that doctors must be effective members of multi-disciplinary teams (MDTs) that include other doctors, nurses, care assistants, therapists, and pharmacists as well as clinically competent (McGettigan and McKendree 2015). There is also a need to work effectively across specialty boundaries and between hospital and community settings. Nationally and internationally this view is embraced by healthcare policy makers and educators and there have been calls for effective inter-professional training, both within the workplace among qualified professionals and during pre-qualification (WHO 2010). The effects and evidence of IPE has been systematically reviewed in the Best Medical Education (BEME) Guide No. 39. (Reeves, et al.2016). The results showed positive outcomes of IPE. Overall, this review identified that learners responded well to IPE, attitudes towards collaborative learning improved, and knowledge and skills necessary for collaborative practice were enhanced. Traditional pedagogy may not be helping effective collaboration between students and training teamwork skills. Modern pedagogy and IPE learning environments are required to get students from different disciplines to learn and work together (Tervaskanto-Mäentausta 2018).

The study by Aase, Hansen and Aase (2014) is a Norwegian study that explored nursing and medical students' perceptions of inter-professional teamwork. The results

show that traditional models of professional role perception still prevail amongst both groups and strongly influence students' professional attitudes about taking responsibility and sharing responsibility across disciplinary and professional boundaries. It found that many students had experienced group cultures detrimental to team work. Focusing on clinical training, the study found a substantial variation in perception with regard to the different settings and activities e.g. ward rounds for inter-professional teamwork. These ranged from arenas with positive collaborative learning to arenas characterized by distrust, confrontation, disrespect and hierarchical structure. This study demonstrates, particularly in clinical training, the importance of a stronger focus on inter-professional teamwork in healthcare education. The study's small sample of students prevents these findings from providing an accurate representation of the opinions of all medical and nursing students and as the study took place at a single clinical training institution in Norway, the applicability of its findings may be limited. This study is at odds with the BEME review (2016) identified above. This may be due to these studies being located in different countries and cultures and the types of participants involved. The main message however, is that the importance of different disciplines and professional groups understanding each other's roles and responsibilities is important, to strengthen the mutually beneficial positive outcomes of good healthcare.

Zanotti et al (2015 p7), suggest that university-based IPE for medical students 'is feasible and effective'. As a result, it seems advantageous that it should be considered in all the core-curricula of healthcare professions. This would foster positive attitudes to inter-professional collaboration in all future workers. This is important in the context of this study which explores informal learning interactions between nurses and medical students. As the focus is on interactions between these two groups inter professional learning is an umbrella term in which to contextualise this. It is however important to

identify any specific examples of interactions between nurses and medical students and this will be discussed in the next section.

#### **2.3.4 Medical student and nurses' interactions**

As described above inter professional collaboration seems essential to both nurses and medical students in their professional development and is linked to informal learning opportunities between these two groups in the workplace setting. There is a paucity of evidence available in the wider literature that discusses all of these elements together. Below I discuss some relevant studies, which help to consider interactions between these two groups that may help to provide insight to help develop and frame this study.

Nadolski et al (2006) carried out a project to determine how well medical students and nurses interact in the hospital environment, where physicians-in-training acquire their first experiences as members of the healthcare team. The objective of this study was to evaluate the quality of interaction between third-year medical students and nurses during clinical rotations. Although this study was focussed on third year medical students not final fifth years, as in this study, it is one of only a few pieces of evidence in the wider literature concerned with medical student and nurses' interactions and so worthy of discussion. This study took place in the USA and participants included medical students and nurses who had just completed their third year of training. A survey using an instrument which consisted of 7 items measured "relational coordination" among members of the health care team, and 9 items measuring psychological distress was the data collection tool. A result showed that respondents scored medical students as interacting with residents (junior doctors) the best and with nurses the worst. Conversely, nurses were seen as interacting with other nurses the best and with medical students the worst. Regarding measures of psychological distress (ranked 0 to 4, low to high), the interpersonal sensitivity score of medical

students was significantly greater than that of nurses whereas the hostility score of nurses was significantly greater than that of medical students. The authors concluded that the quality of interaction between medical students and nurses during third-year clinical rotations is poor, suggesting that medical students may not be receiving the sorts of educational experiences that promote optimal physician-nurse collaboration.

Medical students and nurses also experienced different levels of psychological distress, which may adversely impact the quality of their interaction (Nadolski et al 2006). However, it must be noted that although this study used a quantitative approach which may not have captured the experiences of the participants as fully as a qualitative study would have yet it still concludes that medical schools should strive to incorporate IPE into the curriculum. This supports the aims of this study as IPE interactions may also include informal learning interactions between nurses and medical students that this study has focussed upon.

Another study by Lee-Flicek (2012) identifies that while nurses and physicians are key members of the healthcare team, many studies show a breakdown in nurse-physician communication remains a concern. Physicians and nurses during pre-registration training contrast greatly and that this has been an important element in communication breakdown between the two professions (Dixon et al, 2006). This study identified that during the pre-registration education stages for both professions, emphasis is placed on their individual roles in patient care. The lack of co-educational experiences involving the two professions possibly leading to a lack of understanding of what each profession contributes to the interdisciplinary healthcare team, and this in turn complicates communication between nurses and physicians.

Robinson et al (2010 p 214) noted nurses believe physicians do not view them as professionals but simply 'purveyors of tasks'. Nurses attribute this belief to their awareness that physicians are not always knowledgeable of nurses' scope of practice and the autonomy nurses have gained. According to Dixon et al (2006 p. 377), physicians express frustration with nurses' communication style, describing it as 'disorganization of information, illogical flow of content, lack of preparation to answer questions, inclusion of extraneous or irrelevant information, and delay in getting to the point'. Clearly, each professional group perceives the other to be the main culprit in communication breakdown. Research suggests that physicians must be more aware of the scope of the practice and knowledge nurses can contribute to patient care. Likewise, nurses must provide information in a timely and accurate manner and understand the unique problem-solving process used by physicians (Tschannen et al., 2011). It is also recommended that in order to take appropriate action to correct patient concerns or problems nurses should be assertive in advocating for patient needs so physicians clearly understand the main issues (McCaffery et al., 2011). Although much of this literature focuses on physicians the relevance to training and therefore medical students means that the relevance of these points are important for this study. As participants involved not only are the same professional groups but the focus is on interactions between these groups and possible informal learning some of which may be related to understanding each other's roles and how to communicate effectively with each other.

Abdallah et al (2014) describe their experiences of a nursing faculty teaching medical students a module in clinical skills. They indicate that collaboration in education among medical and nursing professions can improve students' performance in clinical skills and consequently positively impact the quality of care delivery. Based in a medical school in Lebanon and involving a local faculty of nursing a module in clinical skills is

taught by nursing staff to first-year medical students. The module consists of informative lectures as well as hands-on clinical practice. From their evaluation it seems that medical students agree that the module enhances clinical skills and knowledge and supports cross-professional education between nursing and medical students. It reported that medical students highly appreciated the nursing faculties' staff expertise and perceived them as knowledgeable and resourceful. Nursing faculty participation in medical students' teaching is well perceived, has a positive impact, and suggests nurses can be proficient teachers to medical students. Nevertheless, it must be noted that that this was a limited two-year experience carried out in only one university in the Lebanon. It was not part of an integrated cross professional education plan applied throughout the medical curriculum. The long-term implications of the course are not known, and it is difficult to generalise that the findings could be applied to other settings. This study is of interest because it highlights the unique role of the nursing profession in medical education. This experience in a Lebanese university nurtures mutual dignity among different disciplines that other studies have identified may be required. In relation to this study it supports the need to understand the interactions between these two groups.

Walsh et al (2017) carried out a study to try and understand the experience of residents and nurses who had participated in a novel 4-hour nurse shadowing experience conducted during the first year of paediatric medical residency in a children's hospital. Using semi structured interviews to formally evaluate the shadowing programme the experiences of both the first-year residents and the nurses being shadowed were recorded. The results identified that shadowing led to improved resident understanding and appreciation of nurses' work. Both residents and nurses experienced enhanced relationships as they discussed opportunities to improve care delivery. In conclusion the study identified that shadowing a nurse proved to be a valuable experience that had an impact on participants. Although this study focussed on residents rather than medical students it is interesting that understanding the role of the nurse was felt to be

positive and influenced future practice. Like previous studies discussed (Abdallah et al 2014; Aase, Hansen and Aase 2014;) it suggests that inter professional activity is a positive approach to develop understanding between nurses and medical students which may in turn lead to better health outcomes. One could say however that many of these studies are perhaps limited by the use of a range of self-reporting techniques.

Interestingly, a blog entitled 'How can nurses help medical students?' provides a useful discussion about the relationship in practice between medical students and nurses. The thread of the blog arose from an aspiring registered nurse's enquiry about what other students in different professions felt what had been most helpful thing that a nurse has done for them and in their opinion, nurses can do to help or shouldn't do in practice. (Reddit, 2018). Many of the comments posted related to issues already identified within some of the empirical studies discussed (Abdallah et al 2014; Aase, Hansen and Aase 2014; Walsh et al 2017 Robinson et al; Dixon et al ;Tschannen et al., 2011 ) Primarily it was clear from the posts by both nurses and medical students that there is a tension between the professional groups, the types of training and role of 'mentor's on the ward environment that is different for both groups and that the medical students generally felt that they could learn a lot from the nurses they encountered.

Medical students involved in the blog generally identified that nurses have a lot of clinical experience, and that clinical experience is essential to learn whilst on placement. Throughout the postings the need for good communication and respect between the two groups was clearly articulated. Below is an example of a post on the blog that reflects the discussion throughout the thread.

*'[...]Doctors used to devalue nurses a lot, and completely ignore their advice and training; there's a movement away from that mentality, towards a more "team-based" framework, but it's a process in transition - and it doesn't mesh well with the strict physician hierarchy. So, what that means in practice is that you have a medical team, where the med*

*student is unquestionably the low man on the totem pole. The nurse is sort of part of the hierarchy, but also off to the side somewhat, since they have different training and expertise.....*

*Medical students have been given official training in those topics but have different levels of retention and application - and by definition, have very little clinical experience. So, the nurse/med student realms of knowledge are like a Venn diagram, where the middle region of overlap is completely unknown by everyone. This ambiguity is always going to create some awkward situations.....*

*..... at a lot of hospitals, nurses and house staff are generally respectful, with some subdued grousing behind closed doors ;) But some places have a more toxic work environment, which can escalate over time: nurses feel like doctors don't listen to them, so they take it out on the med students because they can, so med students get defensive and start devaluing the work of nurses, and that creates doctors like the guy in this thread who thinks all nurses are ego tripping, etc. I really wish that all the health science professions had to shadow each other to see what the stresses were like; I think my understanding of nurses would benefit if I saw what they were dealing with, and vice versa.....!' (Reddit 2018)*

It is quite reassuring in a way that the information described in the wider literature is also the same as discusses online in blog by the relevant practitioners and that the issue identified reflect to in the literature. These studies all identify the importance of interactions between medical students and nurses and the positive outcomes greater communication and inter-professional collaboration can bring. However, none of these were focussed on informal learning interactions.

## **Summary**

Through this process of examining wider literature I have been able to place the relevance of my research in the larger context of some of the key concepts that are embedded within the research question; informal learning; the workplace setting and interactions between nurses and medical students. The literature review has helped to compare and contrast how my study fits into the context of the existing research as well as helping to rationalize why the study is needed. This literature review is essential in helping to shape and guide this study by offering insights and different perspectives on the research topic. In the initial stages of the research it helped to establish the theoretical roots of the study clarify my ideas and develop my research methodology.

Later in the process, the literature review served to enhance and consolidate my own knowledge base and helped to integrate my findings with the existing body of knowledge.

## CHAPTER 3 METHODOLOGY

### 3.1 Introduction

At the beginning of any research project it is important to make apparent the philosophical viewpoints and beliefs that will inform the knowledge generated by the study (Guba and Lincoln, 1994). This chapter therefore outlines my philosophical approach to the research, firstly, the aim of the study and the research question asked are stated then I will provide a justification for the ontological, epistemological and methodological decisions made in planning the research strategy. Ethnography is presented as the chosen methodology and I discuss how this aligns to my research philosophy.

### 3.2 The research aim, objectives and question.

Malinowski (1992) commented there is a potential danger if a research study is started with a predetermined theoretical framework as the mind and thinking of the researcher could then be closed to other emerging insights (Hammersley and Atkinson, 1995). However, as Eisenhardt (1989) suggests an initial definition of the research question(s) is required, even in very broad terms, to prevent becoming overwhelmed by the potential quantity of data. It is also important to consider the way the phenomenon under study is being conceptualised. Cresswell (2007) states that research questions often help to indicate the methodological approach that can be used to conduct a research study. Therefore, I had to consider a set of research questions that would enable me to seek an understanding of the informal learning interactions between final year medical students with nurses in the workplace. These were then formulated into the aims and objectives and research questions as stated below:

#### **Study research questions:**

What is the nature of informal learning interactions between nurses and final year medical students in the workplace?

What is the perceived value of these interactions for both of these groups?

**Overall study aim:**

To develop an understanding of informal learning interactions taking place between nurses and final year medical students in the workplace and to explore the perceived values of these interactions for both the nurses and final year medical students.

**Objectives:**

1. To increase awareness and knowledge of informal learning interactions between nurses and final year medical students in the workplace.
2. To gain an insight into the characteristics of informal learning interactions between nurses and final year medical students in the workplace.
3. To consider the factors that influence informal learning interactions between nurses and final year medical students
4. To explore the perceived value of these informal learning interactions for both nurses and final year medical students.

As demonstrated by the literature discussed in chapter two, there seems little formal recognition within the professions and the literature that informal learning by medical students in the clinical environment is influenced by informal learning interactions with nurses. It was felt important to foster an understanding of relationships, as well as the processes, involved in the construction of informal learning interactions between medical students and nurses in the workplace within this study and so a qualitative approach to the research was considered to be most suitable to achieve the research aim. Additionally, as Silverman (2001) notes, qualitative approaches are particularly suitable when trying to understand a social situation about which there is limited understanding, and this is the situation in this study.

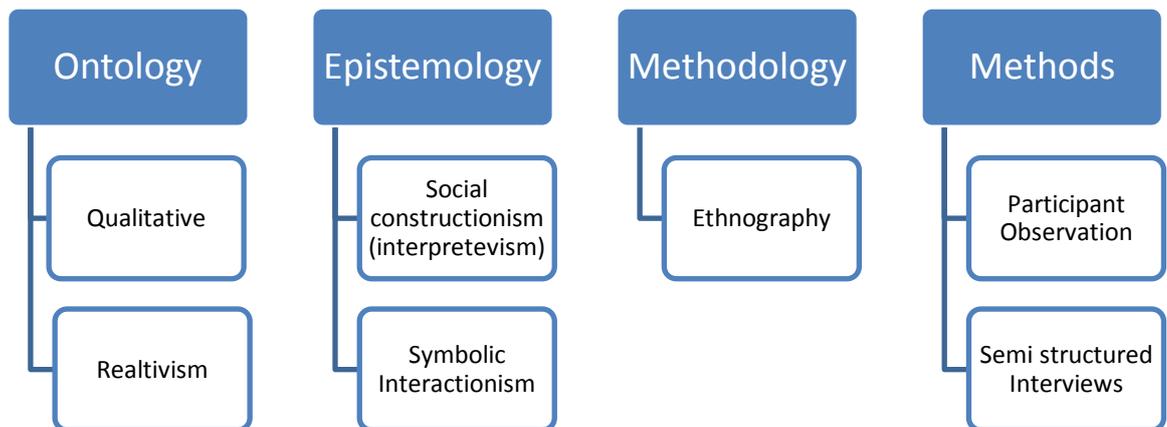
Onwuegbuzie and Leech (2005) discuss two opposite factions of social science researchers; those who employ quantitative research methods known as positivists and those loosely termed interpretivists who utilize qualitative research methods. The extremes of this contrast is conceptualised by Scott (2005) as two familiar research paradigms; naive realism (positivists) and radical relativism (interpretivists), – where paradigms are broadly defined as a ‘set of beliefs’ (Bostrom, 2004; p. 346) which relate to ‘different ways of making connections between ideas about the social world, the social experiences of people and the social world within which social life occurs’ (Blaikie 2007; p. 3). The theoretical paradigm selected for this study was that identified by Denzin and Lincoln (1998) as qualitative interpretation which constructs understanding from multiple data collection sources to answer research questions. This involved gaining interpretations, meanings, and understandings from those occupying the field under study (the clinical environment of two hospital wards in a local district general acute hospital) and who were then the study’s primary data sources (Nurses and final year medical students) (Mason, 2002). I sought an insider or emic understanding from the perceptions of participants as to their constructions of meaning rather than solely imposing my outsider view (Blaikie, 2000). The research strategy that was felt to be the most suitable to answer the research questions, and that also satisfied the ontological and epistemological perspectives on the nature of social reality held by the researcher, was that of a qualitative ethnographic approach (Mason, 2002). The following justifies the research strategy and methodological approach taken and provides detail of the philosophical approach underlying and influencing this.

### **3.3 The research strategy**

The important beliefs that define a researcher’s inquiry paradigm can be summarised by the responses given to the following questions, adapted from Guba and Lincoln (1994):

1. The ontological question: What is the form and nature of reality and, what is there that can be known about it?
2. The epistemological question: What is the relationship between the knower and would-be knower, and what can be known?
3. The methodological question: How can the inquirer go about finding out whatever he or she believes can be known?
4. What are the means by which knowledge can be collected or constructed?

These four elements constitute the research strategy which as Harvey (1990 p 1) states 'represents the methodic practice, theory and the epistemological underpinnings of a study' this is represented in diagram 3.1 below.



**Diagram 3.1 Stages of a research strategy and application to this study.**

These four elements are defined for this study as the following: -

**Ontology-** is concerned with the philosophical study of being, the nature and relations of reality and what can be known about reality (Guba and Lincoln,1994, Cresswell, 2007). Questions that relate to ontology include 'what is true'? 'What exists'? And 'What

is real'? This thinking is dedicated towards understanding whether things exist or don't exist.

**Epistemology-** relates to the nature of knowledge. It questions and tries to clarify what is known and the relationship between the 'knower' or the 'would be knower' and what is known (Guba and Lincoln, 1994). There are two key branches; the first relates to the nature of knowledge which tries to explain what is meant when a person says they know about something or when they say they doesn't know about a particular thing. The second relates to limits of knowledge: This is when a researcher tries to define the scope of knowledge. They want to know if knowledge is limitless. Can we know everything or are there are certain limits to what we can know?

**Methodology-** The methodology is driven by an individual's ontological and epistemological beliefs. The question is how the inquirer (would-be knower) goes about finding out whatever he or she believes can be known? (Guba and Lincoln,1994). A methodology therefore, offers the theoretical underpinning for understanding which method, set of methods, or best practices can be applied to a specific type of research to determine the way to go about discovering knowledge in a systematic way.

**Methods –** these are defined as the techniques or procedures used to gather or analyse data related to the research question or hypothesis (Crotty, 1998). The question is what are the different tools that will be used by the inquirer for collecting and analysing the data?

### **3.3.1: Ontology**

#### **3.3.1.1: Qualitative paradigm**

The process of developing the research strategy for this study began with the researcher considering their ontological position. Ontology is the philosophical study of the form and nature of reality and addresses questions about the nature of being (Guba

and Lincoln, 1994). Simply put ontology is concerned with the nature of being and the interaction between social structures and individuals. The ontological stance adopted for this study is within the qualitative research paradigm as I agree that individuals will offer multiple social constructions of realities and I wish to understand and interpret social interactions. This perspective considers that as a researcher I cannot hope to discover the reality that a positivist research approach would support where reality is seen as objective, “out there”, and independent of the researcher. It regards reality as something that can be studied objectively and that only scientific knowledge can reveal the truth about reality (Denscombe, 1998). Alternatively, qualitative research, Cresswell (2007) argues, is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human situation. It looks at the research setting from the viewpoint of deep understanding rather than micro-analysis of limited variables.

A qualitative paradigm generally allows an exploration of a phenomenon using descriptive, practical, realistic and unstructured approaches (Bryman, 1988). It investigates real world settings, generating rich descriptions grounded in the meanings attached to phenomenon by participants. It attempts to make sense of a given phenomenon by using different methodologies (Fraser, 2004, Corbin and Strauss, 2008). These attached meanings are influenced by social interactions and relationships in the environment (Fraser, 2004). This study reflects this ontological stance as it has involved an attempt to develop an understanding of informal learning interactions between nurses and final year medical students, by considering how the participants made meaning of these interactions. This lends itself to the qualitative paradigm as its focus is meanings attached by participants whilst recognising the influence of the relationships in the environment. Reality in this research is viewed from the perspective of the researched and gives dominance to their individual understandings of informal learning in a workplace, environment which is influenced by their experiences of the

world and the meanings they place on things. However, it was also recognised that participants would be likely to refer to shared experiences such as learning, relationships, interactions, the workplace environment and organisational influences. The chosen research approach therefore had to acknowledge the existence and significance of both the participant's interpretation and understanding and their lived reality. Therefore, the ontological qualitative stance adopted for this study was considered appropriate for addressing the study's aims and objectives and in answering the research questions.

Also, qualitative researchers seek rich descriptions of the social world and the understanding that can develop from the perspective of the subjects under study. Such understanding requires a developing research design and the researcher's role involves drawing on varied and creative strategies to seek understanding (Denzin and Lincoln 2003). Guided by Hammersley and Atkinson (1995) I agree that the researcher plays a key role in qualitative data collection and that social researchers are a part of the social world that they study. This is reflected and acknowledged in this study.

In the view of interpretivism, it can be argued, that value free information cannot be acquired, since the researchers use their own preconceptions and prejudices to guide the process of investigation, and also, the researcher interacts with the human subjects of the research, changing the perceptions of both parties (Walsham, 1995). However, as Lin (1998) explains interpretivist researchers not only look for the existence or non-existence of a causative relationship, but also the detailed ways in which it is demonstrated and the context in which it occurs. Thus, interpretive researchers are not interested and consider the 'what' but also try to understand the 'how'.in relation to the occurrences they are studying (Kelliher, 2005, Lin, 1998). Therefore, interpretivism, by

its nature, promotes the value of qualitative data in pursuit of knowledge and understanding reality (Kaplan and Maxwell, 1994).

An alternative to this qualitative paradigm is a quantitative mainly, positivist approach which focuses on a predictive ability and generalisation of findings (Lincoln and Guba, 2003). In positivist studies the role of the researcher is limited to data collection and interpretation through an objective approach and the research findings are usually observable and quantifiable. A positivist approach assumes that the researcher is independent of their research maintaining minimal interaction with research participants when carrying out the research (Wilson, 2010). In other words, studies with positivist paradigm are based on the notion of facts and consider the world to be external and objective. Positivism depends on quantifiable observations that lead to statistical analysis (Wilson, 2010). It is noted that as a philosophy, positivism is in accordance with the empiricist view that reality consists of micro level and independent events. Ontologically positivists view the world as being made up of 'discrete, observable elements and events that interact in an ordered, deducible, determined and regular manner' (Collins, 2010 p38). The positivist paradigm therefore, states that real events can be observed empirically, that is, characterized by observation and experiment instead of theory and explained with logical analysis that eliminates the involvedness of the external world and complex factors that may interact. This was not felt to be appropriate for this study as research findings in positivist studies lack insight into in-depth issues as required by this study.

### **3.3.1.2 Relativism**

Different notions of 'truth' infer and inspire different ideas of thinking, knowledge, meaning, and learning (Bleazby, 2013). Relativism relates to the ontological idea that

knowledge always comes from an 'evolved perspective or point of view' (Raskin, 2008 p. 13), where 'truth of x is relative to the truth of y' (Zimmerman 2007; p. 314). A relativist outlook therefore assumes that the external world exists only in so far as our thoughts about it – the world does not exist independently from our perception (Blaikie, 2007) or construction of it (Reason and Bradbury, 2006). Baldwin's (2006) relativist argument that relationships are fundamental to creating reality is felt to be central to this study as the focus is on interactions between different individuals in a workplace environment. A relativist would therefore accept and find entirely genuine and sincere knowledge claims generated from the 'reflections and experience of others' (Dewey cited by Dyke, 2009; p. 298). In opposition to this, a 'realist' is unlikely to accept these claims as realist's claim that the physical, and indeed the social, world exists independently from human action and observation (Blaikie, 2007.) and that this reality can be measured objectively.

It depends upon whether a realist or relativist, ontological belief is adopted that then guides the theory used to shape the research and the methods adopted (Blaikie, 2007). Morcol (2001) points out, that positivism is a philosophy based upon a realist ontology and a belief that external realities can be known objectively. This is compared with Baldwin's (2006) relativist argument that reality is created fundamentally by relationships. As a result, a realist is unlikely to accept knowledge claims generated from the 'reflections and experience of others' (Dewey cited by Dyke, 2009; p. 298) whilst to a relativist this would be entirely valid. This is the case in this study and the relativist standpoint is felt to be the most appropriate supporting the view of Corbin in Strauss and Corbin, (2008) who point out that there is no lone reality waiting to be discovered, rather there exist multiple realities which attempt to understand and build our social world (Grant and Giddens, 2002). This study explores these multiple realities

by looking at the meaning nurses and final year medical students give their informal learning interactions in the workplace.

### **3.3.2 Epistemology**

Epistemology is the theory of knowledge and concerns the means of knowledge production (Benton and Craib, 2001). The epistemological stance of this study is social constructionism which is linked to a qualitative methodology. Ontologically, constructionists believe that reality is constant, dynamic and reproduced by people acting on their interpretations and their knowledge of it. This is supported by Gergen (2009) who identifies social construction as what we take to be the world, and this importantly depends upon how we approach it, and how we approach it depends upon on the social relationships of which we are a part. Social constructionists, Crotty (1998) argues, recognise the hold culture has on individuals, he argues that it shapes the way we see things and even feel about things and gives us a specific view of the world. Individuals develop subjective meanings of their experiences. These meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrowing meanings into a few categories or ideas. The goal of this research was to rely as much as possible on the participant views of the situation being studied (Creswell, 2007).

Constructionism believes that people have an active role in constructing social reality and social structures, and these social phenomena are in a constant state of flux as people and their society are constantly changing (Bryman, 2001). Goodson and Vasaar (2011), state that constructionists believe that the world has many different meanings - none of which may be more valid than another. This is due to the fact that knowledge is socially constructed and situated within a particular context. Since each context is unique there will be different perspectives. Therefore, research studies such as this one, are primarily aimed at trying to develop an understanding of the context or group

of interest. This applies to the proposed study in that the study aims to develop an understanding of the informal learning interactions between final year medical students and nurses in the workplace. This context is quite a specific workplace, two clinical environments (wards) in an general acute hospital. There are two main groups of people under consideration, nurses and final year medical students. It is these dimensions that provide the different observed and narrative meanings to the study.

As part of this discussion it is helpful and important to identify that in the past the term social constructionism has been used interchangeably with the term social constructivism but in fact they do not mean the same. Social constructivism suggests that experience is mentally constructed through cognitive processes, but social constructionism has a collective social focus that incorporates the social world (Gergen and Gergen, 2004, Hall, 2013).

Social constructionism has links with interpretivism and symbolic interactionism as they all seek to understand the experiences from the perspective of those who live or lived in it. Unlike interpretivism, social constructionism is more concerned with the subjective experience of everyday life whilst interpretivism seeks interpretations of the same (Andrews, 2012). Social constructionism advocates multiple constructions of reality (relativism) through the interactions of the researched and their social world, and the interaction between the researched and the researcher. In the present study, this involved exploring the participants' accounts, ideas and knowledge about informal learning and interactions between nurses and final year medical students. It also explored the everyday individual workplace experiences of these two groups in relation to informal learning in the clinical setting.

Through written descriptions, researchers generate records and accounts of people's experiences and culture, including their own (Wolf, 2007). This highlights the importance of considering the researcher's epistemological position at the outset of any study and has involved paying attention to my own social constructions –influenced by my personal and professional background and experiences – and to the role of power in this process. In considering the most appropriate approach to this study, I began by drawing upon my prior experience as a researcher and my formal training both as a qualified teacher and educationalist via my undergraduate teacher training programme and my master's in education. These experiences developed my own understanding of my underlying philosophies in relation to teaching and learning. It also allowed me to develop a broad understanding of the main research paradigms and their underlying theoretical assumptions. However, I was aware that I also needed to explore in depth the precise position of informal learning related research and theory in the context of a workplace and specifically clinical setting. In order to value the various viewpoints, an exploration of the underlying epistemological and methodological assumptions was undertaken via extensive reading and training via the university postgraduate research training programme.

Through this process I became aware of the increasing recognition of the important role for social sciences and qualitative approaches in understanding the relationships between nurses and medical students and the interactions between these groups in the clinical workplace environment. Also, that for some time it has been generally accepted that methodologies for research into informal learning are complex and diverse and selected to suit the problem being investigated. Furthermore, there has been a growing acceptance of the need to take seriously people's own views about informal learning in the workplace and that ideological developments such as a move towards more recognition of informal learning in the workplace setting have created conditions for

acknowledging the place for lay theories and understandings about informal learning interactions.

### **3.3.3 Symbolic Interactionism**

Charon (2007) identifies that symbolic interactionism has its origins from pragmatism and interactionist schools of thought and as such suggests that human development is a process of evolution and human beings interpret and give meaning to the world through their active and dynamic nature and interactions with one another. This special type of interaction is defined as 'symbolic interactionism' and was formulated by Blumer (1969) who stated that this is the process of interaction in the formation of meanings for individuals. Symbolic interactionism is used in active evaluation of human interaction. Communication problems can easily occur as a result of different meanings which may lead to problems if the lines of communication are not open and assumptions are made. Blumer (1969) acknowledged this as a problematic situation that needs a solution where it is difficult for an individual to act in isolation. This study attempts to understand a problematic situation better, that is, understanding informal learning interactions between final year medical students and nurses in the workplace environment. To enable this, the researcher needs to interact with the research domain in order to find out the possible influential factors and possible solutions and then to be able to conceptualise and interpret this in a way that can be understood.

This theory comprises of three central principles of meaning, language and thought (Blumer 1969). These key principles lead to deductions about the formation of a person's self and socialisation into a larger community (Griffin, 1997). Firstly, human actions and behaviour toward people and things (phenomena) are determined by the meaning that they have given to them. This principle of meaning is fundamental to

symbolic interactionism. The second key principle is language which gives humans a way to convey meaning through symbols. Meaning is therefore developed by social interaction and symbols and interactions comprehensible to the mind and is identified in speech with others. The third key principle of symbolic interactionism is 'thought' which is concerned with the interpretations that we assign to symbols. The basis of thought is language and it is a process of mentally conversing about meanings, names and symbols also includes imagination. Which have the power to provide an idea about things, even something that is unknown to us, based on known knowledge where the meaning is directed and modified through an interpretive process, (Blumer, 1969; Hall 2013). The intention for using symbolic interactionism in this study is to highlight the symbolic meaning of informal learning interactions between the study participants. It is through language and thought that meaning was derived and then this symbolic meaning was then interpreted by the researcher. Like interaction, pragmatism views knowledge as being acquired collectively as individuals are socialised by their natural perspectives such as the culture in which they find themselves.

The researcher is of the opinion that in ethnography there is clear interaction between the researcher and the researched; however, how the interaction affects the emerging theory remains open for debate, (Cutcliffe and McKenna, 1999). The researcher is considered an integral part of the process and it is acknowledged that they will always bring some aspects of previous experience and personal interest to an inquiry but that they should, however, remain reflexive. My epistemological stance is therefore informed by social constructionism and symbolic interactionism founded on an understanding that the participants in this study are experts in their own lives and that my role was to investigate the socially constructed meanings and behaviours that form their realities. Furthermore, I acknowledge that whilst positivists have a tendency to differentiate between the objects of study and techniques used to research them,

interpretivists emphasise the importance of the collaborative relationship between the researcher and subject in co-constructing the data (Guba and Lincoln, 1994; Grant and Giddings, 2002). It is the latter that is important for this study. Consequently, the usual difference between ontology and epistemology becomes less clear as that which can be known is indistinguishable from the way in which knowledge is created. Therefore, in order to be able to interpret a participant's story reliably the researcher's position must be made overt (Grant and Giddings, 2002). This emphasises the need for openness and reflexivity for a more general exploration of the social phenomena under study.

### **3.3.4 Methodology**

The following sections describe the final component of the chosen research strategy, that is, the research methodology. Methodology is the point at which methods, theory and epistemology combine in a clear and open way in the process of directly investigating specific instances within the social world. Hence, a study's methodology makes obvious the presuppositions that inform the knowledge that is created by the investigation (Harvey, 1990).

In this study, the chosen methodology is ethnography. While many qualitative approaches can be useful in researching health, healthcare and medical education they are often modified to meet the needs of specific healthcare research and populations (Morse, 2007). Schwandt (2007) defined ethnography as the process and product of describing cultural behaviour and Roper and Shapira (2000), outline that ethnography is a research process that learns about people by learning from them. Polit and Tatano Beck (2008) classified ethnography into two main types: macroethnography, (concerned with broadly defined cultures), and microethnography, also referred to as focused ethnography, which concentrates on more narrowly defined cultures. Focused ethnography is seen as a useful tool in gaining a better

understanding of the experiences of specific aspects of lives. Cruz and Higginbottom (2013) have identified that focused ethnography has is an encouraging method for employing ethnography to focus on a distinct issue or shared experience in cultures or sub-cultures in specific settings, such as nurses working in a particular ward in a hospital. This reflects the use of ethnography in this study. Focussed ethnography allowing for an exploration of specific cultural perspectives held by sub-groups of people within a context-specific and issue-focused framework. In this study the sub groups are nurses and medical students; the clinical environment of a ward in a local general acute hospital provides the specific context and the issue under focus is informal learning interactions taking place.

Cruz and Higginbottom (2013) also identify that nurse researchers have used focused ethnographic in studies that have been published in the past decade, these studies have been used with the aim of enhancing nursing practice, to answer questions important to nurses, exploring issues they are aware of or which they may have experienced themselves, and addressing wider issues relevant to nursing. As ethnography involves relative submersion into the setting to be studied it is considered a qualitative research approach that is an appropriate methodology for a wide variety of research topics within healthcare and medical education. (Goodson and Vasaar,2011). The works of Leung (2002), Savage (2000), Le Compte and Schensul (2010), Pope (2005), and Atkinson and Pugsley (2005) all provide examples of ethnographic studies in health. They discuss ethnography as a social research method occurring in natural settings typified by learning the culture of the group under investigation and experiencing their way of behaving before striving to develop explanations. Ethnographies usually take place in a single setting and data collection being largely reliant upon participant observation and interviews.

Van der Geest and Finkler (2004) suggest the use of ethnography in the hospital setting. Hospitals are considered cultures within themselves and whilst some may be very alike; the community of the hospital is often unique. Hospitals can reflect dominant culture and belief systems and the care in each hospital can be different based on these cultural influences. This may not be obvious to the naked eye as from the outside hospitals may look and operate similarly. However, patient care and decision-making processes can vary widely not only from hospital to hospital but also within the different sectors within individual hospitals. Ethnography has benefits in that it allows for an understanding of the social and cultural backgrounds of different staff groups and how behaviours differ across groups. Useful ethnographies cited by Savage (2000) involving healthcare focus on several issues from cultural differences among clinic attendees to the clinical reasoning differences among physicians. This doctoral study focused on the cultural differences between and amongst nurses and final year medical students with regards to informal learning interactions that take place in a ward setting.

According to Le Compte and Schensul (2010, p12) there are seven defining characteristics of ethnography. These include:

- 1) Being carried out in a natural setting, not in a laboratory;
- 2) Involving intimate, face-to-face interaction with participants;
- 3) Presenting an accurate reflection of participant perspectives and behaviours;
- 4) Utilizing inductive, interactive, and recursive data collection to build local cultural theories;
- 5) Using both qualitative and quantitative data;
- 6) Framing all human behaviour within a socio political and historical context; and

7) Using the concept of culture as a lens through which to interpret study results. These however, may be dependent on the theoretical stance taken and the way the phenomena under study is conceptualised. With this in mind I have tried to apply these characteristics to this study in the table below.

**Table 3.1: Application of characteristics of ethnography according to Le Compte and Schensul (2010).**

Dimension (Le Compte and Schensul 2010)	Application to this study
1. Being carried out in a natural setting, not in a laboratory	Study was carried out in a clinical environment (a ward) in a local general acute hospital
2. Involving intimate, face-to-face interaction with participants	Study used methods that involved face to face interaction i.e. observation and interviews
3. Presenting an accurate reflection of participant perspectives and behaviours;	Observation / interview methods enabled an accurate reflection of participant behaviours and perspectives
4. Utilizing inductive, interactive, and recursive data collection to build local cultural theories;	Use of observation and interviews for data collection enabled cultural theories within the context of the ward between the different sub cultures of different professional groups.

5. Using both qualitative and quantitative data;	Using primarily qualitative data but some quantitative data may be captured in terms of demographic data, number of times a particular activity recorded etc.
6. Framing all human behaviour within a socio political and historical context	The behaviour observed was formed within the local social context
7. Using the concept of culture as a lens through which to interpret study results.	The culture of the ward as well as the sub cultures of the different professional groups used to help interpret the results.

Le Compte and Schensul (2010) suggest that ethnography should be used to help to document a process. This study attempts to document the informal learning interactions between medical students and nurses in the workplace that is a clinical environment.

Other qualitative approaches were considered prior to starting this project in particular the use of grounded theory and phenomenology as alternative approaches. Grounded theory was seen as attractive as it seeks to identify social processes and develop explanatory models of human behaviour grounded in the context in which they occur: The seminal work of Glaser and Strauss (1967) identified that the explicit goal of grounded theory is 'to generate or discover a theory' and that the discovery of this theory comes from data systematically obtained from social research' (Glaser and

Strauss 1967,p 2). This research approach was developed to counter criticisms of qualitative research as demonstrating a lack of rigour and contains many elements that are common to qualitative research such as seeking to collect data in a natural setting and the use of a constant comparative approach to data analysis (Morse and Field 1996; Silverman 2001; Mason 2002). However, the grounded theory approach requires a particular and structured method of data collection and analysis with the goal of the research being generation of an inductively derived theory (Bowling, 2002), which was not the objective of this study. The aim of the study is to develop an understanding of informal learning interactions by providing a description of the cultural phenomenon in the study not to derive theory. This highlights a difference between ethnography and grounded theory because it attempts to understand the participant's behaviour with respect to a specific culture. Further, as Johnson and Webb (1995 p 83) have cautioned the 'inflexible use of grounded theory concepts and excessive diagramming of relations between concepts can be as reductive as those survey methods which grounded theory was meant to supplant'. This is potentially a reason not to use grounded theory as in this study it was important to allow flexibility to enable flexibility and exploration of issues observed and that required following up and greater exploration.

Another research approach used commonly in the healthcare setting is that of phenomenology (Dowling 2004). This research approach seeks to derive the essence of an experience, by focussing on the lived experience and by exploring the perception of the individual's being in the world as a mode of inquiry. (van Maanen, 1990). As this approach focuses on seeking understanding of the meaning of the origins of a particular human experience, it would not provide a research approach appropriate to answer this study's aim of seeking an understanding of informal learning interactions. I accepted Le Compte and Schensul's (1999, p 21) description of culture as consisting of

'beliefs, behaviours, norms, attitudes, social arrangements, and forms of expression that form describable patterns in the lives of members of a community or institution'. In this study shared meanings were pursued that could only be accessed by engagement in the field (Mason, 2002).

After consideration of alternative approaches ethnography was chosen as the most suitable method for this study. This was because of its inductive approach which emphasises the internal, every day, taken-for-granted meanings and knowledge of the people being studied. (Gupta and Ferguson, 1997). It was felt to be the best approach for gaining an interpretative understanding from the perspective of the subject, about informal learning interactions in the workplace between nurses and final year medical students.

## **Summary**

This chapter has outlined the key philosophical influences relating to this study. The study involves exploring human behaviour and experiences which is a very complex undertaking that requires a research approach that will be able to capture these experiences from the participants' perspectives, although it is acknowledged that these can never be captured completely. Qualitative methodology was considered the most appropriate approach for capturing some of these complex human relationships and interactions. The ontological assumption is identified as relativism, which suggests that there are multiple realities and symbolic interactionism acknowledges the special contact between the researcher and the researched during the construction of their experiences. Social constructionism recognises that the experience of the researcher cannot be divorced from the social process. The application of the chosen ethnographic approach and the related research methods used in this study will be discussed in the following chapter (Chapter 4)

## **CHAPTER 4 METHODS**

### **4.1 Introduction**

This chapter will outline the methods used in this study to generate data. It provides an account of the preparation that took place prior to data collection, methods used for data collection and how the study was conducted in order to achieve the research aim. The data analysis process is also discussed. My role as a lone researcher is detailed together with considerations of access to the research setting. The ethical considerations are discussed as well as issues of quality and rigour, including the reflexive approach adopted.

### **4.2 Preparation before the fieldwork**

#### **4.2.1 Development of infrastructure to support the project.**

The doctoral studentship from which this thesis stems, is part funded by a local NHS trust and it was a general acute hospital run by this organisation that was the location for this study. I was required to obtain an honorary contract from the trust in order to enable me to carry out the research in this organisation and to make use of appropriate services and facilities. At the beginning of the study time and effort was spent in facilitating and securing this contract which took longer than originally anticipated to be in place. This was restrictive as it limited access to services facilities and staff. Once obtained I attended the trust staff training and induction day which provided a starting point with regard to the broader organisational culture and espoused values. This was also immensely valuable in helping to build relationships with staff within the trust that were later to be more involved directly with the study.

In terms of management of the project there was a supervisory team consisting of the principal supervisor from Northumbria University, and two representatives from the

NHS trust as second and third supervisors. There was also a broader steering group for the project which includes other key stakeholders with an interest in the project. Supervision team meetings took place on a monthly basis with supplementary ad hoc one to one meetings with the principal and second supervisor outside of these formal meetings. The steering group met on a quarterly basis (which replace the supervision meetings). At times supervision meetings were challenging as all members of the supervisory team had different professional and personal interests in different aspects of the project.

#### **4.2.2 Development of contacts and networks**

As the project took place in a local general acute hospital of the NHS trust it was vital to build and develop appropriate networks and contacts to assist in ensuring support for and involvement of staff and students within the project. Much time particularly in the first year was spent in making contact with key individuals within the trust and building relationships. It cannot be underestimated how time consuming this process was but that it was time very well spent without which it would have been very difficult to carry out the project. I had a number of meetings and e mail correspondence with key people including the trust research and development manager, the educational directorate manager the consultants on the proposed wards for data collection, the nurse educators, the medical student placement coordinator, the postgraduate co-ordinators and trust teaching fellows. This enabled me to formalise and gain permission to carry out the project in the hospital and clinical areas (wards) concerned, to introduce myself and become familiar with staff on the wards, to develop my data collection tools. It also helped me to understand and develop changes to the proposed research plans in terms of timescales of data collection due to waiting to find out the timetable for student placements. In particular, discussions and correspondence with the medical student placement coordinator led to changes in the timings for data collection within the

project. Information initially provided about the dates for placements for final year medical students' placements changed. This was important as it affected the time available for the observational data collection sessions to take place. This communication also highlighted and confirmed the fact that there would be two rather than one ward that could be used for observational sessions. These were the cardiology/respiratory and stroke wards. This was followed by contact with the consultants for these wards who agreed that data collection could take place in both locations.

Hammersley and Atkinson (1995) have noted that often availability and accessibility will influence the selection of research setting. Furthermore, as Stake (1994) identifies that accessibility and convenience allow prolonged periods of engagement in the field. The central selection criterion for qualitative research should be where most learning can occur, and that whilst "balance and variety are important, opportunity to learn is more important" (Stake 1994 p 244). These practical considerations were key criteria for selection of the research setting for this study. The settings were two hospital wards in a local general acute hospital. It is important to note that the wards existed before and will continue to exist after the research was completed and that as staff on these wards already included both nurses and final year medical students the context or staff groups were not created just for this study. The setting for this study was therefore a naturally occurring existing phenomenon and so the study took place in a natural setting with no attempt to influence individuals or social processes (Brewer 2000). The selection of the sites for the study was therefore in part opportunistic but also purposive, or judgemental (Hammersley and Atkinson 1995) as the wards selected offered an established team of nurses and final year medical students in a setting that was accessible in a local general acute hospital that may be viewed as 'typical' in a Northern regional context in that it has a full range of diagnostic testing, outpatient

clinics covering a range of specialties, as well as facilities for care of the elderly (NHS 2018).

Another key outcome of developing these links was that I was able to visit the clinical areas (wards) that were identified by the Trust as being the appropriate locations for the study to take place. I visited the wards on a number of occasions over a two-week period. This was a vital element of the preparation for the study activity as it enabled me to introduce myself and let staff know on the ward about the study and for them to clearly see the support and for them to get to know me and what was being planned in relation to the study. On two occasions, I carried out pilot observational sessions, one being in the cardiology ward developing my instrumentation. This also allowed me to practice recording field notes and relevant data and get a feel for the types of interactions taking place and between which staff groups. It was through this activity that it became evident that the main interactions taking place were between nurses and the medical students. I also carried out a draft analysis of the data obtained using content analysis initially to analyse the notes made and then developed data analysis using a thematic approach. Again, lessons were learnt in terms of the type of appropriate data analysis for this study and skills that I would need to carry out analysis effectively.

Training in the use of the computer programme NVivo 8 was also undertaken during this preparation period. This activity was a valuable learning experience and has influenced the project by questioning initial assumptions and planning decisions made. It helped to shape and focus the boundaries of the study. For example, initially it was felt that the study could focus on both medical students and junior doctors (F1 and F2) but as a result of these initial explorations and funding issues it was decided that just

the medical students and nurses would be the focus of the study. This was primarily due to the timing of placements taking place for the medical students on the wards. Also, funding used to support the studentship was linked to supporting the learning of medical students rather than junior doctors. It was also as a result of this activity that two not one ward was identified for data collection activities. This was again linked to the fact that these two wards would be where the final year medical students would be having their placements.

The medical students identified in the study were studying on an Undergraduate MBBS degree programme at a local Deanery. This degree is professionally accredited by the General Medical Council (GMC). This is a regional medical school and has partnerships with the Northern Region NHS and the NHS trust supporting this study is one of them. The NHS trust and Medical school work collaboratively in offering and supporting medical students whilst on placement in the hospital. The nurses involved in the study are all employed by the NHS trust and work on the two wards which are the settings for the research. Both the NHS Trust and medical school had worked previously with the University.

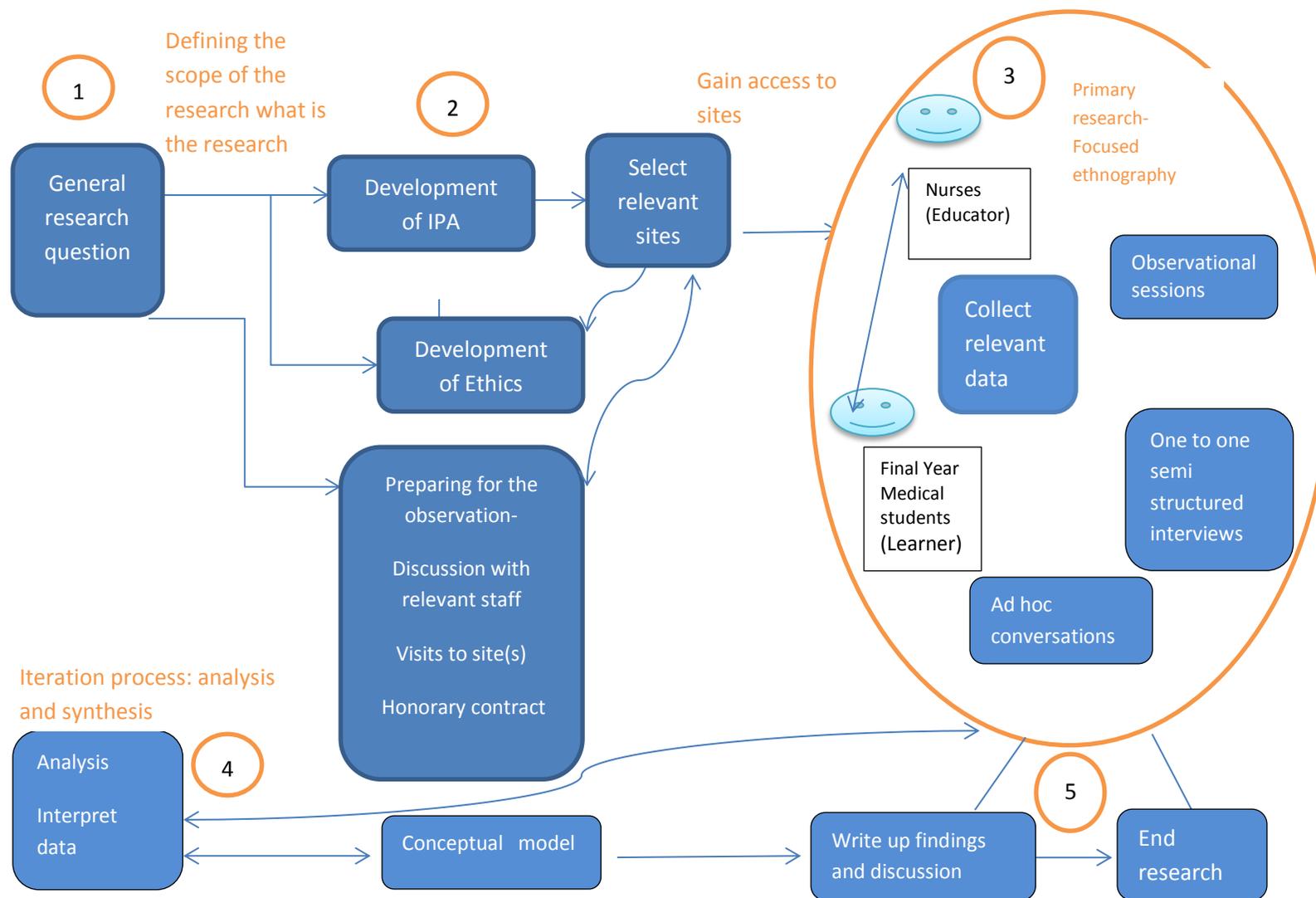
#### **4.2.3 Development of project plan**

During the initial year of this study I spent a lot of time developing a project plan. This began with the completion and submission of the required project approval form and assessment of this at a formal panel meeting, this took place January 2016. The researcher found this a positive experience being able to discuss the proposed study and ideas of how to deliver this with critical but constructive panel members. It was a good opportunity to discuss project ideas with others who were not part of the supervision team.

As a result of this preparatory activity there were a number of issues highlighted that meant changes to the original research proposal and plan. The major change was the gradual realignment of the project to be focused on developing an understanding of informal and non-formal learning between nurses and medical students as opposed to nurses' medical students and junior doctors in the workplace.

The first project proposal just included nurses and junior doctors but after discussions with the funders it became apparent that the funding for the studentship was connected to supporting the training of undergraduate medical students. Therefore, this group was added to a revised proposal. After the pilot data collection sessions, the proposal was again changed to focus on nurses and just final year medical students. The rationale for this decision was based upon a number of discussions with relevant staff, the potential impact of findings that would support the future training of this group and the practicalities of accessing these groups with very small numbers of junior doctors being available on the proposed wards at the required period of time. A Gantt chart to outline the project plan was developed to reflect the project plan. This chart has been reviewed and re - written at a number of stages throughout the project to reflect the practical issues encountered. The final version can be found in APPENDIX 4. A diagram outlining the overall project design can be found on page 78.

Diagram 4.1 Overall project design diagram



### **4.3 Discussion of methods and practicalities**

Research methods include the forms of data collection, analysis, and interpretation that a researcher proposes for their study. These depend upon the research question and the philosophy underpinning the research. This study has used an ethnographic approach with the intention of providing rich data, holistic insights into people's views and actions, as well as a description of the location they inhabit, through the collection of detailed observations and interviews. As Hammersley and Atkinson (2007) states, ethnographers detail the culture and the perspectives and practices, of the people in the research setting. The aim is to "get inside" the way each group of people see the world. They argue that ethnographic work usually has the key features listed below: -

- Peoples actions and interpretations are studied under everyday settings rather than those developed by the researcher, in other word, research takes place in the field.
- Data can be collected from a range of sources, but observation and informal conversations are key.
- Data collection is for the most part unstructured.
- The focus is generally small scale to facilitate an in-depth study and
- Data analysis involves interpretation and explanation of the meanings, functions and consequences of human actions and institutional practices.

Using ethnographic techniques is suited to the social constructionist framework as adopted by this study as they provide opportunities for the participants (nurses and medical students) to express their opinions and experiences. This is in line with the social constructionist approach, which believes that people have an active role in constructing social reality. The selection process for participants was purposeful and was not meant to be generalizable but specific to this study. The participants were

selected for specific reasons and so this is acknowledged as a biased process; as the researcher needed individuals that were the most informative and who would provide the richest data.

#### **4.3.1 Methods**

For this study, the following methods of data collection were used: -

1. Fieldwork- observations in a clinical workplace setting (two hospital wards).

Negotiations with a general acute hospital provide the organisational setting for observational activity. Marshall et al (1989 p.79) defines observation as 'the systematic description of events, behaviours, and artefacts in the social setting chosen for study'. Le Compte and Schensul, (1999 p.91) define participant observation as observation as 'the process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the setting'. The observational activity in the workplace was used to collect rich descriptions and data about informal learning interactions between nurses and final year medical students and factors influencing these. Be these direct, subtle discourse or non-spoken gestures between nurses and medical students. Participant observation allows a rounded more nuanced understanding of events as they unfold and therefore offers a more complete understanding of what was happening and of relevance. Field notes that were produced provided rich data that was written about observations. I assumed everything was important; nothing was considered trivial so as to try and ensure as little as possible was missed, my assumptions and preconceptions as a researcher were limited and not multiplied. Parallel entries of my personal reflections, clarifications and emergent findings were also recorded so that my thoughts and ideas could be revisited and reconsidered again and again.

The recorded data was analysed and categorised after each of the observations. Data analysis will be discussed in more detail later in this chapter.

The findings from the observations also provided the context for development of other methods of the study and helped in producing sampling guidelines and the interview topic guides (DeWalt and De Walt 2002).

2. One to one semi structured interviews were carried out with a sample of nurses and medical students to explore their perceptions about the informal learning interactions experienced. In advance of these interviews I pre-established an interview schedule including a set of questions to gain more information about specific issues. (See APPENDIX 5 for interview schedule). The initial interview schedule and interview questions were developed in order to help answer the overall projects research questions and to help achieve the projects aim and objectives. They were informed by the reading undertaken and key themes identified in the literature review process as well as from my own experience. The themes informed by the literature that helped to inform the interview schedule and questions are presented in Table 4.1 below.

**Table 4.1 Interview themes informed by the literature**

<b>Interview theme</b>	<b>Literature</b>	<b>Example question</b>
Informal learning	<b>Coffield</b> ,2000; <b>Coombs, Prosser and Ahmed</b> ,1973; <b>Eraut</b> , 2000;2004;2010 <b>Foley</b> , 1999, <b>Jarvis</b> ,2010; <b>Livingstone</b> ,1999; <b>Marsick &amp; Volpe</b> 1999; <b>Marsick and Watkins</b> ,2001 <b>Richardson and Wolfe</b> , 2000 <b>Schugurensky</b> , 2000; <b>Tough</b> , 2002; <b>Van Noy James and Bedley</b> , 2016	Do you think informal learning helps medical students with any of the following issues? Socialisation/Relationships/ Knowledge /Skills development (Medical student schedule)
Informal learning in the workplace	<b>Billett</b> , 2002a; <b>Caputo</b> , 2012; <b>Eraut</b> ,2000;2004;2010 <b>Hann &amp; Le Clus</b> , 2011, <b>Lave and Wenger</b> ,1991;	Do you recognise the value of workplace learning that takes place in the ward environment whilst on placement? - If yes why? If no, why not? (Medical student schedule)

	<b>Lohman, 2005; Noe, Clarke, and Klein, 2014 Smith, Oczkowski, and Smith 2008;Tynjälä 2008; Van der Heijden, Boon, Van der Klink and Meijs, 2009,</b>	
The clinical environment as a workplace	<b>Dornan, Boshuizen, King, and Scherpbier 2007; Espeland, and Indrehus, 2003; Hager,2011; Lofmark and Wilkblad, 2001; Mann 2011; Morris and Blaney, 2010, Tynjälä 2008,2013; Teunissen, 2008. Windsor, 1987</b>	Do you think nurses have a role in educating medical students when they are on placement on the ward? (Nurses schedule)
Medical students' interactions with nurses	<b>Abdallah et al, 2014 Dixon et al, 2006; Lee- Flicek ,2012 ; McCaffery et al., 2011 Nadolski et al, 2006; Reddit, 2018;.Robinson et al,2010; Tschannen et al., 2011; Walsh et al 2017</b>	How important do you think your interaction with medical students is important to the learning of medical students? (Nurses schedule)
Inter professional education and medical students	<b>Aase, Hansen and Aase, 2014; Barr et al. 2005; Bridges et al. 2011; Frenk et al. 2010; Hammick et al. 2007 Lennon-Dearing et al. ,2009; McGettigan and McKendree ,2015; Parsell and Bligh 1999; Tervaskanto-Mäentausta, 2018; WHO 2010;Zanotti et al, 2015</b>	Do you think there should be a wider recognition of this educational role of nurses by medical students? Nurses schedule)
Medical education including preparation for placements for medical students	<b>Delany and Molloy 2009; Hafferty and Franks, 1994 GMC 2009 Kilminster and Jolly 2000; Liljedahl et al 2015; Illing etal. 2008; Newton et al. 2009, Strand et al. 2015, Seabrook,2004</b>	Do you think medical students know about the potential educational role of the nurse before they go on placement? If yes how are they made aware of this? (Medical student schedule)
Types of informal learning activities and practices	<b>Chan and Auster,2003; Clarke ,2004; Crouse, Doyle, and Young,</b>	What do you think are the main areas of learning that you experience informally from nurses?

	2011 <b>Lohman</b> , 2000, 2006; <b>Poell et al.</b> , 2000; <b>Van Woerkom, Nijhof, and Nieuwenhuis</b> , 2002	Medical student schedule)
--	---	---------------------------

Once data collection started I adopted an iterative approach repeating rounds of analysis and review of information obtained and key points arising. This meant that I used data from the observations and interviews to adapt and review the interview questions throughout the data collection period. If a point was raised in an interview that I hadn't previously asked about but felt was important to get other opinions about I would then incorporate an appropriate question in future interviews. For example, one of the interviewees raised the issue of a resource pack to be produced for medical students to help them prepare for placement and to understand how nurses could help them. In subsequent interviews I asked others if they had any ideas about what would help to prepare medical students for placement by asking 'Do you think medical students know about the potential educational role of the nurse before they go on placement? If yes, how are they made aware of this? E.g. does the medical school make students aware the educational role?

Similarly, as I carried out observational sessions I reflected on the data recorded in field notes. If necessary I developed an appropriate interview question to explore the relevant issue. For example, during observations I did recognise that there were a number of different interactions between nurses and medical students and the types of areas these related to such as socialisation, relationships, knowledge/and skills development. I wanted to gain more in depth understanding of what these and so developed the following question for the interview schedule for the medical students. 'Has the Informal learning encountered on the ward helped you with any of the following issues?

Socialisation, relationships, knowledge/and skills development? This allowed me to explore these issues arising from observations in more detail.

Thinking about the interview questions was therefore a continuous process and the interviews were characterised by their flexibility in the fact that I could add or remove questions from the schedule based on the results of each interviews and feedback form the observations undertaken. As Saunders et al. (2003) indicated an investigator is not required to follow a specific order of questions but can vary the order depending on the course of the conversation. Semi-structured interviews allowed the opportunity to probe for more detailed information by asking the respondents to give more clarification to answers provided. They also allowed participants the freedom to raise issues that they felt were important.

Through the interview process participants offer useful insights into their experiences through the stories they tell and locating those stories within basic social processes (Kvale, 1996; Charmaz, 2003). I chose semi structured interviews as opposed to as self-completion questionnaires or focus groups because I wanted to be able to gather and probe individual narratives about informal learning interactions, to gain participants views and perceptions and to explore how and what they valued. Furthermore, I was also aware that the research topic had the potential to expose sensitive issues and I did not feel it would be appropriate to discuss these in a group setting. My intention was that the interview data would supplement the observational sessions and thus enable a more rounded picture to be developed.

3. Informal ad hoc conversations that took place during field work period were recorded and key issues identified.

The study will triangulate these three methods of data collection, in an attempt to secure an in-depth understanding (Denzin and Lincoln, 2008) and to add breadth,

complexity and richness to the study (Silvermann, 2006). This will be further discussed in the data analysis section.

### **4.3.2 Recruitment**

#### **4.3.2.1 Recruitment for Observation Sessions**

The initial contact with the participants was through management in the trust. They informed staff on the wards selected that the research was taking place, its purpose and aims and how they would be asked to participate. Two weeks before the identified observational sessions I met staff on the wards, consultants, ward managers nurses and medical students to explain the study emphasising that there would be no judging of clinical practice and that people had the option of participating or not. I also distributed and left information sheets for participants and obtained consent by the use of consent forms from those present. (See APPENDIX 6 for copies of information sheets and consent forms). As not all staff were present consent forms were left for those absent to complete. This initial contact was followed up by an e- mail to nursing staff and medical students containing an information sheet and consent form. Consent was also obtained at the observation sessions orally for those staff that were unable to complete a written consent form and later a signed sheet was obtained.

The dates for observation sessions were agreed with the consultants on each of the wards and there were two / three session per week for each ward planned. In practice additional sessions were included to obtain as much data of this type as possible before the students placements ended. This was to help overcome some of the issue of lost time as a result of later ethical approval. In total 15 observation sessions took place for between 2.5- 3hrs per session, equating to 43 hours. These involved observing 4 medical students (2 per ward). Originally the number of students to

observe would have been higher (9) but this was limited due to the time lost as a result of late ethical approval.

Following on from the observations semi- structured interviews took place with a sample of qualified nurses and medical students observed on the ward. The sample for these interviews was recruited by the researcher at the observation sessions or later by e- mail. (A copy of the recruitment e- mail can be found in APPENDIX 7.)

#### **4.3.2.2 Recruitment for the Interviews**

The sample for the interviews was NHS qualified nursing staff and medical students and was purposively selected from the staff observed in the clinical environments chosen as the setting for the research. The sample included nurses and medical students who were observed in one or more possible informal learning interaction situation with medical students who were observed learning from an interaction with an educational activity carried out by a nurse. In total 9 interviews were carried out 3 with medical students and 6 with nurses. Unfortunately, at the time of the interviews the NHS suffered from a national cyber-attack. As I was using my own NHS e- mail and that of staff and students for communication this did affect the numbers of interviews carried out. In particular the one student who was observed but not interviewed was unable to take part as by the time communication was possible via their NHS e- mail they had moved onto another placement in the community and was not able to participate. There was also a nurse who had been observed often during the observational sessions who was invited for interview but tragically passed away before this could take place. This was quite an emotional time and it did affect both me and the staff on the ward. The interviews all took place in a room in the education centre at the general hospital where the wads were located. This was a neutral area that staff,

and students were familiar with away from the wards but that were accessible to all easily and quickly. These venues were helped to enable me to maintain confidentiality as the interviews were outside the ward environment and other staff did not know they were taking place. All the interviews took place during the day and varied in terms of time depending upon shift patterns and the demands on the wards. The interview lasted from 45 minutes to 80 minutes.

Researchers' questions, the way they are framed, administered and managed unavoidably shape possible responses during interviews. Charmaz (2003) suggests that interviews should be a directed conversation but warns that being too directive may risk cutting off interesting leads or charging the questions with assumptions. This demonstrates the need to reach a balance between asking general questions to produce the participant's story and probing to explore specific experiences. It also emphasizes the importance of staying reflexive throughout the research process. I tried to avoid superimposing my own thoughts and ideas during the interviews by avoiding leading questions that imposed my assumptions and ideas. Open-ended questions were used to give the interviewees enough opportunity to express their views extensively.

I also considered how to record the interview data. Some qualitative researchers (e.g. Lincoln and Guba, 1985) oppose the use of electronic recording devices citing their intrusiveness and the possibility of technical failure, whilst others (e.g. Charmaz, 2003) emphasise the benefits of capturing data more accurately than written notes. With participants' consent interviews undertaken during this study were audio-recorded with a handheld digital recorder to provide clear precise accounts for analysis. This was also to preserve the conversational tone without distraction. Written notes were also

taken to record key issues for consideration during data analysis or to remind me of points to return to later in the interview.

In addition, I decided to carry out an interview with a teaching fellow working in the trust as this provided supporting evidence about their past experiences as medical student.

To summarise the data collection methods undertaken for this study included: -

- 15 Observational sessions on two wards involving 4 medical students (2 women 2 men) and 14 (4 male 10 women) nurses.
- 3 semi structured interviews with medical students (1 woman, 2 men).
- 6 semi structured interviews with nurses (1 woman 5 women).
- Multiple ad hoc conversations recorded in field notes.
- 1 interview with a teaching fellow
- 1 focus group with final year medical students (but not observed) x 5 participants.

### **4.3.3 Sampling**

Sampling can be defined as the process of choosing people from a population of interest for a study and data collected from the chosen people can be generalised or show a level of representativeness of the populations from which they were chosen (Bowling, 2008). There are a number of different sampling techniques depending on a study's ontological and epistemological position. The way in which a sample of individuals is selected to be research participants is critical.

Selective or purposive sampling is a non-random technique. The research aims, or questions determine what needs to be known and this orientates the researcher to what data needs to be collected, then the researcher sets out to find people who can,

and are willing, to provide the information by virtue of knowledge or experience. This involves identification and selection of individuals or groups of individuals who are knowledgeable regarding the phenomenon of interest (Creswell and Clark, 2011). Some of the sampling methods most commonly used in qualitative studies are identified below and the relevance to this study discussed.

Convenience sampling is a method in which, for convenience sake, the study units that happen to be available at the time of data collection are selected (WHO, 2004). Many health facility studies use convenience samples as staff, patients and relevant other potential participants are often subject to change. A drawback of convenience sampling is that the sample may be skewed as some people may be over selected, others under selected or missed altogether. For example, in this study the interactions observed had the potential to be prejudiced because the nursing staff and medical students on the wards did not work on the day the observations took place.

Maximum variation sampling involves selecting study participants who represent a wide range of variation in dimensions of interest (WHO 2004). Maximum variation can also be used as a strategy to select certain communities in which to carry out research. In this study for example, this would imply that the researcher would select two very different hospital wards as the setting for the research, however this was not possible as the local trust strongly influenced and determined the study sites.

Snowball sampling is perhaps the most popular sampling method used in qualitative studies and is a design process of selection usually done by using, networks. The researcher starts by identifying at least two individuals who are relevant to the study and then asks them to locate other useful informants. This contact with initially a few

individuals will then direct the researcher to other individuals and / or groups (Etikan and Bala, 2017). This sampling technique is used for investigations into certain types of phenomena and certain methodologies, not generally ethnography. It was not relevant to this study as it may have included participants that were not working on the two settings used for the study.

Purposive sampling is based on the opinion of the researcher as to who will provide the best information to meet the study aims and objectives. The researcher needs to focus on those people with the same opinion to have the required information and be willing to share it (Etikan and Bala, 2017).

For this study the methods employed meant that it required groups of nurses and final year medical students working in a particular workplace environment - hospital wards - at the time the study was taking place to be sampled. This meant that convenience sampling was the most appropriate and the practicalities of this sampling for the study are further described below.

The sample for this research was NHS staff and final year medical students working or on placement in two wards in a general acute hospital in Northern England. The sampling process for each of the data collection methods is described below.

#### **4.3.3.1 Sampling for Observations**

In relation to the observational methods used in the study the sample included nurses, and medical students working in the cardiology/respiratory and stroke wards of a General Acute Hospital which is part of a local NHS Trust. The sample involved male and female nurses working on the wards and fifth year medical students on placement

in the wards at the time of the observations. Convenience sampling entails deliberate selection of specific individuals or settings because of crucial information they can provide (Carpenter and Suto, 2008). The sample was selected purposively by convenience by the virtue that it was staff working in the wards, at the particular times when the observations took place that were chosen. The wards providing the setting for the research are large clinical practice settings and both have a history of accepting medical students on placement. The fieldwork took place within a specific time period when the students were on placement and were carried out to ensure they covered morning and afternoon shifts (Students do not work evenings) when the students were working on the wards. Decision and access had been made via the consultants of both the wards, ward managers and sisters that had been contacted and met.

The observations included one to one shadowing of staff for rich data and wider observation of the wards as a whole from the nurses' station or other relevant locations. In this study, naturalistic observation took place as this technique involves observing subjects in their natural environment, in this instance their natural work environment of a ward in a local general acute hospital. It involved looking at behaviour as it occurred in this natural setting with no attempts at intervention on my part as researcher and with no initiation or creation of the situation where the observation took place. Data collection entailed observer narratives: I took field notes during the session and then discerned behaviour patterns from these notes. Event sampling was used as far as was possible within this naturalistic observation recording every instance of the behaviour or the event and recording how often these events occurred.

Observing the behaviour in more than one situation was also used with observations taking place in more than one setting on the ward or situation. Ethnographic field notes

also recorded communication events including time of event, participants, content, contextual features (such as what team members were engaged in during the event) and where available any immediate visible effects. A communication event is defined as a verbal or non-verbal exchange between two or more staff members. Observations focussed around the interactions between nurses and medical to allow rich variety of activities to be observed. When an observed situation needed clarifying, this was highlighted as something to be raised at the following interviews with nurses and students. Extensive observational and field notes were written during these observations and informal discussions. After each observational session, the field notes were transcribed to guide future observations, formal interviews and analysis.

#### **4.3.3.2 Sampling for Interviews**

The sample for the interviews was purposively selected from the staff observed in the wards. The sample included nurses and medical students who were observed being observed in participating in informal learning interactions. There were 9 interviews carried out, 3 of these were with final year medical students and 6 with nurses. The interviews were one to one semi structured interviews intended to explore perceptions about the characteristics and influences of informal learning interactions experienced. An interview schedule was developed containing broad categories that I wished to explore based on data collected during the field work observations.

#### **4.3.3.3. Ad hoc conversations**

Any ad hoc conversations overheard or in which I was involved were recorded in writing as part of the field notes. This data collection method did not require sampling as such due to its ad hoc and impromptu nature.

**Table 4.2: Summary of data collection methods**

Method	Characteristics	Pros	Cons	Research question /aims and objectives mapping
<p>Observations-</p> <p>1. Individual shadowing</p>	<p>In the context of the ward-activities observed at meetings/ in staff rooms/patient rooms/kitchen/corridors.</p> <p>At different times during the day.</p> <p>The times that medical students were on the wards provide the natural starting point for observation sessions.</p>	<p>It affords access to the "backstage culture"</p> <p>It allows for richly detailed description, and It provides opportunities for viewing or participating in unscheduled events.</p> <p>add that it improves the quality of data collection and interpretation and facilitates the development of new research questions</p> <p>Helps to understand individuals.</p>	<p>Number of nurses, medical students that can be included may be limited.</p> <p>Observation is conducted by a 'biased' person who serves as the instrument for data collection; I must understand how his/her gender, sexuality, ethnicity, class, and theoretical approach may affect observation, analysis, and interpretation</p>	<p>Develop an understanding of what informal learning interactions take place between final year medical students and nurses in the clinical environment.</p> <p>Explore the perceived value of informal learning interactions.</p>

<p>1. Wider observation of the wards as a whole from the nurses' station or other relevant locations</p>	<p>In the context of the ward</p> <p>At different times during the day and evening</p>	<p>First-hand experience with participants.</p> <p>Develops relationships/ rapport that can lead to ad hoc discussions.</p> <p>Can hear language used</p> <p>Reactive; learning can be observed.</p> <p>Cultural knowledge can be seen.</p> <p>Allows observations of wider patterns of behaviour</p> <p>Researcher can 'get lost' in the background</p> <p>Unobtrusive</p> <p>Work based practices can be observed</p>	<p>participants may not want to discuss certain issues</p> <p>level of trust required</p> <p>Needs discretion</p> <p>Could be seen as intrusive.</p> <p>Could be seen as intrusive</p> <p>Difficult to develop rapport</p> <p>Linguistic symbols could be missed</p>	<p>Develop an understanding of what informal learning interactions take place between final year medical students and nurses in the clinical environment</p>
--	--	---	--	--

		Observation without interference		Explore the perceived value of informal learning interactions.
One to one Semi – structured interviews	<p>Took place away from ward settings.</p> <p>Varied in length.</p> <p>Audio recorded, and written notes taken.</p> <p>Convenient times for participants.</p>	<p>Elicits views and opinions from participants.</p> <p>Checks and reflects accuracy of observational data.</p> <p>Useful when participants cannot be directly observed all the time</p> <p>Can provide historical data.</p> <p>Provides indirect information filtered through the views of interviewees.</p> <p>Discourse on a one to one basis.</p>	<p>Researcher may influence responses.</p> <p>Not all participants are equally articulate and perceptive.</p> <p>If participants are unaccustomed to talking about learning they may refer more to formal learning.</p> <p>Participants may not consciously relate to learning.</p>	<p>Develop an understanding of what informal learning interactions take place between final year medical students and nurses in the clinical environment.</p> <p>Explore the perceived value of informal learning interactions.</p>

Ad hoc conversations	<p>In the context of the ward - activities observed at meetings/ in staff rooms/patient rooms/kitchen/corridors</p> <p>At different times during the day and evening</p>	<p>Obtains views and opinions from participants informally</p> <p>Checks and reflects accuracy of observational data</p> <p>Useful when participants cannot be directly observed all the time</p> <p>Provides indirect information</p> <p>Unobtrusive it affords access to the "backstage culture"</p>	<p>Ad hoc therefore not guaranteed</p> <p>Need to be taken in context.</p>	<p>Understanding of the informal learning interactions</p> <p>Develop an understanding of what informal learning interactions take place by medical students in the clinical environment</p>

## **4.4 Ethical Issues**

### **4.4.1 The research relationship**

The study was based on the principle that qualitative research is a social interaction in its own right and reflects the social world in which it is situated (Parry, Thomson and Fowkes, 1999). As such, it is necessary to acknowledge my interactions with the participants as mutual, although unequal, social relationships. Researchers must be aware of how they present themselves to participants and the potential effects this may have on the developing relationship (Berg, 2001; Yee and Andrews, 2006). For example, I wore smart clothing when meeting staff, of the trust, managers and consultants, when negotiating and providing information about the project and when interviewing medical students and nurses. This was part of my attempt to present an identity that would enable me to build trust and integrity with the participants.

Researchers may also reveal details about themselves in an attempt to develop and maintain relationships with participants, although some of these facts can be self-evident (Yee and Andrews, 2006). I therefore also let participants know that I had previously worked within the trust and health service, had an honorary contract, that management and clinical support for the project was in place from the Trust and that the medical school was also supporting the project.

Various measures were employed within the study to maintain my relationships with participants over time and to reduce the risks of sample attrition. Hemmerman (2010) recommends that contact should be continuous and informal rather than involving scheduled appointments. However, as the setting for the study was two hospital wards I did not think this was feasible or appropriate. Instead, I scheduled observational sessions in agreement with ward staff and interviews took place as soon as possible after an initial contact. I made sure that participants had my contact details in case they

needed to cancel or rearrange for any reason. Contact was maintained between observational sessions and interviews by e-mails and phone calls.

The literature advises that researchers should avoid becoming emotionally involved with participants or sharing their personal beliefs and values but, at times, it can be difficult to maintain this appropriate social distance (Yee and Andrews, 2006). It was clear that participants understood I was a student from Northumbria University working with the medical education centre and NHS trust. Only on two occasions I was asked for information and advice by allied health professional staff on the wards who had not been party to any information about the project. Posters were displayed in the two wards to alert patients to the fact that the study was taken place. An information sheet for patients (APPENDIX 8) was prepared that nurses used to inform patients about the study and that it did not involve them even though observations of staff often involved interactions where patients were part of the process.

#### **4.4.2 Obtaining permission from Trust managers**

Initially permission of local gatekeepers and key stakeholders in the Trust was sought before the University and NHS ethical approval was formally considered. The Trust managers confirmed that they agreed in principle to staff and final year medical students being approached for this research. The consultants, the ward managers and ward sisters were all directly approached by letter that included the research proposal. Ward meetings to explain the purpose of the study and the research approach were arranged following this initial correspondence. The chair of the Trust's R&D committee was also informed of the proposed research. All those contacted were helpful, accessible, and no barriers were identified. There were only two conditions to be satisfied. Firstly, that formal ethical approval was obtained and secondly, that participants were fully informed and made aware that participation was voluntary. Once

this agreement was in place the next stage was to apply for University formal ethics approval and the NIHR IRAS system.

#### **4.4.3 Obtaining University ethical approval**

'Ethics is a generic term for various ways of understanding and examining the moral life' (Beauchamp and Childress, 1994 p4). The prime concern of any research is that it shall respect human rights and not do any harm (Polit and Hungler 1995). For research studies the key ethical principles are: autonomy, beneficence, non-maleficence and justice (Beauchamp and Childress 1989). These principles must remain at the core of any research, but it is their application in ethnographical research that is explored in this section. Many ethical dilemmas have to be considered on the basis of principles and values and what is best for the people involved in the study.

As a qualitative ethnographic study taking place in NHS premises and with NHS staff as the participants, the project required not only University ethical approval but also needed to be approved by the Health Research Authority via the Integrated Research Application System. (IRAS). The initial activity involved developing an initial project approval (IPA) document that was approved by the university. Once this was approved I was then able to complete the University ethics application which was submitted for review in June 2016. A draft IRAS online application was completed in parallel and was also submitted at this time as part of the requirements of the university ethical approval process.

Feedback from the university ethical process was not received until September 2016 when ethical approval was granted with some minor amendments identified for consideration. The approval letter indicated that in general this was a well-considered

application, but there were some areas where minor amendments were suggested to help with the IRAS application. This included: -

Amending consent forms to include

- Confirmation that the participant understands confidentiality issues.
- Confirmation that the participant understands their data may be used when disseminating the research.
- Confirmation that the participant understands how their data will be stored.
- Two columns of boxes for 'yes' and 'no' responses.

These changes were made to the relevant documentation. Please see APPENDIX 9 for copy of ethical approval letter.

However, there was no feedback concerning the draft IRAS application that was also submitted. Upon enquiry I was informed that the university had changed the process in relation to this and that there was now a new process to follow that required resubmitting the draft IRAS application and relevant data collection documentation again to the university. This meant a longer delay in receiving feedback and approval to proceed with the IRAS online application.

Unfortunately, due to the long timescale it took to obtain ethical approval from the university and changes to the IRAS review process in the university that required resubmitting documentation it meant that the online IRAS application was delayed. This meant that the original period of time allocated for data collection had to be pushed back by six months. This had an unfavourable effect on the project overall as the medical students that were under study were only on placement on the wards allocated for data collection from January to May 2017. Therefore, the data collection period was

shortened by a month which meant there was limited time for data collection, particularly in relation to the observational sessions that could take place which was less than anticipated in the original research plan due to losing a month when the students.

#### **4.4.4 Obtaining IRAS NHS ethical approval**

Any research conducted in the NHS requires ethical approval from the Health Research Authority via the Integrated Research Application System. (IRAS).

Documentation was written and submitted to the online IRAS system on 9.12.16. Minor queries were initially identified, and these were responded to and ethical approval was granted on 26.1. 2017. A copy of the queries and responses provided can be found in APPENDIX 10.

At this time, it was also requested that as the study was involving final year medical students that approval also be sought from the University housing the medical school. The appropriate documentation including the project proposal and ethical approval was submitted and approval was given.

#### **4.5 Data analysis**

Morse and Field (1996) identify the process of analysis as comprehending, synthesising, or decontextualizing, theorising and re-contextualising. Bogdan and Biklen (2007) find data analysis to be the most difficult yet most crucial part of qualitative research. It is difficult because in qualitative research it is not fundamentally a mechanical or technical exercise. Merriam (2009) sees it as a dynamic, intuitive and creative process of reasoning and reaching conclusions, reflection, and theorizing. The processes occur both sequentially and randomly. All the processes involved long periods of becoming extraordinarily familiar with the data and thinking about the data. I have spent a long time reading and re-reading the observational and interview data and reviewing my field notes to try and understand and make sense of the data.

Raw data does not help to understand the sociocultural process which are being studied, or the way the participants view it, unless the data is systematically analysed (Merriam, 2009). It is important to gain a sense of the whole of the data collected in an ethnographic study and in order to achieve this, I read transcripts of interviews and field notes, before examining unique and individual pieces of data. I read the data many times and made notes using short phrases, ideas, or key concepts related to the research questions. These phrases, ideas, and key concepts enabled me to find codes or categories that could be applied to words, phrases, or sentences within the data. Coding is therefore one of the most significant steps taken during analysis to organize and make sense of textual data. The data set was divided into these codes or categories initially using NVivo 8 software. As Elo and Kyngäs, (2008) suggests, it is important this process continues in upwardly moving spirals creating ever more refined data sets. Codes or categories were tags or labels for allocating units of meaning to the text collected during the study. Codes are usually attached to chunks of text of varying sizes: words, phrases, sentences or even whole paragraphs. Codes or categories can come from the concepts that I already had from academic reading, or are the words and phrases used by the informants themselves. The code can take the form of a straightforward category label or a more complex one, such as a metaphor (Miles Huberman, 1994). When using NVivo 8 these categories or codes are presented as NODES.

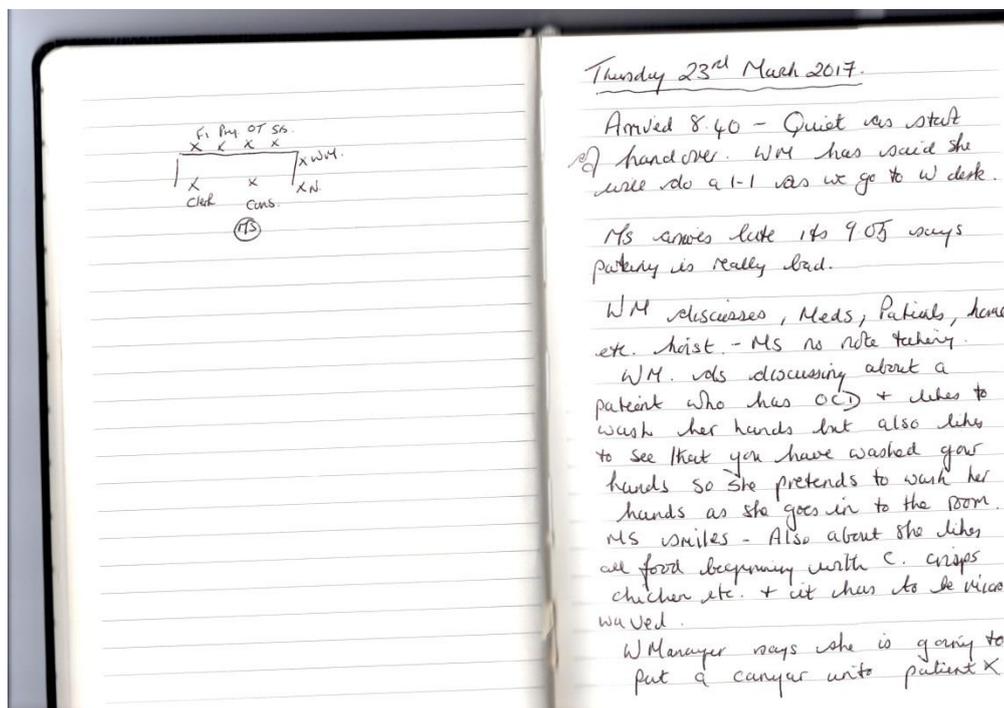
The process was complex, demanding, interpretative and reflexive. I have also used the computer software package NVivo 8 to help with content analysis. NVivo 8 provides an organized storage system and the data files can be readily accessed; I can locate units of data easily, whether it is an idea, a statement, a phrase, or a word with a data file; each unit of data can be coded with an unlimited number of codes so that data can be retrieved and organized in any number of patterns and themes limited only

by my knowledge and imagination; and the software enables me to look at the database line-for-line and consider the meaning of each word, phrase, sentence and idea.(Creswell, 2007).

#### 4.5.1 Initial Data analysis

Analysis has been dependent on my immersion and complete familiarity with the data. The thinking around the data is a continuous process, and not one that happens only during an analysis stage. Data analysis for the project is therefore an iterative process and began as soon as the observation session began. Field notes were written at each observation session which were immediately transcribed and written up. These field notes also included any general notes that needed recording. Any emerging issues or themes were then included in further observation sessions. Therefore, for each observation session there were field notes (including general notes) and transcriptions produced. Please see below an example of these.

**Figure 4.1: Example 1 Observation session field notes**



**Figure 4.2: Example 2 Transcription of field notes**

**Thursday 23<sup>rd</sup> March 2017 Stroke Ward**

**Arrival** 8.40am.

Environment quiet Handover about to start

Got Jennie to do a 1-1 meeting

(MSm4) m. late for meeting could not find parking

Joined handover at 9.05am. Ward manager (4) discusses patients meds, patients etc. patients on his side of the ward meds, going home hoist etc. looks up while she speaks-(no note taking) smiles when she mentions patient who has OCD and likes to see you wash your hands she pretends to as she enters room-she washes her hands all the time and only likes microwaved food – Smiling might signify he is listening due to Nurse 4 pretending to wash hands

Ward manager (4) said she was going to put a canyur in on patient x because she believes he needs it. (No one says anything) MS leaning forward and nods Educational and Instructional

Consultant takes MS on ward rounds- (No Nurses involved-pain)

10.15 No contact with nurses

MSm4 and Consultant on in corridor and nurse (7) asks Consultant if she is ready for the meeting with patients x relatives and discusses points of meeting Ms overhears points and why meeting is taking place as standing next to her and watches both as they speak. (Learns on experiences of others and how to behave)-can be socialisation also knowing how to handle situation like above

MSm4 comes out of ward and goes for paperwork for future patient updates he stands at filing cabinet for some time and nurse (8) tells him Second drawer on the right -thanks he replies Nurse instructional and being helpful understanding of being a medical student does not know-admin-where to find

MSm4 comes out of patients' room and asks for patients x's notes nurse (7) says dr. x has the in the doc's room-admin-where to find

Consultant went to all patients on the ward with the MS!!!

Finished at 11.15 when Consultant was told Patient X's family has arrived on mass!

Reflection

Very little learning ongoing with nurses, due to going on ward round with Consultant - no nurse input as they got on with their on areas. Just going in, pulling curtains around.

Could be that Consultant was waiting for the meeting and wanted to see all patients until it happened I don't think she liked all the relatives coming in

Environment -Business like -no smiling or laughter! I think she was not looking forward to meeting. Did not enjoy today –Got nurse Jennie to say she will do 1-1. If anyone asks how is it going don't say good like today -just ok in case

The semi structured interviews were digitally recorded then down loaded on to the researcher's laptop that is password protected. The recordings were then all transcribed verbatim by the researcher. A copy of an example of a transcribed interview can be found below.

**Figure 4.3: Example 4 Section from transcribed medical student interview** (Full transcript in APPENDIX 11)

***Transcript of interview***

*Their experience of education and learning on the ward from nurses*

*Question*

*Do you recognise the value of workplace learning that takes place in the ward environment whilst on placement? If yes, why? If no, why not?*

*Medical Student*

*Yes, it's a good way of learning on the job and learning for the job you're going to do. It's good to see people doing the roles you're going to be doing. And how they interact within the teams and putting yourself in that position and seeing yourself as part of the team and obviously, a lot of the team have varied roles. Their priorities are often different from medical priorities and its useful to see all their different roles and it was good that the ward I was on was good for that it had a huge staff and allied professionals'*

*Question*

*How important is informal learning from nurses to you?*

*Medical student*

*Definitely useful Learning - how to engage in information gathering from them (Nurses) and nurses are frontline in taking observations, seeing patients and knowing how patients are generally - because there with the patients the whole time. So, its learning the best ways to allow communication about information*

*(Was there any communication from nurses that you viewed as negative?) No I was viewed as part of the medical team they would often say doctor and I would say not there yet but can I help. If its medical information I can either deal with it or pass it on, but I never felt at any time I was denigrated by any of the nursing staff. There was no negative tone of voice nor did they jump in at work or conversation to others that annoyed me. Learning the roles of the nurses also*

*Question*

*Was your experience of learning whilst on placement -positive or negative?*

*Medical Student*

*-Definitely positive learning on the job learning in a team.*

*Question*

*Is there other staff on the ward that you feel provides you with informal learning opportunities. Who and what sorts of things do you learn?*

*Medical Student*

*Talking to physios and how they rehabilitate patients. Their decisions and how they come to their decisions. How mobile people have to be. And watching them work. How they facilitate a patient's mobility. Or the occupational therapists assessing patients' needs If we cure a hip fracture and they go home then if the home is not suitable they will only again fall on the hip so it just complicates the whole issue. So obviously, a team has to work together for it to work and it does. The ward clerk also shows how the ward is set up were the paperwork is filed. The ward clerk will know where all the stationary is and how the ward runs. So, it's an example of how you are expected to behave on a ward- She would come into the office and say your office is so untidy, so we would shift it around. I also learnt things from her answering phones and booking transport. So, that's useful.....'*

Data analysis for this study therefore involves coding where the data is merged and the development of constructed categories that are linked using a content analysis approach. I have used the method suggested by Miles and Huberman (1994) utilising multiple copies of all the data. The first step was to affix codes to the field notes; I used

a highlighter pen and note flags. Comments relating to the data were written in the margin and initial analytical categories were indicated using a coloured pen. The next stage was to sort and sift the material to identify similarities, relationships between various aspects, patterns, emerging themes and common sequences. The next stage was to isolate patterns and processes, commonalities in order to move towards elaborating small sets of generalisations that cover consistencies

To enable this, the researcher consulted with a trainer in the use of NVivo8 software. NVivo8 was felt to be a useful tool to assist in the categorization and organization of data from both the observation sessions and the semi structured interviews. Using NVivo 8 has been useful in helping me index segments of text to particular themes, to link research notes to coding and in the future, it will be used to carry out complex search and retrieve operations, and to aid the researcher in examining possible relationships between the themes. A number of NVivo8 nodes; have been created to categorize the emerging themes and issues. Please see below a screen shot of NVivo8 nodes developed.

**Figure 4.4 Screenshot of NVivo8 Nodes**

ID	Node Name	Count	Date	User
33	Net sure if learning is taking place	0	15/06/2017 17:27	EJGG
34	Nurses Motivation to helping the Med student	7	23/10/2017 14:38	EJGG
36	Patient care information	6	15/06/2017 17:19	EJGG
37	Possible learning	6	16/06/2017 13:59	EJGG
46	Practical skills and procedures	7	15/06/2017 17:31	EJGG
47	Reasons why students ask Nurses	2	16/11/2017 15:27	EJGG
48	Recognition of the value of informal learning	4	03/07/2017 21:04	EJGG
49	Restrictions for nurses	8	23/10/2017 16:56	EJGG
50	Result Communication on ward	11	12/08/2017 17:30	EJGG
51	Result Taken for granted	8	11/08/2017 18:19	EJGG
52	Results-Hidden Curriculum	5	11/08/2017 14:40	EJGG
53	Self Interest easy working	13	09/08/2017 11:01	EJGG
54	Should there be wider recognition of informal learning within med.school.	4	04/07/2017 10:19	EJGG
55	Socialisation	8	07/06/2017 10:31	EJGG
60	Told Off Med Student	4	16/06/2017 13:37	EJGG
61	Types of Informal learning	4	04/07/2017 10:14	EJGG
63	Use of equipment	7	15/06/2017 17:22	EJGG
64	What in the future will help nurses educate	6	14/10/2017 11:08	EJGG
65	What prevents informal learning	4	09/09/2017 15:19	EJGG
66	what worked well on the ward that helped you learn from nurses	5	04/07/2017 10:23	EJGG
67	Where to find things	7	15/06/2017 17:25	EJGG
68	Your Experiences of informal learning whilst on placement	5	04/07/2017 10:14	EJGG

This has also been supplemented by more thematic and content examination carried out by the researcher by hand. The table below provides the core categories and sub themes produced as result of the full data analysis process.

**Table 4.3 Core categories and sub themes identified as a result of analysis.**

Core Category	Sub themes	Principal and marginal elements
1. Recognition of Informal learning activities - acknowledgement of informal learning taking place	Awareness	Observations of potential learning opportunities Potential learning interventions identified by participants
	Typology	Classification of types of informal learning intervention e.g. demonstration Verbal- conversation Non -verbal- Gestures
	Topic Areas	Topics that were the focus of the informal learning intervention e.g. administration/ patient care/ medical information
	Indirect informal learning opportunities	Situations where no direct interactions made with medical students but opportunities for informal learning occur around them e.g. consultant discusses something with nurse in presence of medical student who may

<p>2. Context (Ward Setting) - how participants expressed their experiences of informal learning as being specifically related to the environment they were in</p>	<p>Socialisation</p> <p>Culture</p> <p>Relationships</p> <p>Environment</p>	<p>learn some knowledge or skill. The process of learning to behave in a way that is acceptable in the ward</p> <p>The culture on the wards that fostered or hindered informal learning to take place</p> <p>How relationships influence informal learning opportunities</p> <p>The physical environment and its impact on communication opportunities</p>
<p>3. Perceived values - opinions about work place-based learning or opinions values / about learning on placement in the wards</p>	<p>Nurses as educators</p> <p>Motivations</p>	<p>Views about the role of the nurse on the wards as an educator Views of recognition of this role</p> <p>What motivates medical students to learn in the ward setting What motivates nurses to interact with medical students to enable learning to take place</p>

<p>4. Wider Training and role clarity – implications suggested by medical students for informal learning interventions for training of nurses and medical students and role clarity for nurses.</p>	<p>Patient communication</p>	<p>Views on how medical students see informal learning helping them to communicate with patients</p>
	<p>Role clarity and appreciation of the informal educational role of nurses.</p>	<p>Interpretations about the appreciation of the role of the nurse in educating medical students whilst on placement</p>
	<p>Future role of informal learning</p>	<p>Acknowledgement of informal learning within a workplace setting i.e. hospital ward</p>
	<p>Medical training</p>	<p>Impact on learning in the ward setting linked to formal medical training</p>
	<p>Preparation for placements</p>	<p>Recognition of need. preparedness for informal learning interactions when on placement by medical students</p>

#### 4.6 Quality and Rigour

Within the quantitative research tradition, the quality and rigour of research output is often measured in terms of validity and reliability. Given the diverse philosophical stances of qualitative research, the use of validity and reliability to determine quality and rigour is not necessarily suitable (Seale et al, 2004). There is much debate about quality issues from the qualitative perspective; therefore, it is necessary for the

researcher to evidence the quality of the work through numerous approaches that need to be consistent with the research paradigm (Seale et al, 2004). Attention to these aspects helps others to assess the quality of the research and the trustworthiness and credibility of the research. Rich rigour involves providing rich descriptions and explanations through a variety of data sources and contexts (Tracy 2010). Tracy also recommends the researcher to invest realistic effort, time and care when conducting the research. For this ethnographic study this has involved making field notes and recording interview narratives over a 12-month period. I recorded notes in various settings, including the clinical areas, staff rooms, corridor, and workstations. Interviews were conducted with 10 participants, a supplementary focus group was held, 15 observational sessions took place and documents all contributed to the study.

Qualitative methods are now widely used in health and social research, yet they are still felt to be dismissed as anecdotal, overly subjective, or being unscientific in comparison with quantitative methods (Lincoln and Guba, 1985; Popay, Rogers and Williams, 1998). Stenbacka (2001) argues that since reliability issue concerns measurements then it has no relevance in qualitative research. She considers that reliability is an irrelevant matter in the judgement of quality of qualitative research. Many qualitative researchers therefore avoid the terms validity and reliability and use terms that encompass both such as credibility, trustworthiness, truth, value, applicability, and consistency, when referring to criteria for evaluating the merit of qualitative research (Glaser and Strauss 1967, Lincoln and Guba 1985).

Many authors focusing on qualitative research methods have suggested strategies the researcher can employ to enhance the truthfulness of qualitative findings (Chenitz and Swanson 1986, Crabtree and Miller 1992, Field and Morse 1985, Le Comple and Goetz 1982, Morse 1989, Sandelowski, 2010). Field and Morse (1989 p 120) recommend the following strategies to reduce threats to internal reliability with data

analysis: -'(1) Low inference descriptors (verbatim accounts of information provided by informants to the researcher). Use of mechanical recording enhances the accuracy of such transcripts. (2) Participant reviews of findings and peer examination'. The table below (Table 4.3) summarizes areas where threats to the quality of this study were identified, alongside the strategies employed to reduce these threats and where Field and Morse's (1985) strategies were applied. The decision to audio record and transcribe the interviews helped to ensure that an accurate record of the interviews was produced, although it is acknowledged that there were limitations in terms of the ability to record inaudible or non-verbal data. The completeness of the transcripts enabled use of participants' own language during the coding process, which can further add to the credibility of the findings (Chiovitti and Piran, 2003).

**Table 4 4 Potential threats to quality** (adapted from Robson 2002)

Area	Threats	Strategies
Description	Inaccurate or incomplete data	Audio-recording and note-taking Interviews transcribed verbatim Analysis using NVivo8 software Use of multiple data sources
Interpretation	Imposing an inappropriate framework	Theoretical sensitivity Let participants guide the inquiry process Respondent/peer validation of transcripts from interviews
Theory	Failing to consider alternative explanations	Sharing analyses with colleagues/ supervisors electronically and verbally

		Actively seeking non-confirming data Maintaining a reflexive approach
--	--	--

Analyses were shared electronically with colleagues who were staff at the university who had no connection to the study, in order to ensure neutrality and openness to unexpected information (Robson, 2002). This enabled me to determine whether the explanatory processes were clear and correctly described. Use of NVivo 8 software provided a transparent account of these processes, which should also enhance the validity of the study (Hutchinson, Johnston and Breckon, 2010). Trustworthiness of data interpretation was addressed by having supervisors independently analyse a selection of transcripts (i.e. triangulation of analysis) (Denzin, 1978). This leads to agreement and confirmation of the themes and helped to reduce researcher bias and reactivity. The use of interviews and observations (i.e. methodological triangulation) also helped to provide a more substantive picture of nurse/ medical student interactions and non-formal learning of medical students and represented a means of verifying the emerging concepts (Berg, 2001).

#### **4.6.1 Authenticity**

Authenticity can be achieved through self-reflexivity and honesty (Tracy, 2010). According to Stenbacka (2001), the qualitative researcher brings their own influential elements to the study, and this should be acknowledged and made visible throughout. The researcher also needs to acknowledge their pre-understanding of the phenomenon under study. Reflexivity is therefore about making the researcher more visible in the research (Braun and Clarke 2013). Throughout all stages of this research process, I communicated my role in the NHS Trust and the University as well as my position in

relation to developing the research question, collecting the data, and analysing the data. I acknowledge that the themes selected for the analysis stage were influenced by my prior understanding around the area under investigation. I did not see my influence to the research analysis as a source of bias, but rather as a useful resource that should be used and was helpful (Light, 2010). I felt that my experience as a teacher, educator and manager in the NHS may well have made a valuable influence on the research. As it allowed me to understand the context, the staff groups and provide some initial ideas in formulating labels for coding purposes. However, I was also careful not to over promote my role in the research (Watson, 2011). I ensured that it was the views and opinions of the participants in the research that were primarily represented throughout the findings (Fetterman, 1998). I followed the advice of Wolcott (2001 p.67), who urges ethnographic researchers to position themselves directly at the scene, but not to “take centre stage”. Reflexivity also involves researchers acknowledging the limitations of their study (Light, 2010), and these limitations are outlined in chapter 7. While I do not see myself as an imposing figure, I do believe that my experience in teaching, education and working in the health service helped me in formulating the study design and interpreting the data gathered. This is explored further in section 4.7 Personal reflexivity. Finally, I did not over favour my position as researcher by adopting an “I know better than you because I was there, and you were not’ (Watson, 2011 p.212) approach. Instead, I provided extracts of field notes, interview transcripts and quotes to support my interpretation of the information obtained.

Tracy (2010) suggests transparency is an important consideration in relation to sincerity and authenticity. For this study, in order to be transparent, I have summarised how the data was collected and analysed. I have clarified how observational and interview participants were selected and outlined the themes that informed the interviews and fieldwork. The findings section of the study provides quotes from the

interviews and field notes. The appendices also contain relevant background and practical information that helps to ensure this transparency.

#### **4.6.2 Credibility**

According to Tracy (2010), the researcher needs to provide a credible account of the study, and this can be realized through practices such as thick description of the data. This study has provided thick descriptions not only by telling the reader about the data collected, but also by showing extracts from the field notes and interviews. Tracy (2010) also discusses the issue of crystallisation which involves the researcher gathering various types of data by employing multiple methods and using multiple sources. This study has collected data from a number of different participants, using a various combination of interviews and observational session field notes.

Multivocality, Tracey (2010) identifies as presenting the varied 'voices' of the participants, as opposed to just telling the reader about what happened (Tracy, 2010). The stakeholders involved in this study did not have an identical set of expectations, and this study has attempted to represent the diversity of voices that participated in the research. According to Tracy (2010), multivocality can be achieved through intense collaboration with participants. For this study, I was not a detached observer, but I actively engaged with participants and in the settings of the study. Tracy (2010) also encourages the researcher to share the findings with the research participants. The participants who contributed to this study regularly enquired about the findings and I discussed the findings with nurses, medical students and staff such as teaching fellows and nurse practitioners. I also presented my findings at two national nursing conferences and obtained feedback from those in attendance.

### **4.6.3 Resonance**

Tracy (2010) discusses that by considering aesthetic merit and transferability researchers can achieve resonance for their work. Aesthetic merit requires a researcher to present their work clearly and openly and by writing in a style and language comprehensible to the target audience (Tracy, 2010). I have endeavoured to avoid the use of jargon and to write in a style that tries to keep the reader engaged. Transferability is achieved when readers across a variety of settings and backgrounds can possibly benefit from the research (Tracy, 2010). By providing the reader with the necessary specific contexts, participants, and circumstances they are then in a position to decide whether the findings can be applied to their own or other contexts (Braun and Clarke, 2013). While I do not claim the findings of this research can be generalised, I do believe that many of the findings are relevant to other medical students and nurses both in the UK and internationally. This is partly based on comments received at the national conferences I attended.

### **4.6.4 Ethical issues**

Practices previously discussed, such as authenticity and multivocality, contribute to research that is ethical (Tracy, 2010). There is a mixture of ethical issues identified by Tracey (2010) that a researcher should consider in qualitative studies, incorporating procedural, situational and relational ethics. Procedural ethics is generally regarded, by organisations, as required and was relevant to this study. Prior to commencing any data collection, I gained approval from the Research Ethics Committee at the University. The primary data collection and analysis were undertaken in accordance with the guidelines stipulated in the University Research Ethics and Governance Handbook. Data were not collected from individuals under the age of eighteen, or from adults lacking the capacity to consent to research. Informed consent is one of the core

ethical principles highlighted in the handbook. For this research, all the interview participants were informed about the purpose of the research verbally and in written emails and documentation. Taking part in the interviews and observations was a voluntary matter for the participants, who did not have to answer any, questions they were not comfortable answering and who could withdraw from the process at any point without any repercussions. I never used my position to gain participants' consent, nor were they compensated for agreeing to participate.

As mentioned in an earlier section, observation is an important method used to collect data in ethnography. In most instances, I assumed an unconcealed role, where my position as a researcher was known. I was vigilant in protecting the anonymity of the participants in the study and whom I referred to in the findings using a code and number. Procedural ethics also promotes the safeguarding of participants by securing all personal data. I ensured that all data collected were securely stored. Any data stored on electronic devices (including electronic sound files from interviews) were password protected, and no-one else had access. The identities of participants were stored securely in a separate file that was also password protected. Throughout the various stages of the research, I tried to value the information provided by participants, and appreciated the importance of dealing with their information considerately, in order to ensure confidentiality and anonymity.

Situational ethics and relational ethics mean researchers reflect on their actions and are mindful of others. Hammersley and Atkinson (2007) explain how the ethnographer must carry out research in a way that accounts for the values and interests of the people taking part. At all stages of the research, I wanted to ensure that no harm would come to those involved and that individuals never felt uneasy or exploited (Laverick

2010). I believe and hope that those who contributed to the research will benefit from this study and will be amenable to similar research in the future (Brewer 1990).

#### **4.6.6 Meaningful coherence**

According to Tracy (2010 p848), meaningfully coherent studies 'interconnect their research design, data collection and analysis with their theoretical framework'. This study employed ethnographic methods that fit well with the social constructionist perspective (Williamson 2006). These techniques included observational sessions, interviews, and ad hoc conversations as well as a supplementary focus group. A major benefit of ethnography is its ability to explore the often-concealed aspects of workplace informal learning through observation and direct involvement (Hatch 1993; Watson 2011). In this study these hidden dimensions included the cultural and socialisation of the different professional groups involved.

Tracy (2010) also identifies that the researcher should make clear the aims of the research early in the process. The introduction chapter in this dissertation (Chapter 1) provides the context and rationale for the study. The research questions study aims, and specific objectives were also stated in the introduction chapter. The final chapter seven summarises how the research question and sub-questions were addressed and achieved.

#### **4.7 Personal reflexivity**

Like all qualitative research, ethnography is not a neutral activity; rather, it is historically, theoretically and personally defined requiring a critical reflection in order to understand 'how it is our own ways of seeing, that produce ethnographic representations' (Madden, 2010, p.111-112). With this in mind, the importance of

reflexivity in ethnographic research concerns the 'inevitability of the ethnographer's influence on the research process' (Madden, 2010, p.2). Therefore, a final strategy for enhancing rigour in the study involved employing a reflexive approach which examined the ways in which my particular social identity and background potentially has had an impact on the research process, the study and its findings. (Hall and Callery, 2001; Robson, 2002).

Reflexive practice means thinking from within experiences (Bolton, 2010) and reflexive analysis is commonly used in an attempt to 'reveal forgotten choices, expose hidden alternatives, lay bare epistemological limits and empower voices which had been subjugated by objective discourse' (Lynch 2000, p.36). As Bolton (2010, p.13) identifies reflexivity is 'finding strategies to question our own attitudes, thought processes, values, assumptions, prejudices and habitual actions, to strive to understand our complex roles in relation to others'. Reflexivity pertains to the 'analytic attention to the researcher's role in qualitative research' (Gouldner, 1971, p. 16, as cited in Dowling, 2006). It is both a concept and a process (Dowling, 2006).

As a concept, it refers to a certain level of consciousness. Reflexivity entails self-awareness (Lambert, Jomeen, and McSherry, 2010), which means being actively involved in the research process. It is about the recognition that as a researcher, I am part of the social world that I am studying (Ackerly and True, 2010; Frank, 1997) Reflexivity as a process is self-examination on the role of subjectivity in the research process. It is a constant process of reflection by researchers on their own values and meanings (Parahoo, 2006) and of recognizing, examining, and understanding how their social background, position, opinions and assumptions influences and shapes their research practice (Hesse-Biber, 2007).

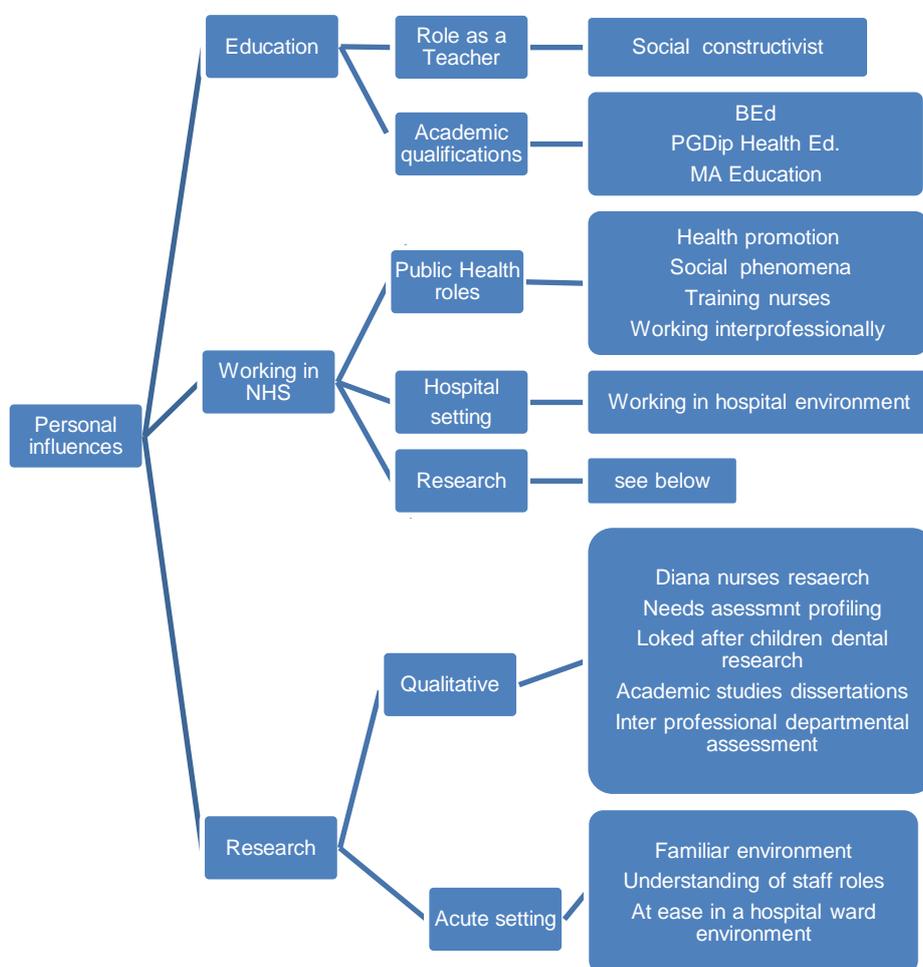
The key to reflexivity is to make the relationship between and the influence of the researcher and the participants candid and honest (Jootun, McGhee, and Marland, 2009). This process determines the filters or lens through which the researcher works (Lather, 2004) including the specific ways in which their own agenda affects the research at all points in the research process (Hesse-Biber, 2007). The researcher's situation does not exist independently of the research process nor does it completely determine the latter. Instead, this must be seen as a dialogue – challenging perspectives and assumptions both about the social world and of the researcher. This enriches the research process and its outcomes. In order to be meaningful and sincere this analysis must be carried out consciously and consistently (Alvesson and Skoldberg, 2000; Lynch, 2000).

This reflexive process of questioning myself, reviewing my prejudices and ethical ways of being and relating, I found demanding yet enlightening. Therefore, instead of being a one-off activity, I have tried to reflect on the way the research has been shaped by my personal and professional biography throughout the entire process. This involved taking a step back to consider the influence of my experiences, values and behaviours on the research processes of sampling, data collection and analysis as well as on the research setting. Practicing reflexivity is a significant component of qualitative research (Morse et al., 2002) but as a process, it should be embedded in all the principles (van de Riet, 2012) and 'relate to the degree of influence that the researchers exert, either intentionally or unintentionally, on the findings' (Jootun, McGhee, and Marland, 2009, p. 42). Jootun et al. (2009) also expressed that inclusion of a reflexive account increases the rigour of the research process.

Developing my self-awareness was supported through the process of memo-making, which is seen as essential in terms of enabling the researcher to locate and deal with data that opposes their own prejudices (McGee, Marland and Atkinson, 2007; Lambert, Jomeen and McSherry, 2010). By making a series of memos whilst coding the data, I was able to reject or confirm and accept ideas. These memos were recorded in field notes throughout the research process. I also tried to maintain an awareness of my personal and professional influences through the use of a reflexive diary and during discussions at supervision.

My professional and academic background is represented in figure 4.5 which offers a conceptual map of key influences on my worldview.

**Figure 4.5 Reflexive review of researcher's worldview influences**



My position as a teacher, working in public health roles in the NHS and as a researcher has undoubtedly shaped my engagement with the research process for this study. The following text provides a more specific discussion of my personal reflexive account for this study with discussion of key personal and professional influences that will now be explored in more detail.

When I first saw the opportunity for this PhD I was immediately attracted as I felt I was well-matched because I had a relevant mixed professional and academic background in Education and Health. These two concepts, I felt, were key to the study and were also areas in which I had spent most of my working life and where I had developed my academic profile. I had also been previously involved in qualitative research activities. Therefore, I felt I had both appropriate experience and knowledge of these areas and the research process to enable me to undertake this demanding study.

I originally trained as a secondary school teacher obtaining my Bachelor of Education (Hons) and then teaching in a broad range middle and secondary schools over a number of years. I also studied for my Postgraduate Diploma in Health Education and then my MA in Education which further enhanced my academic knowledge and understanding of pedagogical theory and its application in practice. I went on to teach within both further and higher education settings, primarily in relation to sport and health and social care thus further broadening my educational experience and understanding of teaching and learning in areas that relate to the focus of this study. This I feel has influenced my thinking in relation to the development of my proposal for the study as well as its implementation. On a practical level being a teacher allowed me to develop practical skills; communicating effectively, use of appropriate gestures, posture and other non- verbal cues as well as tone of voice. I feel that these were all

important in the observations carried out in the study. Not only in relation to my role as an observer but also in recognising and identifying the importance of these specific activities and ways of communicating as part of the interactions being observed between nurses and medical students.

Over the years I have developed and refined my own philosophy about my role as a teacher and educator and my values and beliefs as they relate to teaching and learning. My philosophy is a combination of concepts I studied, and lessons learned during professional experience. Throughout my career I have enthusiastically endorsed the views of Vygotsky (1978) and supported his view that learning is a socially constructed. Vygotsky's theories stress the fundamental role of social interaction in the development of cognition (Vygotsky, 1978). This was reflected in my teaching practice as I would encourage my students to collaborate with each other, as well as with me, to learn. This I feel has influenced my philosophical stance as outlined in this study I have favoured an ontological perspective that has involved an attempt to develop an understanding of informal learning interactions between nurses and medical students, by considering how the participants made meaning of these interactions. The focus on the importance of these social interactions and phenomena is central to my beliefs. This is a key feature of my personal philosophy, acting as a guiding principle for my thinking and how I behave as the researcher within this study. I also think it is appropriate to think in terms of a learning continuum, which stretches throughout life, with different emphases, problems and strategies at different times. This helped me to consider the informal nature of learning.

As well as being trained and practicing as a teacher I also spent much of my career working in the NHS, in a range of different public health roles. These posts enabled me

to gain an understanding and experience of working within the healthcare sector. This involved working with a wide range of different professional groups. This included working with various nurses in different ways. For example, I delivered health promotion sessions to student nurses as part of their pre-registration training and worked with nurses as partners on a range of projects and interventions, I also interviewed nurses as part of research activities undertaken. This allowed me to gain an understanding of their role and the importance of collaboration the need to be collegial and inter-professional activities and education. Understanding the role of the nurse I felt was very helpful in determining the study and also in conducting the interviews' I felt that the nurses that I made contact with in the study felt at ease with me in their work environment and were happy to help and support me when I was arranging the practicalities of spending time on the wards. In the interviews carried out they were comfortable and at ease and having knowledge an understanding of their role was helpful in identifying when I needed to probe for more information. As I was neither a doctor nor a nurse it provided me with neutrality in working alongside both professional groups. However, I also acknowledge that my background in health care and my perception that I had some understanding of the roles and activities of those involved may have unconsciously prompted me to make some assumptions about episodes I was observing or may have led to me taking some instances 'for granted', when they may have benefited from further exploration. In order to try to mitigate such influence I constantly reminded myself to try to see the world I was researching in such a way as to "make the everyday strange".

My time working in the NHS also provided me with experience of working in an acute hospital setting and in particular accessing and being in a clinical ward environment This meant I was aware of how this work environment functioned, what was appropriate to wear, how to speak to different professional groups such as consultants,

doctors, students and nurses. It also enabled me to feel comfortable in an environment which could have been quite daunting.

Although I had never worked previously with medical students in particular I had delivered teaching sessions as an associate lecturer in a higher education setting with student's studying for their Master of Public Health (MPH) where many of the students were medics. I therefore feel I have a knowledge and understanding of working with student.

I also have developed my research skills and experiences in a number of ways throughout my career. My first ever experience was when I had to prepare and write dissertations based on small research studies as part of my academic studies both at undergraduate and postgraduate level. My undergraduate research explored aggression in undergraduate soccer players and involved observing players during football matches. This was my first foray into observations as a data collection method. It helped me to acknowledge the importance and value that how for some research there is a need to see the activity in action to gain the required information. It also helped me to appreciate the importance of recording different types of data and that everything is potentially important and useful. My other academic studies also included me carrying out small scale qualitative research activities that were used to write my final dissertations for my postgraduate diploma and Master of Arts in Education. These developed my knowledge and experience of qualitative research methods and in particular interviewing and thematic analysis of data.

For a period of time I was employed as a consultant researcher and carried out a number of different research projects. The first was an evaluation of the Diana nurses

employed in the local area. These were nurses were employed by the NHS specifically to look after terminally ill children. This was a qualitative research project that involved interviews with both the nurses and parents of children who had used this service. The interviews were semi structured and took place both in the hospital setting and in the user's homes. This allowed me to experience dealing with sensitive issues in an interview and to interviews with nurses.

At this time, I also carried out an evaluation of integrated services at a local community hospital. This involved interviewing a range of different staff groups about a new process of integrated inter-professional working. This was useful in understanding many of the issues associated with inter professional working and understanding the various roles of a variety of health and other related professionals. Although not focussing on inert professional education as in this study, but practice-based working, it provided helpful insight. It also helped me to understand about interactions between different professional groups in the health sector.

Most recently I was involved in a recent project entitled 'The development of a Designated Dental Pathway for Looked after Children' (Williams et al 2014). This study explores the impact of a community-based dental care pathway on the dental care of children entering residential or foster care. The study used qualitative data collected during interviews with children who used the service, their carers and key professionals involved in the pathway, and routine quantitative data concerned with care entry and the dental service use. This was led by academics at Cardiff University which was published in the British Dental Journal. This allowed me to develop my research interviewing skills, developing the interview schedule, liaising with stakeholders, carrying out interviews with young people and their carers and analysing the data.

Throughout my PhD I have engaged in conversations with fellow PhD students, university staff not directly linked to my research but with either methodological interests and experiences or educational research interests. My daughter is an occupational therapist working in a large acute hospital and would often discuss her observations and experiences of medical students in the ward environment. This allowed contemporary experience, thoughts and influences in undertaking the data collection methods as well as analysing and interpreting the data.

Throughout this reflexive process I have become aware of the many influences on me as a researcher and the impact this may have had on the development, implementation and elucidation of my study. It has been a process that has helped me to explore my and personal philosophical stance on a range of relevant issues and to acknowledge and celebrate the range of skills and competencies required for a successful academic research project that I have developed throughout my career that often get forgotten. Upon review of this reflexive approach it has allowed me to determine that my worldwide view could be broadly described as socially constructed with an importance placed on social interactions and phenomena. The reflexive process has enabled me to see how my pre-existing beliefs have influenced and shaped this study both at a conscious and unconscious level. For example, I was open with participants when asked about my knowledge of informal learning amongst medical students at some of the interviews. However, I recognised that too much admission could lead to assumptions being made and block off areas of discussion for participants in the interviews. Similarly, I recognise I had previously undertaken research that was always situated in a qualitative interpretivist paradigm and that I had a preference for this.

Furthermore, it is also important to acknowledge that reflexivity rests on an awareness of self that can only ever be partial (McGee, Marland and Atkinson, 2007). My position as an educationalist and public health worker has undoubtedly shaped my engagement

with this research process .Through my reflective practice in the study I have been able to recognise and acknowledge that through my past experiences in education and working in the NHS I was experientially informed and contextually aware, which I feel added to the richness and depth of the area of study. However, I was always mindful of this obscuring the data analysis process and shaping my conceptual thinking. Making judgements about the value and relevance of ideas and information and forming appropriate conclusions from results of analysis I recognised as being influenced from my research history and biography. The reflexive process has helped me to reveal that a significant realisation has been that in my previous work and research activities I had not truly considered the influence of my own ontological and epistemological beliefs. This study has helped me to appreciate these and recognise how my pre-existing beliefs and experiences have influenced and shaped this study.

### **Summary**

This chapter has discussed data generation and collection methods. The research methods including observations, semi structures interviews and logging of ad hoc conversations were discussed. The sampling and recruitments strategies were detailed and a discussion of ethical considerations in terms of ensuring the safety of the participants and researcher. Reflexivity was described as a process for enhancing rigour within the project and the overall project design was presented diagrammatically. An introduction to data analysis was presented and this will be further developed in the next chapter.

## **CHAPTER 5 STUDY FINDINGS**

### **5.1 Introduction**

This chapter will report on the key findings drawn from the data collected in the study. The chapter brings together the findings from the ethnographic observational sessions the one to one semi structured interviews and relevant ad hoc conversations. It also involves findings from the focus group and ad hoc interviews carried out with medical students that were an additional part of the feedback component of the data collection process. The chapter will be structured around the core categories and sub themes identified and then these themes will be discussed in relation to specific findings from all the data collection methods.

### **5.2 Key findings discussed by core categories and sub themes**

As highlighted in the previous chapter a number of core categories were identified as a result of analysis of the data. These core categories were;

1. Recognition of informal learning interactions.
2. Context (ward setting).
3. Perceived values.
4. Wider training and role clarity.

Each of these core categories were then broken down into a number of sub themes that enabled me to develop a higher level of classification, describing both principal and marginal elements. As each core category is introduced the focussed sub themes that sit underneath will be identified. I will also illustrate the findings with some personal notes made through the coding and analysis stage as well as quotes from the observation field notes and interviews. In order to anonymise the findings quotes will be coded as per the table below.

**Table 5.1: Coding of participants**

Code	Category of participant
N	Nurse
MS	Medical student
OBS	Observation session
AHI	Ad hoc Interview
FG	Focus group

### **5.3 Core Categories**

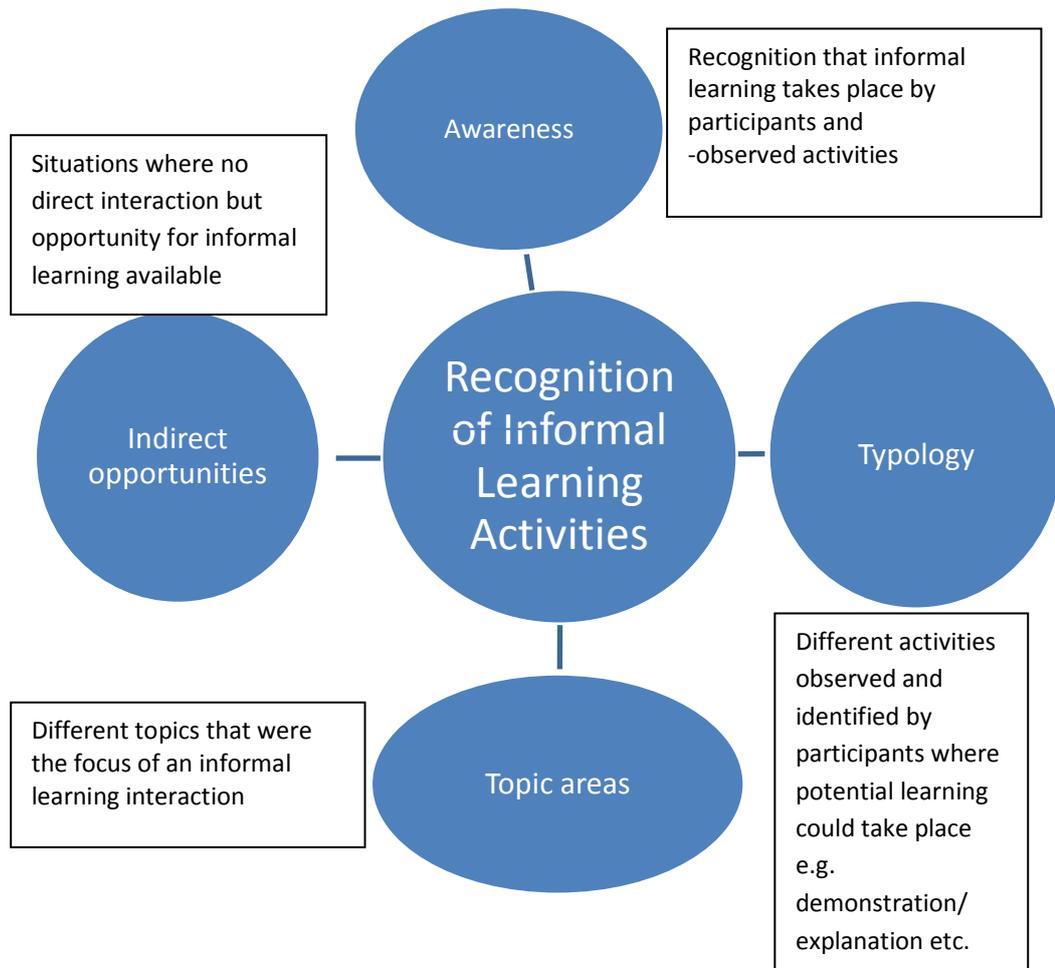
#### **5.3.1 Core Category 1: recognition of informal learning interactions**

As I was identifying the nodes in NVivo8 I started to make notes of key areas, topics and issues that were reoccurring. As a result of initial coding and identification of reoccurring ideas one of the first core categories I identified was labelled recognition of informal learning interactions.

Following further analysis, a number of key sub themes within this core category were identified. These included awareness, typology, topics and indirect informal learning opportunities.

These sub themes are identified below and where relevant key content subject areas i.e. what the sub theme contains are identified.

**Diagram 5.1: Core category 1: Informal learning activities**



### **Sub Theme 1: Awareness**

This theme initially relates to the fact that through both the observations carried out and data from the interviews it was clearly highlighted that informal learning interactions were recognised as occurring on the two ward settings between nurse's final year medical students. As a theme, it details the fact that there was the potential for informal learning to be taking place on the wards and that participants were able to identify a range of activities and situations as potential informal learning opportunities. Also, where there was the potential for informal learning interactions to take place. As medical students noted:

*'The implication is that you're there on ward to learn. The nurses are very used to having student nurses, who are learning on the job as well. There's a culture you're here to 'learn the ropes. I've never had anyone actually mentioning it - Of course you're learning while your here it's implied. You are in a hospital setting and working in a team is furthering your knowledge.'* (MS 3)

It is interesting that the words "learning the ropes" were used indicating more than codified knowledge was learnt about the way things are done on the ward or relating to the hidden curriculum.

*'Learning- it's more relevant when you're doing it on the ward. It's hands on.'* (MS1)

However, it is important to remember that learning is vastly complex, and we may never understand how it occurs, particularly at an informal level. In this study informal learning is referred to but as there was little opportunity to actually identify any specific learning observed the focus is therefore on the informal learning interactions taking place. These interactions are related primarily to individuals and were characterised primarily by my asking questions and inferring learning in terms of students demonstrating increasing knowledge and skills. All of the observational sessions undertaken reflected this. Examples from field notes made at one of these sessions presented below supports this.

*'Observation of a medical student (MS1). Calm environment. MS .is looking at notes, then looks up at the ward manager (WM2) and asks in questioning voice "Do the notes go back in here"? The ward manager replies 'yes' and (nods) MS1 places notes back in file.'* (OBS 1)

This demonstrates use of questions and the fact that this was an individual level in terms of knowledge of where files are stored. The quotes below focus more on skills development but once again demonstrate how the medical students used a questioning individual approach.

*Observation of a Medical student (MS3). Ward environment is busy. MS3 with patient and trying to take blood. Whilst trying to undertake*

*the procedure she asks the nurse 1 for help with venepuncture “having trouble finding vein could you help please?” she asks her in the corridor next to nurse’s station. The nurse explains sometimes when veins collapse they are hard to find. Nurse goes to patient looks at arm, flicks at it and points to vein to go. MS3 nods and then proceeds with needle and procedure’ (OBS 3)*

*‘Observation of a medical student (MS1). Environment calm. Medical student asks nurse at ward station where they can find information about a recent patient as they need to accompany the consultant at ward round and wants to read through notes. Nurse shows MS5 where the patient’s notes are and discussed the types of questions the consultant may ask.’ (OBS 8)*

At interview many of the participants identified a range of what they perceived to be informal learning taking place. Again, this was primarily seen at an individual level and on a one to one basis and requiring action sometimes of asking the nurse by the medical student. This is represented below.

*‘Nurses do help you out, but you have to ask for it. You have to show you’re interested. If there doing something you have to ask can I come along. They won’t just teach you. They don’t say I’m going to teach you- You have to ask to be shown....’ (MS2)*

Many of the possible learning opportunities were also identified as being important in the sense of learning in the workplace. Medical students stated that they would develop their knowledge and skills better and learn whilst on the wards. They could see the benefit to them for their future careers. (This will be discussed more in core category 2 the context: the ward setting).

*‘I learn better seeing patients and seeing how people do things rather than just learning from a book. You learn what’s more common and less common on day to day on the ward. Rather than just lectures.’ (MSM 1)*

*‘In lectures, you drift -It happened to me in the last one - he asked me a question and I had no idea what the question was as I had zoned out. People understand that on the wards it’s a lot more active - often you’re learning thing, and it seems more relevant. I much prefer the placement stuff to the being in lectures and all that’ (MS2)’*

*'...like you learn how people do things, how things are put into practice, you learn about everything- everything is important. What you see on the wards. People prioritise, and stuff and you learn how it all works together, you don't see that in the classroom'. (MS1)*

*'Yes, it's a good way of learning on the job and learning for the job you're going to do. It's good to see people doing the roles you're going to be doing. And how they interact within the teams and putting yourself in that position and seeing yourself as part of the team and obviously, a lot of the team have varied roles. Their priorities (Nurses) are often different from medical priorities and what worries them, and it's useful to see all their different roles and it was good that the ward I was on was good for that it had a huge staff and allied professionals'(MS3)*

The above quotes signify from some of the students that there is a perception that there is rehearsal for their future as an F1 junior doctor, and that they are learning from reality rather than the sterile formal codified knowledge delivered in classrooms or lecture halls of medical school, including the roles of the team. The medical students seem to realise that in the clinical reality -you have to stay focused which is seen as helping possible learning.

The nurses interviewed clearly identified how important they felt it was for students to use the ward as an opportunity to learn about things that will help them in their future careers.

*'I always believe when they come in here they are students and they have to learn how the ward works and work at ward level. After all it's where they will be working eventually.'*(N4)

*'I think when working with nurses on the ward it reflects the real jobs they're going to do in the real world on the ward. And what you're taught in an academic sense and a theoretical sense is often different, and even if it's slightly different in the real world it gets complicated for students -they say we have been taught this way and this is what we have been told but that's not what really happens. Mmmm and I think nurses are a nice bridge to that practice gap really. The real world compared to the book world!' (N5)*

*'I think nurses would say and I say that it is vitally important it's getting them used to the real world in which they will be working, and this is how it's done.'*(N2)

It is therefore important to acknowledge that participants in the study recognise and acknowledge the importance of potential informal learning interactions in the wards as workplace settings. The medical students see it as 'the real world' and how it is important to experience how the ward is run and its cultural norms. The nurses seem to try and provide a safe emotional atmosphere for the medical student to learn in and ask questions with the intention that 'hopefully' they can keep the ward running smoothly and the medical students can be useful members of the team.

### **Sub Theme 2: Typology**

A wide range of types of opportunities and interactions used as examples of informal learning were identified. These differing forms and means of interaction, between the two groups with the potential for learning, involved verbal and non- verbal exchanges and a range of different contacts between nurses, medical students and on occasion other staff working on the wards. Examples included activities such as demonstrations, showing where equipment / files and persons are located, explanations, conversations, instructions, gestures, body language, eye contact, body posture and facial expressions. Talking was the main medium of the interactions identified but many non -verbal activities were also identified in particular head nodding or shaking, pointing and gesturing.

*'It all depends upon what they are looking for- depends upon how learning takes place. If they understand verbal I will say it verbally if they don't understand what I mean I will show them. Because again it's sometimes easier. I know from myself if someone shows me I will learn it quicker rather than someone explaining it. Especially if it's technical.'*(N4)

*'They like to be shown things, they like to be doing things, So it's very much active learning.'* (N2)

*'It depends upon what they are asking. It could be they've seen a patient and want some further input on discharge from respiratory nurses how do they get in contact with them is it referral or phone call? So, that would be verbally. Sometimes they're needing to do certain procedures or they're trying to do procedures, so they might ask at the beginning I need to be signed off for ECGs or catheters -If there's any coming up will you let us know. So, we would either talk them through it or they would watch us for one.'* (N6)

It is interesting that some of the medical students identified receiving 1:1 tutoring from the nurses which was also acknowledged by the nurses along with the contrasting verbal and visual learning

*'MS goes to put on apron, puts it on turns to go in room. Nurse 6 looks at hands and indicate to MS about gloves. Turning her head towards the gloves. MS turns and puts them on. MS shaking head goes into patient room.'* (OBS10)

*'...they come along with me and as I do things I explain as I go and give direction as I go, so it's very much on the job training on a one to one'*(N4)

*Med student went from staff room to Sister (1) in the ward and asked her what Section 2 was and Sister stopped what she was doing in the corridor took them to the filing system and explained what section 2 was for - Have care and need care and start care (said straight forward no arms folded -talking voice) She repeated again he repeated back and she nodded. One to one explanation given.'*(OBS7)

*'sometimes the nurse will deal with me by myself and give me information or demonstrate things with me.'* (MS2)

On many occasions more than one of these kinds of interactions was used.

*'It's a combination- sometimes we tell them we explain to them how we do it and if there is something we have to do at that point we call them and show them how to do it and we have to tell them you do it like this. And they will learn this. I have done ward rounds one time with doctor student and they do the writing and what needs doing. We actually show it to them.'* (N1)

The nurses demonstrate a perceived power in showing the medical students-the medical students need to be shown it -and then they will learn it.

*'I do a verbal orientation telling them where the equipment is -like blood like the things they need for blood and then demonstrating it as well. Let's say when I put an N.G. tube in. So, I demonstrate it and rationale why do we have to do this, how to do this, how do we measure the tube. So, verbal and demonstration and after that.'* (N3)

In some instances, actual learning was more obvious and explicit, for example when a procedure was demonstrated by nurses and then carried out by the medical student which demonstrated their memory of what was shown to them and their skill in application.

*'I ask the student to demonstrate and to show it to me. So, it's your turn now you can do it, and then I can check it following the protocol. So, I can see they have learnt it. Because sometimes it's really hard as I keep talking, talking, talking - But I want them to show me they have understood. Because it's easier for me to see if they understood by me seeing them do it.'* (N3)

*'Sometimes their needing to do certain procedures or they're trying to do procedures, so they might ask at the beginning I need to be signed off for ECGs or catheters -If there's any coming up will you let us know. So, we would either talk them through it or they would watch us for one. Demonstration Then they would do one and we have observed them. Then sign them off. Gestures with aprons and gloves. Each ward is different in speciality so there is difference in stock and where we keep certain things.'* (N2)

Many of the examples involved interaction on a one to one basis and involved medical students and qualified nurses. On occasions other staff groups were also involved including consultants, junior doctors and allied health professional such as physiotherapists and occupational therapists. The consultants were observed as being particularly involved in informal learning interactions as part of ward rounds and hand over. This is when they would discuss patients and procedures and where the medical students would have the opportunity to learn from their manner and how to approach to patients. Medical students also potentially learnt about systems and processes of how

these key activities were led and managed and the role of different staff. This included cultural linguistics-local discourse and meaning applied to these activities. One observed medical student was dressed as a typical student at the start of the placement but on the last week of observation was wearing the same type of checked shirts as the ward consultant. Other health professionals such as occupational therapists and physiotherapists featured particularly at handover between staff. Again, medical students' potential learning focussed on the role of these staff groups within the discharge process and knowledge about patients and systems and procedures.

*'OTS and Physios I learnt a lot from them in terms of reviewing people I didn't realise how big the role that Physios and Occupational Therapists have. Particularly at handovers-- And a lot of the time the doctor was waiting for the okay from the OT and Physio before they could send them home when they were medically fit.'* (MS2)

*'Doctor is with MS on the rounds and doctor asks sister (1) about the notes on the bed of a patient as they want to see the patient. Sister replies to doctor that they had not finished with her as the thermometer is broken. Sister then tells the Jr doctor about patient's medication. Jr doctor then discuss this and the patient's care with medical student.'* (OBS 13)

*'Information from any doctor really. It depends what the consultant is like. So, if you go on a ward the consultant might teach you they might not.'* (MS1)

(In the above quote it is noted that the medical student uses the word teach but implies the purposeful action by the consultant to teach.)

*'MS3 on rounds with consultant and nurse at a patient's bed consultant asks the medical student 'have you used an otoscope before' he replies no and the nurse (8) shows him on completion of rounds in the doctor's office he again shows him in more detail and asks for a demonstration.'* (OBS4)

*'I did spend most of my time with the junior doctor. Plus, the ward I was on in terms of doctors it was fairly short staffed at the time. I felt I was doing more F1 doctoral role so then I was naturally asking them if I needed help.'* (MS3)

There were only two negative opinions expressed throughout the data that nurses were not helpful and did not assist with any learning on the ward by an observed medical student and a medical student in the focus group. The majority of medical students felt the nurses they worked alongside with to be helpful. In these instances, 'Helpful' appears to mean, to the medical student, that the nurses are approachable and willingly give them information on the patient and where things are systems along with procedures

*'Nurses don't help unless you ask them. Then they don't really teach you anything just give you an idea of where to find things and then you have to still just get on with things.'*(MS2)

The above medical student didn't see the nurses as possible teachers or capable of it.

*'one nurse was rude to me in a ward' and blamed me for messy patient notes, it wasn't me it was the junior doctors before me!*  
(AH11)

The above quotes may imply the emotional insecurity of the medical students new to the wards or the nurse flexing their hierarchy and wanting the ward to run without problems.

*'I think it's happened to other people that nurses have been critical. Just when they've said something like of course you shouldn't do that or ask that. So occasionally there's a time -where it's obvious to them, as they have worked in that environment so long. But as a medical student you don't get any really experience of clinics, like being in a clinical environment until the third year and they presume you know the easy stuff that you wouldn't know like putting on an oxygen mask. Things like - You've done that wrong or it helps if you do this first, they say a bit sarcastically. People have been really good with me from my experience even when I have made little mistakes. I think the worst one is when someone does it in front of the patient when it could have just waited until you were outside. To be honest it's more with consultants. Rather than nursing staff they tend to be more supportive.'*(MS3)

The above quote implies embedded knowledge is needed for socialisation or enculturation. The medical student is afraid of sarcastic comments or remarks made by

consultants about mistakes they have made a safe emotional environment is wanted and the nurses seem to give this on the whole.

Within the data collected therefore there are a number of key issues relating to the importance of verbal and non- verbal communication influences on likely informal learning interactions within the ward setting. In particular the identification of the importance of verbal and non- verbal ways of communicating are highlighted. Effective communication between the nurses and medical students is a particular imperative, for informal learning interactions to take place. Nurses and medical students are highly important parts of the healthcare system workforce. Thus, identifying communication is constitutive of possible learning opportunities. This research has identified that much is communicated through talking on the ward.

**Sub theme 3: Topic areas**

This theme relates to the way that the data collected allowed a number of topic areas to be identified that were the subject matter and focus of the interaction and therefore potential learning taking place. These were quite varied and are shown in the table below. Quotes from data collected appear after this to demonstrate the areas identified.

**Table 5.2 Topics of interactions**

Topic area that is focus of interaction	Specific examples identified in data
Patient care	where they will find the patient classifications handling and lifting specific patient needs responding to a patient's request monitoring patients

Clinical procedures	<p>catheterisation</p> <p>cannulisation</p> <p>blood taking</p> <p>blood pressure monitors</p> <p>venepuncture</p> <p>hand hygiene</p> <p>how to use the nebulizer machine</p> <p>giving medication</p> <p>equipment and charging of equipment</p>
Administration	<p>where sources of information and policy are located.</p> <p>keeping desk areas tidy</p> <p>where notes are kept</p> <p>routines and times</p> <p>how the wards are run and organised</p> <p>what forms to use</p> <p>how to contact other professionals and why</p>
Ward Procedures	<p>how to use equipment and charge it up.</p> <p>how to communicate with the team</p> <p>how to communicate with relatives</p> <p>which consultants to go too</p> <p>how the team works and their various roles</p>
Orientation to the ward	<p>where things are</p> <p>show students around the physical environment</p> <p>different roles of staff- uniform and what they represent</p> <p>how the beds are numbered</p> <p>language used at handovers/ ward rounds</p> <p>what is expected of their behaviour?</p>

The most identified topic area within the data from both interviews and observations related to orientation to the ward. The majority of respondents also indicated that this

was one of the most important aspects of their informal learning experience and that the majority of this took place within the first few weeks of their being on the ward.

*'I knew by the nurses what time the ward round would start. At handover they would help with abbreviations I knew where things were. Whereas the first time I got on a ward the first person met was a nurse who said the doctors are around here there- right there doing this, this... this is what's going to happen that sort of thing! The beds are numbered 1,2, 3 etc. in this direction. They were more helpful at the beginning -they were helpful towards the end, but I didn't need that kind of help towards the end. But initially definitely! -- It was getting to know how the ward works even how different consultants work - some want things in a different order - Or they want these people on the ward round. Or they don't want that person. You get to know the via the nurses the personalities of the consultants.'* (MS1)

*'So how the wards work and how they are set up. When things happen, the lay out of the ward, where pieces of equipment are. Protocol also. Sometimes I go to ask them what do I do in this scenario, what does this abbreviation mean? Sometimes they will say this is the BDG or ABC and you pretend nodding along with the consultant but really, you're going hang on what does that actually mean? And it's normally the nursing staff who will pick up on it more when I'm looking a bit blank and they might whisper it in my ear Treatment escalation plan or something or I might whisper to them what's that?'* (MS2)

*'some of it is how the wards are run and organised. Also, from a practical sense, where things are and putting equipment together for certain procedures even blood taking and things like that. Also, how our systems work.'* (MS3)

*'Being made welcome onto the ward and the Sister knowing my name was good.'* (MS2)

Information about and a demonstration of clinical procedures was also identified as a key area for informal learning interactions between the nurses and medical students. This included processes that the medical students were familiar with and new procedures, in particular cannulas, catheterisation, venepuncture, blood pressure monitoring and nebulizer. Use of equipment relating to some of these procedures was also a key feature of the learning and where they were kept. One student commented that in relation to catheterisation that nurses are more experienced, yet it is often the doctor who is called to do it.

*'Cannulas not so much we get quite a lot of teaching on that. Catheters definitely because it's the nurse it's the nurse that does that more. I think it's a bit weird that it's the doc. that gets called to do the difficult catheter but it's the nurses that do catheters all the time. So why is a doctor that's less experienced that's come into the difficult thing - it doesn't make sense to be honest.'*(MS1)

*'They helped me with cannula actually and practical skills like that I've done a couple of medications but that's to get the competency. But with cannulas helped and finding equipment is a big one If I can't find something they will often help me I haven't done much blood taking as the phlebotomists have that to do that.'* (MS1)

*'Helped me find stuff, equipment, practical skills, blood taking, cannulas, blood cultures blood taking, helped me do catheters If I have had trouble doing them they have helped me.'*(MS2)

*'Yes, the ward manager showed me around a bit and showed me where to get things They helped me with cannula actually and practical skills like that I've done a couple of medications but that's to get the competency. But with cannulas helped and finding equipment is a big one If I can't find something they will often help me.'* (MS3)

The topic area of patient care was also highlighted this was felt to be the prerogative of the nurse rather than other staff of the ward and so any queries concerning patients it was important to speak to a nurse. The medical students recognised the nurses spent long periods of time with the patients, monitored and cared for them and knew their background.

*'They're the ones constantly monitoring the patients. Changes in observations and see how well or ill the patients are. Also, learning what makes nurses worry. If nurses worry, I'll go and see the patient and see what they're like - because if they worry about a patient it's understandable'* (MS2)

*'Things like it's when they're quite worried about a patient it's interesting to see the areas that they picked up on-what they're concerned about before they alert doctors.'*(MS3)

The medical students thought it was important to understand what signs led to the nurses being worried about a patient. How and what did they use to determine this concern. It

seems that they wanted to learn the signs of deterioration of health with real patients in a real situation, drawing on the nurses' experience e.g. Low blood pressure, change in colour of face, slurred speech etc.

*'Nurse 8 explains about vertigo to the medical student and the aggregated factors associated for a patient. MS nods as if understanding.'* (OBS 6)

*'Learnt about more what a nurse does-Know how to get information on patients, x-rays and people. Any barriers -Communicating with patients, backgrounds and relatives. Seeing on the wards what other professionals do and their roles.'*(MS1)

Issues relating to ward procedures and administrative tasks were also the focus of interactions between nurses and medical students. This often related to knowing what forms to complete and how, the processes and procedures of contacting other health professionals not based on the ward e.g.X ray/pharmacy and understanding the functioning of ward activities such as handover and ward rounds.

*'Nurses helped in the "Lingo" of handover.... in understanding Treatment Escalation plan TES. Which I didn't know.'* (MS1)

*'Med. St asks ward manager (9) where is patient's X notes whilst standing beside clerk's desk. Ward manager tells him beside desk and points.MS. Looking at notes looks up at WM and says in questioning voice "Do the notes go back in here" WM. 'yes' and nods.'* (OBS1)

*'MS Asks nurse (6) in corridor what does this code mean (Number 23) Nurse takes file from her and then verbally tells her coding.'* (OBS 12)

This sub theme clearly highlights the wide range of topics area that possible learning opportunities focus on. Many of these are directly linked to the settling into and understanding the functioning of the ward and orientation. Other clinical procedures and processes are also a key area of activity.

The focus group of fifth year medical students when asked about the main areas that the nurses helped them identified: knowing where things are, pointing things out e.g. bed numbers, patients, patients' medication, observation equipment, notes on patients, handle and lift, and taking blood. They learnt from the nurses how to get information about patients and other relevant people. Nurses were useful in helping with what were considered barriers. This included communicating with patients, backgrounds and relatives who may be distressed and angry. Two of the medical students said the nurses were good at reminding them of practices such as bloods, catheters, and administration of the ward. They all stated that they all learnt more of what a nurse does which reinforces what was said by the students observed and interviewed. The medical students also saw what other professionals do and their roles from nurse manager, sister, nurses, nurse practitioner and other health professionals it was agreed that it was important learning. When I asked the students how the nurses passed on information they said mainly verbal, though the non-verbal of shaking head or nodding was given along with pointing such as at the glove dispenser. This helps validate findings of the data obtained from the interviews and observations.

#### **Sub theme 4: Indirect opportunities**

On occasions a number of opportunities for informal learning presented themselves that were not intended as such. These were unforeseen and unplanned opportunities that lent themselves to interactions occurring that had the potential for learning to take place. In some ways these could be considered as unexpected learning opportunities as the intention was not originally present. However, it should be acknowledged that these are another source of informal learning taking place. Examples include other professional groups such as the consultants on the ward where the medical student is part of a group

discussion or where they overhear conversations between different professional groups  
e.g. the consultant and a nurse.

*'MS4 and Consultant are in corridor and nurse (7) asks Consultant if she is ready for the meeting with patient x and their relatives Consultant says `yes that's why I am dressed like this` and discusses points of meeting. MS overhears conversation points and asks why meeting is taking place as they are standing next to her and watches both as they speak. '(OBS11)*

Above the medical student learns the correct professional dress code for meeting relatives in a complaint case via the nurse and consultant talking next to them.

*'In the corridor with the consultant asks about a patient to nurse 3 `is patient's x `s leg still mushy'? Nurse (3) `yes' consultant said, `they put silver on it, didn't they'? `Yes. MS next to them both looking at them.' (OBS9).*

Again, we have possible learning of medical procedures for the medical student and real-life outcomes.

*'At work station sister leaning against desk tells a F1 about relatives that had visited a patient. MS3 at desk and listening. Sister 1 discussed that relatives were okay when she saw them, and they understood situation, (Patient had been shouting and complaining). MS3 asked sister for clarification about this when F1 left the area.' (OBS 3)*

Other examples relate to non-verbal cues given at such opportunities. Such non-verbal cues often related to a sign that a medical student should or shouldn't intervene or be involved or when it was appropriate or not to approach other staff. Thus, possibly learning which situations were appropriate for them to be involved in and when not to.

*'Ward is busy. Lots of different staff around. Consultant talking to nurse with medical student nearby. Consultant asking about a patient's situation where relatives not happy. A sensitive conversation. The nurse looks and shakes head to approaching MS to not intervene. Once conversation over the nurse gesture to MS to approach.' (OBS2).*

*'Calm ward. Nurse talking to other staff at work station whilst MS is also present. A patient appears in corridor nurse gestures to MS to see what the patient wants.'(OBS5)*

In the fifth-year focus group it was mentioned that nurses gave them an idea of seeing the results of doctors' decisions regarding prescriptions. One student gave an example of watching the prescribing of diuretics when he had been on the ward.

*'You see what prescriptions do when the nurse was half carrying the patient to the toilet again complaining about the prescription.'* (FG1)

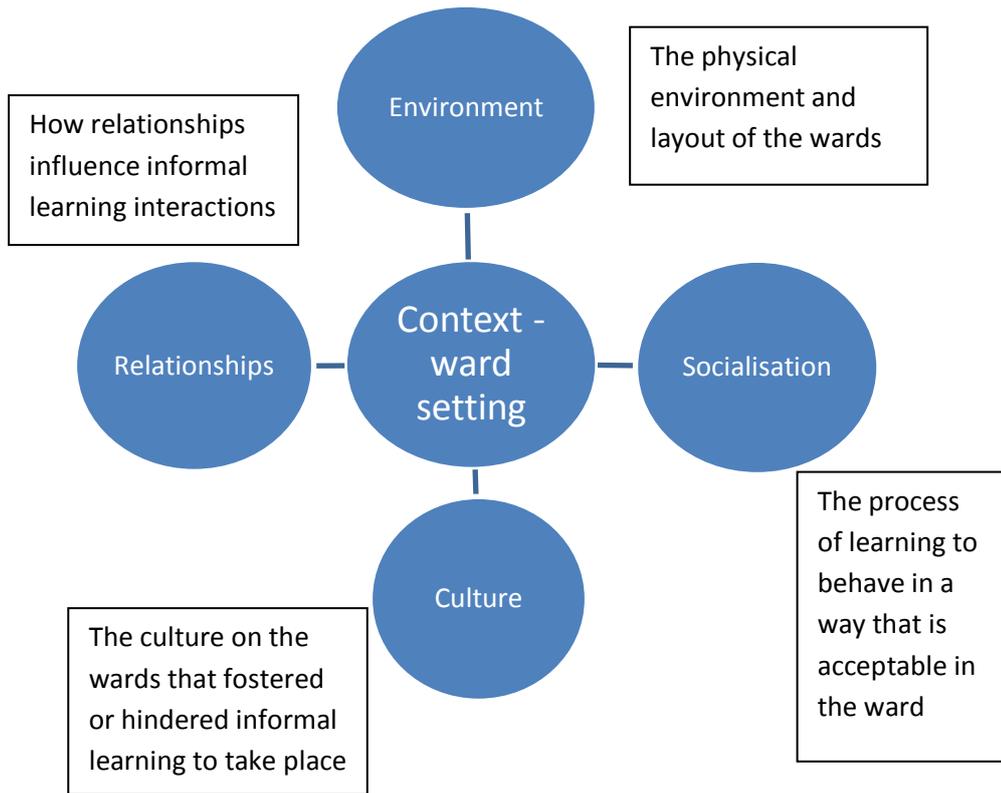
Key findings from this category are the fact that there is a clear recognition that informal learning interactions between nurses and medical students take place, primarily in direct interactions but with recognition that indirect opportunities may also present themselves. A range of mechanisms are used within such interactions and that these involve a variety of topic areas.

### **5.3.2 Core Category 2: Context- The ward setting**

As a result of initial coding a core category termed 'Context- the ward setting' was identified. This refers to how participants expressed their experiences of informal learning as being specifically related to the environment they were in, namely two hospital wards. These aspects related to a number of sub themes namely environment, socialisation, culture, and relationships.

This category and its sub themes relate to understanding the learning environment of the workplace and show the importance of focusing on potential learning processes as part of the socialisation process, cultural aspects and relationships which are all part of professional development and inter professional working within a hospital ward setting which could be referred to as enculturation.

**Diagram 5.2: Core category 2: Context-The ward setting and sub themes**

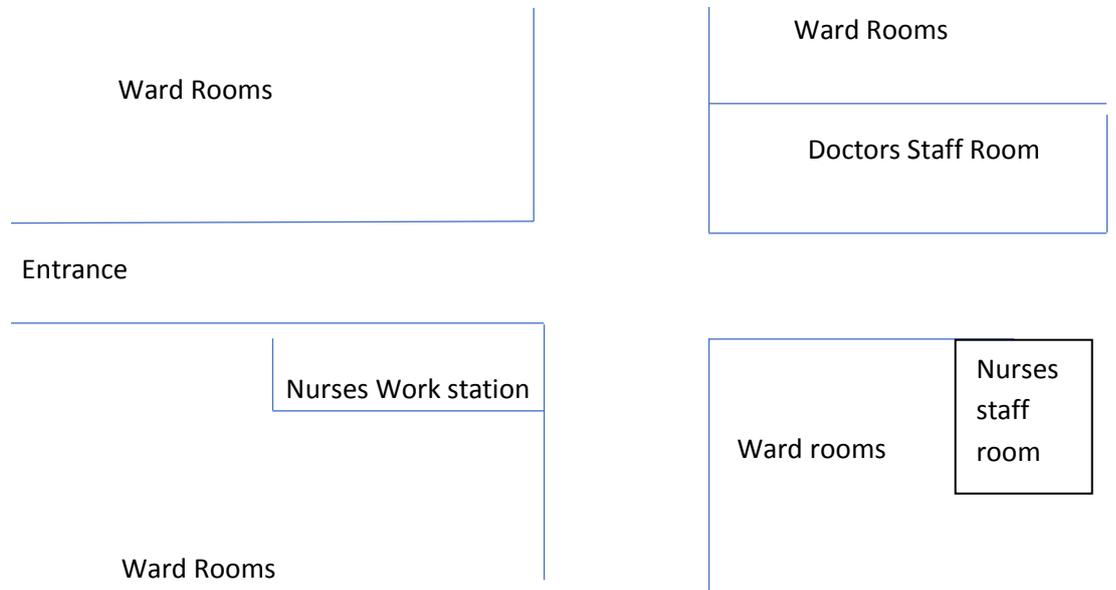


**Sub Theme 1: Environment**

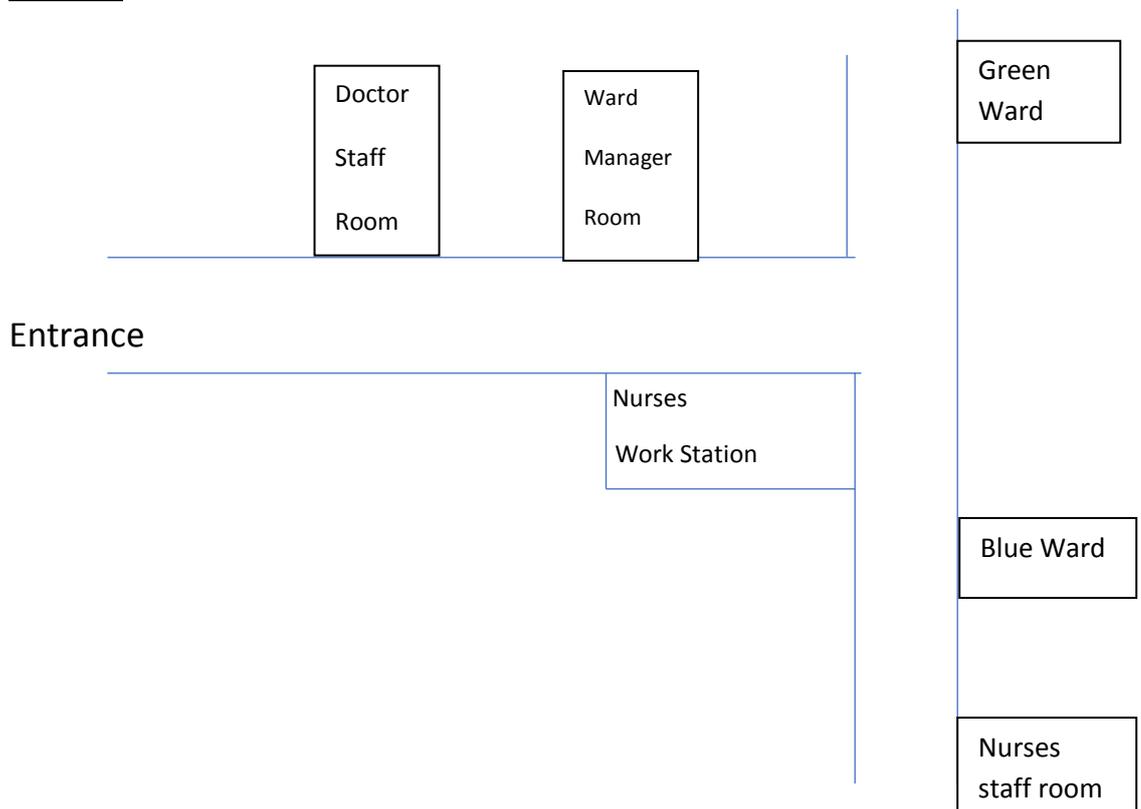
The sub theme environment refers to the physical environment of the two hospital wards. Both wards are physically laid out similarly in that they are 'T' shaped and are similar in design and the rooms available. The diagrams below were produced based on the field notes and show the two ward layouts

**Figure 5: Ward Lay outs**

**Ward 1**



**Ward 2**



Areas or the environments on the ward that seemed to enable interactions included the nurses' station, patients' rooms and corridors. Others that possibly prevented opportunities for informal learning included separate doctors' and nurses' rooms and a lack of a central relaxing meeting point. This is reflected by a nurse in the following quote.

*'We have our break in our office the doctors have their break in the doctors' office If we want them we go into the doctors' office and lean on the door and smile. If they want us and we are on a break they come and find us. Although we get on as a team it is still quite separate.'*(N6)

The above quote also hints at the hierarchy of doctors and consultants and the mechanics used in this case of smiling and waiting by the nurse at the door entrance for her chance to be noticed in order to make the student aware of the action required, in this case , the need to wear an apron and mask before seeing the next patient.

Medical students used and were accepted in the doctors' room and spent much time in this location discussing issues with other medical students and junior doctors. Similarly, the nurses spent their break time in the nurses' room. As both groups did not use the same physical locations it meant the opportunities for ad hoc learning opportunities seemed limited to the physical spaces in terms of corridors, the wards and the nurses' station. The below table (5.3) identifies a sample of the types of learning interactions and where they took place. This demonstrates how the physical environment had the potential to influence the opportunity for informal learning opportunities.

**Table 5.3 Locations and type of interaction**

Type of interaction	Location (environment)
Explanation	Nurses' station Ward (during ward rounds on the whole) Corridor
Demonstration	Wards

	Nurses' station, doctors' room
Conversation	Corridors Nurses' station Wards, doctors' room.
Non -verbal cues (nods shaking of head)	Wards, corridors Nurses' station

These settings were reflected in the following responses and observations.

*'I know they listen to the handover. The conversation we have in the handover they pickup information.'* (N3)

*'I have done ward rounds with medical students and they do the writing and what needs doing and learn from the consultant explaining about the patients.'*(N6)

*'On the wards we tend to demonstrate procedures and clinical things.'* (N1)

Field notes taken at one of the observation sessions also recorded learning environment both in corridor and in front of patients on the ward.

*'Learning environment both in corridor and in front of patients'* (field note reflection.) (OBS2)

### **Sub theme 2: Socialisation**

What is meant by this sub theme is the acquisition of values, behaviours and attitudes necessary or usual in working on a particular ward setting. Socialisation in this context is taken to mean the process by which the individual medical student learns socially acceptable behaviour for that ward setting. This also links to belonging, knowing and affirmation of how the ward operates and what is acceptable behaviour within that context. Within the wider context it also involves internalization and development of professional identity. Indeed, socialisation is reflected as necessary for involving the

medical students in professional practices in the ward setting. The acquisition of unique patterns of language, modes of dress and demeanour, and norms of behaviour can all be viewed as manifestations of socialisation.

For example, medical students highlighted the understanding about behaviour on the ward and how it operated and how informal learning related to these issues.

*'The ward clerk also shows how the ward is set up were the paperwork is filed. The ward clerk will know where all the stationary is and how the ward runs. So, it's an example of how you are expected to behave on a ward- She would come into the office and say your office is so untidy, so we would shift it around. I also learnt things from her answering phones and booking transport. So, that's useful.'*(MS2)

*'MS1 asks ward manager (N2) `are those marshmallows at the work station for us? they replied `yes smiling sweets are for sharing` (OBS5)*

*'MS4 at work station and answers a call. The caller wanted the nurse manager MS 4 asks nurse (8) where is the ward manager she's down having a coffee break- `Will she be mad if I interrupt her he asks nurse 8 `No go on down she's always mad` laughing-He goes on down to get her smiling.'* (OBS7)

*'It's important to understand how the wards work and how they are set up. How to behave when things happen, the lay out of the ward, where pieces of equipment are, protocols also. Sometimes I go to ask them what do I do in this scenario, what does this abbreviation mean? Sometimes they will say this is the BDG or ABC and you pretend nodding along with the consultant but really, you're going hang on what does that actually mean? Its language you're not used to. And it's normally the nursing staff who will pick up on it more when I'm looking a bit blank. And they might whisper it in my ear or something. I might whisper to them what's that what are they talking about? '(MS3)*

*'MS1 asks sister 1 what's in the bag in the corridor Sister 1 says dirty blankets she smiles and moves the bag towards him with a friendly smile he learns sisters even deal with dirty laundry.'* (OBS1)

The medical student by asking the sister finds that even sisters carry dirty laundry on the wards and shows the sister that they are interested as what goes on in the ward other than medical procedures and skills.

*'Knowing what the different rooms will have in and how the drawers are arranged. Also, knowing how the team works and the interactions and content that goes on between them. Even how to behave with certain staff some consultants for example if they like to be disturbed or not.'*(MS2)

*'the discussions that go on during the activity whatever it is throughout the day mmm but also the interaction with other people while they are doing it. Just one bad interaction could impact on the whole thing you're doing If you need a Physio and your trying to get an orthopaedic patient out of bed and they have a lot of pain and you can't move them until the Physio arrives- then you're working as a team.'*(MS3)

Some of the nurses and ward managers interviewed also identified how the orientation to the ward environment also related to the socialisation aspects of ensuring medical students knew how the ward functioned and what behaviour was expected. Nurses saw their role in helping students understand this. They also saw this as a self-centred activity as they just wanted their ward to work as it should with no problems and that the students needed to fit into the existing approach, methods, systems and processes to prevent any unnecessary disruption to the management and efficient running of the ward. This was obviously mostly felt by ward managers and sisters.

*'Heading towards the desk with sister 1 working on files she says to the medical student (MS 3) 'I hope you're not going to touch my files-in a serious voice with a small smile. MS says 'No I was just wanting a T number' she gets it and sits down away from the sister - Sister lets medical student know who is in charge and what she wanted in a friendly way but lets her know how her admin works.'* (MS3 OBS2)

*'After seeing a patient who complains she is getting dizzy when she goes to the toilet -the medical. Student goes to the sister (3) who is dealing with medication in another patient's room with 2 health care assts. Tells the sister about her encounter with the patient. The Sister stops her meds. Faces the student with one nurse and health assistant watching and.in an open stance with a serious tone and face tells (MS2) she has already dealt with that patient twice! Med*

*student replies I do apologise I should 've asked before seeing her turning to go out of the room as she says it.' (OBS4)*

The sister was busy administrating medication, but it seemed she may have wanted to exert some authority in front of staff and student as she could have said this in a different gentler manner.

*'They need to have relationship with the staff, and whatever knowledge they can gain. They learn that in this placement you cannot be in the doctors' room all the time, not talking to nurses, or patients' family it's not how we do things on this ward. they need to know what's expected.'*(N3)

*'we (nurses) know how the ward is run and how we like the ward to be run .and especially when the doctors are new.'*(N4)

*'I think sometimes they need guidance, to get familiar with the ward they are in because wards have their own routines, their own ways of doing things, I think it helps them get familiar with the routine of the ward and how things generally done around and keep them on the right track really.'*(N6)

*'Some wards can be very organised some wards are a little more chaotic and I think you know if you have a good understanding of the nursing staff and what they expect and how they run things. After all we need to make sure the ward works well.'* (N1)

When the fifth-year focus group was asked about the main areas that the nurses helped them with the medical students said nurses helped what they described as barriers. These barriers included communication with patients, backgrounds of patients and staff , how to deal with relatives and patients and in particular situations of conflict ( e.g. when a patient or relative may be angry).The nurses appear to want the medical students to understand how the ward runs in relation to their particular way of the nurses' routines, habits and conducts; and felt this could be achieved with more interaction with nurses instead of just talking to the doctors or consultants about these things.

### **Sub theme 3: Culture**

The sub category of culture relates to exploring the values, attitudes and beliefs behind human behaviour in the workplace. The definition of culture that will be used within this discussion is “the way things are done around here,” Drennan (1992). The nurses were seen by the medical students as introducing them to the culture of the wards, in particular team working, and patient care were commonly identified issues.

*‘It’s important being accepted as part of the team. The nurses were really good at helping me be part of things and the team. At the end of my first week there was a ward - I was busy but within the first 2 days we were all going out on the Saturday -Do you want to come? – No, but thanks for inviting me. That was nice! Didn’t feel like a spare part. The best part of being more useful is not feeling like a spare part. because you stand around not knowing what to do. I think that’s more a feature in the junior years of the medical school. I’m a medical student and I’m standing here to learn. whereas on that placement I’m X and I’m here as a final year medical student I’m here for 5 weeks and I’m going to be useful. I’m their F1 in training.’(MS3)*

*‘Positive learning on the job learning in a team.’ (MS2)*

*‘Here we actually consider them as a team as part of the team you know we don’t really like consider them as a student. As soon as they come to the ward we introduce them to everyone like we treat them as one of the team. ‘(MS1)*

It appeared important for the medical students and the nurses that the students are not just a spare part but part of the team, so they are useful. This suggests that when they come on placement they do not initially feel already part of the team. Assumptions were felt to be the taken for granted views of the world within the ward setting and relating to how medical students could understand and participate in this world. Values were felt to constitute the basic foundations for making judgements and distinguishing right from wrong behaviour and again nurses felt it was their role through orientation

and day to day interactions to consciously and subconsciously make medical students aware of these.

*'There's a culture you're here to learn the ropes. I've never had anyone actually mentioning it but it's underlying. - Of course, you're learning while you're here it's implied. You are in a hospital setting and working in a team is furthering your knowledge the importance of the team in the ward was said to me a few times by different nurses.'*(MS2)

Here again we see the hidden agenda of nurses teaching the medical students the importance of working together (Team work) for the greater good of the ward and patients and to move away from medical students spending most of their time with other junior doctors.

*'You tend to ask other doctors because that's what you want to become and professional groups stick together. Also, you know that you're not on the ward that long- 4 weeks and there are many different nurses and other groups but we all have to work together. Medical students don't really appreciate the work of nursing staff.'*  
(MS1)

This medical student identifies sticking together because they want to be part of the tribe and culture. It also identifies that more could be learned about what nurses do on the ward.

*'Each setting is different though and as I say each setting has its own routine and way of doing things and I think it's until you get to know people that are there, you get to know how they work and as I say what the routine is and then they seem to become pretty comfortable pretty quick and I think if you're quite open and honest and approachable I think they settle right in usually pretty quickly. They get to know how we do things here quite quickly'* (N5)

*'You learn as to which consultants to go to the nurses let you know who is approachable and which likes to be interrupted or not and how you behave with them. Also, how the team works and why this is important and where to go.'* (MS3)

*'Although we get on as a team it is still quite separate. I think if they shadowed us(nurses) they would see a load in a day.'* (N3)

This view was also supported at an observational setting when the following occurred.

*'MS2 looking to join Consultant's round asks nurse (5) where they were- nurse in corridor next to work station points to the end room and names patient room - says she will wait until they were finished stopping in corridor- Sister laughs and says they won't mind just go in- go on! and she does.'* (OBS 15)

The above relate more to the culture, conventions and norms within the wards, also regards personalities, hierarchy and the team. However, there were also occasions where the wider culture of the organisation impacted in the learning of the medical students. For example, at one observational session the researcher recorded: -

*'Two trust staff have come down to the ward to relay to the team about Estimated Date of discharge (EDD) To explain about delays in the ward -why are there delays -tracking if delays-exploring patient frustrations. Magnets on board will be used signifying status. New policy trust taking on board and need all staff to be aware of it able to use the systems. Medical students interacting with external staff of the ward to learn about new policy and what their role would be in relation to this.'* (OBS3)

This sub theme identifies the importance of culture within the ward setting and its relevance in relation to nurse and medical student informal learning interactions. It relates to exploring the values, attitudes and beliefs behind human behaviour in the workplace. In this instance it also reflects the professional differences in relation to these crucial areas and how informal learning interactions have the impact to influence these.

#### **Sub theme 4: Relationships**

It is important that the team of medical professionals working alongside each other on the wards also work together. Forming friendly and positive working relationships between the nurses and the medical students is identified by the participants as a key important objective that can help potential learning.

*'Being friendly making them feel they can approach you Because, someone once said to me I couldn't talk to a sister-I said why not? We are all part of a team. And if you put on an aloof attitude or arrogant then they will never ask you anything - and they will never learn anything, will they? So, if you're welcoming and say any questions you've got to give us a shout -No matter how stupid - it's not! Then they're going to ask you more questions - therefore they're going to learn more and their going to be more helpful in the long run.'*(N4)

*.' If you're in a friendly environment with a friendly team those questions will be easier, than when you're with someone that's not aloof. At the end of the day we are here for the same thing, all here for the patients so we all have to do our bit, we have to help each other everything runs smoothly. I would hate anybody to go off here like a fifth-year student and say they're horrible in there. I would hate them to feel that.'*(N6).

The quotes by the nurses seem to equate learning linked to asking them questions and the nurses wanting to create a 'safe' maybe 'emotionally safe' environment so the medical student is not scared or put off asking questions. The nurses seem to want to be liked and want a reputation of being friendly in that ward.

*'I think the nurses are too busy to have a formal day with the students, with the doctors it's understood that they will be teaching medical students. With the nurses it's like anything they do it's them going out of their way to help. The nurses are not being paid to do it. They are not being given extra time to do it -while the doctors are. So, that's why it comes down to the relationship you have with a nurse. So, if they like you they are more likely to help you.'* (MS1)

*'I think it depends upon the relationship you have with the nurse. If they did not like you. They might not explain as they help with the signs a sign may mean gloves and apron, but you don't need a mask. I have never avoided a nurse due to personality or how they have spoken to me. I have arrived on wards before the nurse on charge not particularly welcoming before. The majority of the time the learning it's been positive to me and feels more relaxed It feels less intimidating than a consultant I think its seen as being less formal so your more relaxed. And often when you are less stressed you take in more information.'* (MS3)

*'The nurses are more accessible to gain help from. You get to know via the nurses the personalities of the consultants.'*(MS2)

*'There are different relationships between nurses and doctors on different wards and hospitals, but nurses did help me. It has made me value the relationship you build with nurses so that they can help me.'* (MS3)

The medical students realised that being 'liked' by the nurses and building relationships with the nurses would probably lead to the likelihood that the nurses would help them.

The medical students thought the nurses were less intimidating than asking the consultants and therefore they potentially would be more likely to learn.

*'I tend to go to a nurse that I may have worked with the day before or that I have remembered their name. All the nurses that I have worked with have communicated well and knowledgeable. Also, if the nurse is free-If a nurse is busy I wouldn't obviously butt in. If it's someone that I have introduced myself before or remembered their name-or if it's someone I knew would be a preference.'*(MS4)

The medical students seemed to prefer the familiarity of the nurse, as someone to ask questions of. This could perhaps be because they felt the nurse was a 'safe face' and allowed them to 'save face' rather running to the doctors and asking a question they may feel they should know.

*'.....in time to come they are going to have quite intensive relationships with nurses they are going to depend on nurses for quite a lot. The sooner they can build good relationships with nurses and know the kind of knowledge that nursing staff can have. It will help them get more familiar.....And they probably will be more may be more receptive if they've become more familiar with the nursing team as such, and how they like things done.... if you have a good understanding of the nursing staff and what they expect and how they run things. Then you too will blend in with the team and find it easier yourself to fit in and work well in that team. They are learning in real life situation and picking things up.'* (N6)

When the fifth-year focus group was asked if there was anything that would put them off asking a nurse for help, all the participants indicated nothing would deter them from asking. However, the group said they would be more likely to ask a nurse they knew, but if said nurse was busy maybe then they would ask them only if they had no other option. All the medical students said that they had help from healthcare assistants

regarding equipment and where to find things, which coincides with data from interviews. They also indicated that physiotherapists and occupational therapists were helpful in explaining about processes and procedures and who's who on the ward.

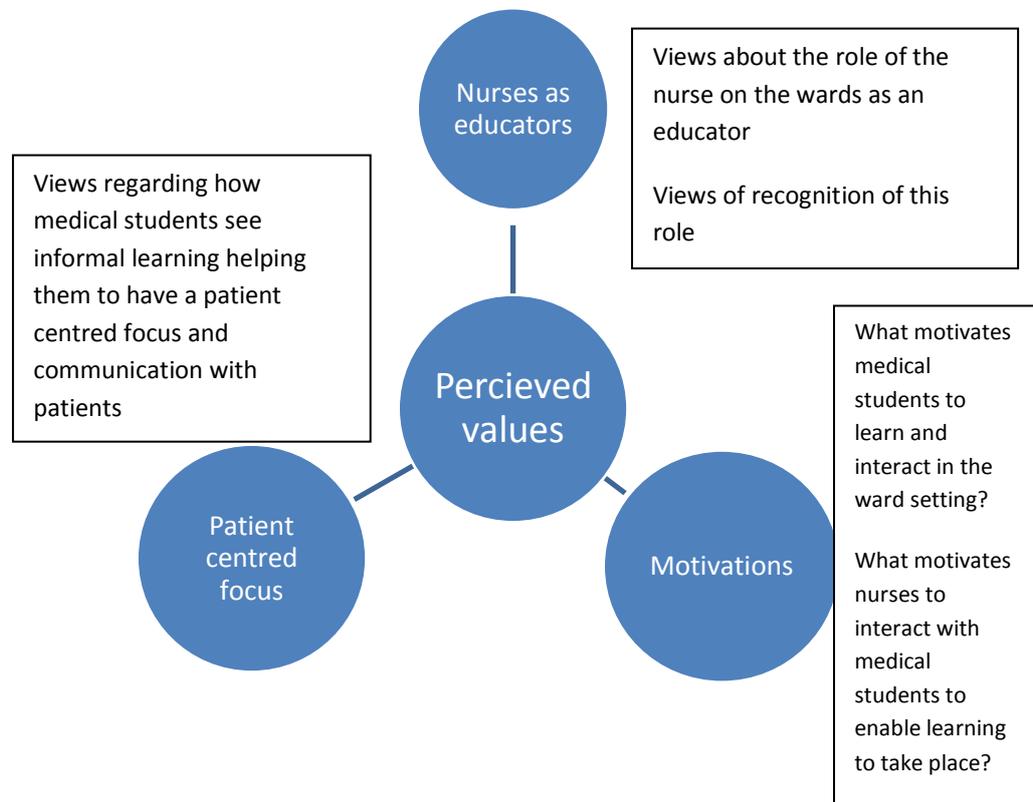
Key findings from this category relate to the fact that the environment as an important factor in shaping potential informal learning opportunities and types of interactions. Within this environment issues relating to socialisation culture and relationships were highlighted as being important in enabling development of informal learning interactions. Although sub themes are discussed independently it would seem that these are strongly interlinked and interconnected. These issues of interconnectivity will be discussed further within the next chapter.

### **5.3.3 Core Category 3: Perceptions - value of informal learning**

This core category relates to the perceived values both the nurses and medical students placed on informal learning interactions in the ward setting. Values can be described as a set of personal beliefs and attitudes about reality and the worth of any thought, object or behaviour -in this case the informal learning interaction opportunities in a ward setting. Values are considered in the wider literature as action oriented and as such in this study give direction to how both nurses and medical students provide meaning to their actions around informal learning interactions. In this instance, in particular the focus is about;

- 1 How the role of nurses as educators is perceived.
- 2 Motivation for learning and education between nurses.
- 3 Medical students and patient centred care, the ultimate goal of everyone's rationale for being on the ward.

**Diagram 5.3: Core category 3: Perceptions - value of informal learning**



**Sub theme 3.1: Nurses as educators**

All of the medical students involved in the study recognised and perceived the educational role of the nurse and the informal learning experienced from interactions with nurses as important to them. Some medical students thought that nurses helped them’ in terms of demonstrations, competencies, the location of equipment and people are and ward enculturation.

*‘Probably quite important sometimes, like they have helped me get some of my competencies signed up. Sometimes mixing up IV drugs, nebulizers and stuff. ‘(MS1)’*

*‘Nurses do help you out, but you have to ask for it. You have to show you’re interested If there doing something you have to ask can I come along. They won’t just teach you. They don’t say I’m going to teach you- You have to ask to be*

*shown.... but when they do its really useful. I value their help a lot.'* (MS3)

One medical student believed that it depended upon what ward you were on. It is indeed recognised that wards are diverse, and it may depend on what health professionals are present and the situation occurring at that point in time.

*'I think it depends on the ward and what role the nurses play on the ward is a big part because I have been on A and E and stuff and the nurses have done some teaching. On the ward, I'm on- they do a lot of drugs runs. I don't engage with them as much Depends what ward your on and what role they have on the ward.'* (MS2)

The nurses also perceived this educational function of their role as important and valued by both themselves and the students.

*'But personally, what we can share with the medical student is valuable. But maybe as students some of them feel we are of value. But personally, the last student thanked the nurses and me for our help. Which is good. Some of them are very nice-most are male! We have a good rapport with them.'* (N4)

From the above quote it appears nurses feel that they value them, however there is often little or no official feedback to the nurses, so they cannot guarantee this is actually the case. On occasions they are given an official 'thank you' verbally or by being given presents such as sweets and cards.

*'My experience is that their varied. Sometimes it depends upon the level of the student. The first second third year probably appreciates that role the fifth years do but their minds in a different place and they are now thinking like I am a doctor not all students, but you can feel the hierarchal attitudes setting in when they are coming up to the end of the fifth year. And I have had that experience where I have tried to support a fifth year on the ward on a ward round and it's been yep! I know what I'm doing(laughs) So it very much depends upon the student I think and where they are on their training.'* (N2)

It seems as the fifth-year final year students who are closer to becoming an F1 doctor require less 'hand holding' by the nurse than in earlier years of their training and that this also depends upon the capability of the student.

When asked whether or not they were made aware of the educational role of the nurse before going on placement the majority of the medical students said 'no'. There seemed little preparation for their time on placement with regards to understanding some of the key informal learning opportunities that they may experience.

*'We have never been told like we can learn from the nurses. I don't think we have been told where to learn it's more like- "make the most of it." Introduce yourself to the team and see what's happening we've had placements with heart failure nurses, diabetic nurses and stuff, there is some telling but they often have students of their own. There is a bit of telling but you don't get told on informal learning at medical school.'* (MS3)

Medical students also felt that the educational role of the nurse could be developed more and that they had more to learn from the nurses they worked with. However, the role of the nurse and the fact that they were perceived to be very busy meant that in practice this often did not happen. Interestingly only one student felt that it was the student's responsibility to be proactive in seeking help and potential learning from nurses they worked alongside.

*'There quite busy aren't they! I think at an early stage as a medical student. A more 'official' helpfulness could be done' A little more help at the beginning how to find things and how the ward works and organisation.'* (MS2)

*'Nurses are quite motivated but what you ask them has to co-inside with what they are doing already as they are so busy. But there quite good they could provide quite a lot if they have got time. They would have to have some kind of teaching role carved out. You can't expect them to teach when they've got their other stuff'. You need to approach them you can't wait for them to come to you. It's up to me to ask.'* (MS3)

The medical students it seems need to be motivated and pro-active in seeking skills and knowledge with the ability to understand opportune moments for this.

Medical students also acknowledged that they didn't know enough about the role of a nurse and therefore were unable to see the extent of the benefit that this professional group could provide

*'... I don't have a full picture of how nurses work in general as different wards work differently. I am sure if I knew more about what they do it would help me.'*(MS1)

*'...the informal point it's an as and when kind of thing! They will point it out if I do something wrong or I can ask them when I need some help, so the informal learning is helpful rather than formal learning from nurses. I don't really know what they could teach me as I don't really understand everything they do.'* (MS3)

*'...in my 3rd year when we had to do a nursing shift -so you went into the ward and supposed to work as a nurse that day, but I didn't find that session particularly useful. They were really busy, and they had to do their jobs and get them done that sort of thing. - I know it's definitely useful to me.'*(MS2).

Nurses also felt that medical students didn't fully understand their role but that if in their formal training this was explained then this would be beneficial to their informal learning experiences whilst on placement. Such an explanation would give the medical students a better understanding of the nurses' capabilities which would perhaps encourage them to asks nurses for help more readily.

*'I think sometimes they take things from the medical staff and the consultant rounds but once that part stops, and they finish the round. They have a list of jobs to do for the rest of the afternoon and they might need a bit of help and they don't want to keep asking their medical peers for how to do it. They find it more comfortable asking us. How to do they do this. Or practically "Where do you keep the new Kardexs' I'm going to re-write this one" because their trying to help the junior doctors. Do they appreciate the knowledge a nurse has? I think so - more specific to the speciality of the ward, probably -with us being cardiology and respiratory there will be questions around those rather than generic questions. And test our knowledge on those'.* (N2)

*'I think they know we are there as a resource to be used. I don't know whether from their point of view. I suppose from our point of view I think it comes from the other junior doctors on the ward and they would point them in our direction. "If you're stuck just ask the nurses". I think if there is a good relationship between the nursing staff and the doctors then they would help them go that way - if they are ever stuck. I suppose they could be told beforehand to use the nurses as a resource as well.'* (N5)

It appears that the perception of the nurse is that rather than disturbing other doctors the medical students feel safer asking nurses. It seems that the nurses are used as a proxy for other doctors and thus save the medical students from impacting on other junior doctors time.

*'I think it is really important. They learn from us and get information. I think we nurses as a team - we can contribute. We are not doctors but we can contribute our experience as a nurse can help them as well - we can let them see the bigger picture, not just more theory. Because, I know doctors do lots of theory and reading - In the clinical area you need to do it! I think we nurses because we are here twenty-four hours seven our experience will help them gain knowledge and we know the patients.'* (N1)

*'I know they do have nurses at the medical school its predominantly practical skills and stuff that they teach- but I think they are told they are part of an interdisciplinary working team, but I don't think they experience it enough in the teaching. Classroom teaching is predominantly consultant still, but the preference is always a doctor if you can get a doctor- and if you can't get the doctor the nurse will do. If it's a practical skill like a catheterization we will get the nurses to do that. I would agree that's our bread and butter so we(nurses) are probably the best people to do it. But if the student only sees us in that practical roles everyday what I need to do in the clinical skills' then they won't recognise the value! So there a huge wealth of experience there in advanced skill which is not tapped into enough.'* (N4)

The above quotes indicate that nurses involved in the study felt that they could provide more informal education for medical students' whilst on the ward. They generally felt they were an under used resource and that they had a lot of potential to educate medical students about a range of relevant areas that would help them in the future.

*'Yes, they can ask us! They can ask about how to admit a patient What do you normally do? Nobody asks us that! What is the process of admitting a patient from hospital A? We can always tell them. We can tell them other things we do, like prepare a dosette box. We can tell them how to do the OBs or why do you do the Obs. as frequently as you do? Even the BM machine that s new no one has asked how to use it. Not resources or time just recognition that we can give them knowledge Like the Nursing knowledge... Experience wise we are more experienced than F1s or F2, so We are happy when they come to the ward anything we can do. But they are always attached to the F1 or F" so.....'(N3)*

*'... When they come on the ward I've got to do this ..... But! — Even things like when they come to look at a patient - every ward has its notes kept in different places. So, things like that down the bottom all the notes are down the bottom, but people don't know that unless you work here all the time. So, when they are wondering around looking for patient notes it's like you can see it in their faces - so I say who are you looking for? Right I'll get them the notes. Then they go Aaah. Then they've got the notes, they know the patient. Then there all right. Its finding things like that when they come onto different wards. Sometimes they hang around with the F1s and F2s sometimes. But then it depends upon the individual. Some are friendlier or less intimidating than others - aren't they?' (N5)*

Nurses can see and pick up on the non- verbal facial signs of the medical students needing help on the ward.

*'Some will come on and just stand at the board and I always say can I help-who are you looking for?' (N5)*

The above quotes indicate that nurses can pick up on visual signs from the medical student when they needed help on the ward. There were on occasion some comments about the negative image medical students had of nurses, and therefore the value they placed on their role as educators. This mainly related to the distinction between a doctor and nurses' professional role. Nurses felt that they would like acknowledgement of the help they provide to the medical students and doctors.

*'There are some students that think we are medical students and your just nurses. But some of them are very grateful. You can have a student that has an attitude-like doesn't want to be told by a nurse - Because we are nurses Some are very grateful because we teach them a new thing. Some of them take everything I say on board. Some of them say okay and thank you – but you get different*

*reactions and maybe they apply it in their practice but at the end of the day that's what we teach.'*(N4)

*'We would like it to be acknowledged that we are here to help them.'*  
(N2)

*'Definitely I think when we have new medical students before they are put in the ward it should be emphasised that nurses are there to help them, not to tell them off. They can always approach the nurses instead of being most of the time with the doctors. They can come to the sisters or manager and ask to insert an NG because the F1 is not as good as the nurse we can do an NG with closed eyes. Normally they ask the doctor, but we are happy to show them how to do an NG, a cannula or vene puncture or whatever. It's always the F1 – We would like the acknowledgement that we are here to help.'*  
(N4)

When the fifth-year student focus group was asked about the main areas that the nurses helped them on the ward they identified; knowing where things are, pointing things out e.g. Bed numbers, patients, patients' medication, observation equipment, notes on patients, taking blood. One student said, 'how to handle and lift' this had not been mentioned before by students. They also reported that the nurses helped them to understand about how to get information concerning patients, x-rays and other health workers roles and names. They stated that it was nurses who helped them in the best ways of communicating with both distressed and angry relatives and patients as illustrated below.

*'Tell the truth and keep your voice normal and when they ask when their getting out don't guess at leaving dates or there will be relatives waiting on that date.'* (FG1)

Two students said that nurses were good at reminding them of practices, bloods, catheters and administration on the ward. This confirmed information given by the interviewed medical students. It was also noted that nurses could help see the results of the doctor's decisions for example regarding drugs prescribed.

## Sub theme 2: Motivations

Whilst on placement the medical students were very clear about their motivations to learn whilst on the ward. These motivations were primarily focussed on making sure they could pass the learning objectives for the clinical placement and their exams when back at university and ultimately their aim of being an F1 doctor. The quotes below reflect this.

*'My motivation is to be an F1, to be competent in practical and procedures, to be part of the team, to understand how the ward works, to please the consultants, to pass practical exams'. (MS1)*  
*Another medical student when asked if they were tested on their experiences on the ward placement said 'No that's what exams are for!' (MS2)*

*'It was just the experience of an F1 and the outcome was to learn what you would have to do as an F1 so it was just preparation for practice' (MS3).*

Nurses felt that the motivation for educating the medical students was to ensure the effective and efficient running of the wards. (Getting the work done and patients cared for). However, they also acknowledged that medical students would be the next F1 doctors and so it is important that they feel comfortable in practice and understand the learning nurses can provide to help them in the future and that hopefully this would better prepare them for their future role.

*'I think it's very important They are going to be the next F1s coming onto the ward. So, want them to feel more at ease with the staff on the ward, where things are, and a bit more comfortable and then hopefully they will already know the procedure they are going to do or the process of the procedure. They will be better prepared for their future role.'* (N1)

*'You're trying to educate them about that part of role for once they are F1s. There is not a delay or beds are being held up. Trying to make it easy all round and for the future'. (N6)*

On a more pragmatic level another motivation for learning on placement for medical students was to get their log book signed off. This was also recognised by nurses as illustrated below.

*'The role of the log book is important in the learning role.it needs signing off and the nurses can help with some of this.'* (MS1)

*'using log books when they come here they want them signed off, they want to do ECGs as the log books have got to be signed off for that.'* (N2)

*'They have their log books and we sign it for them as well. They have to complete it. It's like the Ventolin can you sign it.'* (N6)

### **Sub theme 3: Patient - centred focus and communication**

One of the key values driving the work of all staff on the hospital wards was that of patient centricity and patient flow in the ward. The heart of all activity should be the patient and ensuring their safe and effective treatment. The medical students all saw the importance of the role of the nurse in particular in helping with this focus on the patient as they felt it was nurses who they felt knew more about the patients than other professionals on the ward.

*'Definitely useful Learning - how to engage in information gathering from them (Nurses) and nurses are frontline in taking observations, seeing patients and knowing how patients are generally - because there with the patients the whole time. So, its learning the best ways to allow communication about information relating to patients and relatives.'* (MS3)

*'They know the patient best and so if they are worried I take notice. I have learnt to take notice what makes nurses worried I've learnt that they know about their patients better than anyone. They know how to talk to them and their families and I have learnt from that.'* (MS1)

The nurses involved in the study also saw their day to day contact with patients and their patient centric values as important to the informal learning of the medical students. As nurses had most contact with patients they felt that medical students could learn a lot from watching them interact with patients, the knowledge they had about patients and how to communicate with patients and their families. Something that

is not possible or visible in a more formal learning environment as demonstrated in the quotes below.

*'The patient will have lots of different needs and if there isn't information you tend to show them how to do it and direct them that's where you will find a policy for that.'* (N3)

*'At the end of the day we are here for the same thing, all here for the patients So we all have to do our bit, we have to help each other everything runs smoothly. The patient is at the centre of all we do particular us nurses.'* (N4)

*'There's a vast amount of things we do for patients in a day so maybes they can tag along just to see, not to do anything just to shadow us maybes to see what we are doing. And following a nurse for a day or half a day just to see how busy we are and how wide the things we are doing and how much we know about our patients. So, they get an insight into our role but also want patients need, how to talk to them and their relatives!'* (N5)

The medical students appear to learn from observing nurses' communication skills, and monitoring skills. They also appear to learn about the professional role of a nurse as well developing an understanding of the nurses' territory and their boundaries of care'. This has the potential to increase their understanding and valuing nursing as a profession in its own right.

The fifth-year focus group all agreed that they felt that they learnt more about what a nurse does and learnt from the nurses how to get information about patients, x-rays and other professionals. Nurses also helped the medical students in Learning with what was considered sometimes barriers. This included, communicating with patients, finding out backgrounds with patients and dealing with relatives who may be distressed or angry.

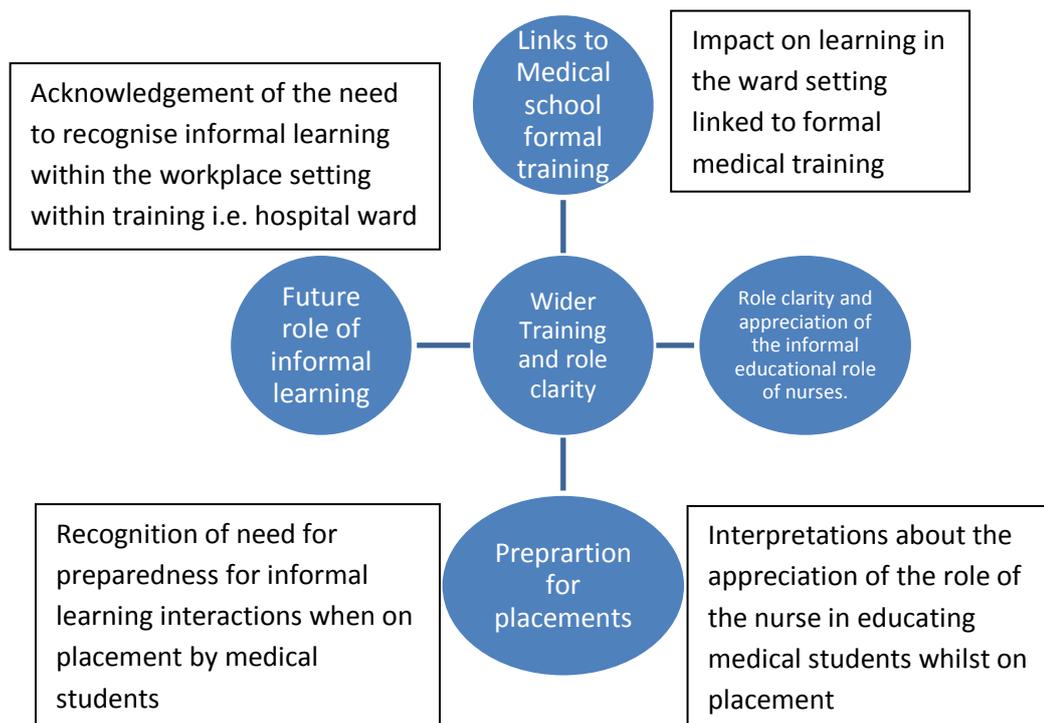
Key findings from this category relate to the perceived values both the nurse and medical students placed on informal learning in the ward setting. The perceived values

of nurses and medical students demonstrated that the role of the nurse as an informal educator was appreciated and valued by medical students. Nurses also perceived the value and potential for medical students learning on the ward. In particular, the impact of sharing patient centric values and learning how to deal with patient work flow in the ward.

### 5.3.4 Core category 4- Wider training and role clarity

This core category focuses on links to the wider context of the more formal training undertaken by medical students. It also relates to the preparedness of students for placement and recognition of the potential for informal learning in the workplace Issues relating to the recognition of the educational role of nurses informally and how equipped they feel with respect to this are also identified. Finally, the future of informal learning between nurses and medical students is considered.

**Diagram 5.4: Core category 4-Wider training and role clarity**



### **Sub theme 1: Links to Medical school formal training**

The medical students involved in the study all commented that there is a need for wider recognition and acknowledgement of the importance of informal workplace-based learning on placement within their overall medical school training. They felt that this could be discussed more whilst at university in medical school and that it should be more explicitly recognised with perhaps provision of a pre – hospital pack.

*'At least two and a half of our 5-year course is ward based learning... (Do you get told that nurses can help you or that you could nurses for help at medical school) -You get told that you introduce yourself at the beginning of placement and find the doctors and it depends what you find what the nurses are doing on the ward you get nurse practitioners on the ward and you spend more time with them... it depends upon the role of the nurses Maybe they could mention it a bit more at medical school.'* (MS2)

*'In formal learning we have to do a lot of feedback forms -Maybe one of the outcomes could be thinking about informal learning what it could be -The role of the log book is the learning role and responsibilities of an F1 doctor working on a single ward. Informal learning could be stressed more explicitly. Definitely not told that nurses may help you or you can get information from nurses. We have hospital visits from year one we could maybe learn how the team works. First visit is social history who they are, how they are, who they live with, and where there from. It could be factored in spending time with the nurses. And highlighting they have a skill set which could be listened too. Told to experience the ward and meet the nurses -Always introduce yourself to the sister or charge Nurse. They will know what's going on its good manners and they will know where the doctor is they know how the ward works hopefully be expecting you Maybe a pre- hospital pack could help?'* (MS1)

*'I don't think its recognised in the medical school mind. They know nurses are there and they can do a good job but I don't think (nurses educational role) its highlighted enough, and students are encouraged to like when you go out there yeah you'll go to clinics you go to the GPs. Yeah, you go on the wards, you go on the consultants' wards, but it should be inclusive of nurses and other OTS and Physios right at the beginning of medical school. Just part and parcel of being a doctor.'* (MS3)

## **Sub theme 2: Role clarity and appreciation of the informal educational role of nurses.**

Interpretations about the appreciation of the role of the nurse in educating medical students whilst on placement were identified. Medical students as demonstrated by the quote below, identified that the nurses were just there and that there was an assumption that they provided them with informal learning opportunities.

*'I don't think they tell you [nurses' educational role]– No! - I don't know if they have to tell you, as it just happens as your there. No there's no guidance about going to nurses for information or where to get anything. They just presume that if the nurse is there. Then you ask them. It's not really said.'*(MS1)

Nurses felt that medical students weren't aware of their own professional development and the knowledge and skills they possess.

*'I suppose they [ medical students] might not know the journey a nurse has gone through by the time they have got on the ward. Like how many years' experience the junior sister or ward managers have by the time they are in that position. They don't really know the training of nurses. And that some nurses may have been in that similar type area for ten to fifteen years, so they have the knowledge and point of views.'*(N5)

In terms of being prepared as an informal educator many of the nurses felt that this was not something that was recognised or that they were prepared for in their training. Only one nurse reported having been prepared for this role and interestingly this nurse trained in another country.

*'I can't remember anything being discussed in the training or in the job planner. But once your qualified we do our own mentor update programme and take on students. You're passing on your information on education to newly qualified nurses. But when you're newly qualified you probably didn't expect to be teaching medical students as well. You probably see them as two separate entities and that they don't cross over but obviously, they do. I think it would have been useful to have - a little more on how to deliver information over. A lot of it is informal and you learn from others, so you've just learnt from watching us and others how we interact rather than any formal training.'* (N4)

*'No, it wasn't. mentioned in my degree training. We've never been told that we are part of training medical students. But because we are a team whoever comes in the ward and gets involved in the care-they become part of the team. So, in general we just take that on board everyone learns from each other. So, it's our responsibility to teach everyone that needs our help. But we were never trained or told that we had to train or educate medical students. I think it would have been good in training to have identified skills to help put over educate and coach medical students. Maybe even now as we have our mentorship role for students and for newly hired nurses. but with the medical students it hasn't been discussed even now they haven't said it's going to be your responsibility to make sure you train your medical student. But we do mention that you have to do this or that to the medical student it is a common thing that happens here. It would have been good in training to have some knowledge and skills on passing information to medical students or doctors I think it should be embedded on us as well because if you ask some other nurses they will just turn around and say that's not our responsibility.... I will not turn my back and not teach a medical student because they are not a nurse. At the end of the day I could be working with that doctor and you could regret -Oh I didn't teach him that. I tell them if there not doing it right you may have to work with a doctor along time'. (N3)*

*'Yes, but it was different because I did my degree in the Philippines' they told us.'(N1)*

Furthermore, the nurses identified the importance of working together and in particular how training in communication skills would be helpful. The nurses also allude to the fact that they might end up working with the medical students when they qualify and therefore there is a certain amount of self- interest in educating them and treating them well. The following quotes also indicate these points.

*'Definitely need training about this in the future! ...it would be better in the fifth year for medical students and last year for nurses... In the early years they don't see where it fits in. I think communication skills would give nurses more confidence to talk to patients and doctors.'*  
(N5)

*'Yes, maybes- yes! .....If it's in the training early on just slipped in or brought up in the training in mind how to communicate to the doctor.... It would be useful to have some communication training when doing nurse training with doctors in mind.'*(N6)

*'...it's just as I became registered and you soon learnt that you have new doctors in, new students in, it was part of the role really to make*

*them feel comfortable and to help them in anyway shape and form. Not really in the training –No.’ (N2)*

When asked if they thought it should be discussed as part of nurse training the majority of nurses agreed, as reflected in the quote below.

*‘Yeah, I think it would be helpful because obviously they do mention that you will become a mentor, you will have student nurses, but nothing is specifically mentioned about medical students. Then obviously, we have the new nursing associates all these new people coming into nursing we have to guide as well. So yeah, I think it will be helpful- if it was mentioned that you might have to play a supportive role to the medics. As part of nursing your meant to have pretty good communication skills you would be a pretty poor nurse if you couldn’t communicate to a student-yes there’s ways of doing it and yes obviously you have got to do it in a manner that will make them feel uneasy and out of place whatever. But generally, I think nurses are pretty approachable and pretty sensible as far as communicating and we are pretty good on this ward because we do have a close relationship as a team. I think they soon quickly learn to feel part of the team. You see how people approach each other, talking to relatives, yeah’. (N2)’*

### **Sub theme 3: Preparation for placements**

Medical students were clear that there was little information provided about the informal learning opportunities they may encounter from interactions with nurses (and other staff) whilst on placements. Many identified that they would have liked some information about the role of nurses to have an understanding of how they could support them whilst on placement and that they could be more prepared for this prior to placement taking place.

*‘More could be done on that one [preparation for placement] Its always informal that be nice to nurses and they will be nice to you. Equally some medical students I have worked with maybe less appreciative of a nurse’s role and they’re the ones that have fallen by the wayside it comes to clinical exams’ and they come across as not having that/ having experienced that- it shows sadly.’ (MS1)*

*‘I don’t think it’s recognised by the university we don’t have any learning outcomes, or it doesn’t say if you’re not sure where this is go and ask the nurse because they will be able to tell you. It’s just*

*common sense because they know the ward well. They just tell us.'*  
(MS4)

Similarly, nurses identified that more could be done to help students to make best use of nurses' knowledge and skills. They also identify that medical students often do not recognise a nurse's educational role. See the quotes below.

*'I think sometimes we are taken for granted- being a nurse for 24 years we can always teach them -nurses have speciality -vene-puncture how to take bloods. -If there is no doctor we take the blood. So we can always give them the basic knowledge of a aseptic technique because it's so frustrating when you see a student doing something with an F1 when we could do it better.'*(N2)

*'Mmmm I don't think they know enough! I think that they expect that the nurses will help them out and direct them and again show them practicalities and get sort of practical outcomes signed off. But I don't think they recognise that actual teaching is going on there. It is teaching that's happening we just don't see it as that we just say just follow me around! So, NO! I don't think that they recognise it.'* (N6)

*'Maybe they don't [recognise the educational role of the nurse] maybe that's why they stand at the board and look around for help. If they were told before they came onto the wards that staff are there to help as much as they can and that was ground in a bit more.... Maybe that needs to be pushed a bit. Because a lot of nurses will think a fifth-year medical student should know that because they are not long from being a F1. But if nursing staff are made aware that they don't know everything as they are not there yet. Perhaps they will be given more leeway Perhaps as said before it's a 2-way thing'.*  
(N2)

*'...Yeah! it wouldn't hurt for them to know a little about the support that nursing staff can give them relating to patients and their conditions, and the history- they might know about the patient because it often helps if you go to talk to somebody if you know something about them beforehand. If you know about the family for example if somebody is a widow you're not going to say, "Is your wife at home" so you're not going to ask that question you know a little more beforehand yeah!'*(N3)

However, the fifth -year medical students' focus group also proposed that they would like nurses to have an understanding / appreciation of what a final year medical student could do and what information they needed to know whilst on the ward – so the nurses knew how to help them.

*'Informal learning does not seem to be acknowledged by the university and the medical students believe that more could be done to prepare them for placement and identify learning opportunities and how the nurses may be able to help them. The nurses also believe that they can be used more in the students' work place learning and be it acknowledged more. the nurses appear to believe that medical students didn't always recognise and appreciate their educational role but still they were prepared to rescue and help a lost medical student even if it was in the self-interest of the ward.'*(FG1)

#### **Sub theme 4: Future role of informal learning**

This theme relates to the need to recognise informal learning interactions within the workplace setting in the future. Overall there was a general recognition of the importance of informal learning as part of medical students training by the majority of participants. Placements were seen as a key element of medical students training programmes and it was felt important that informal learning opportunities continue to be provided by nurses. These points are reflected in the quotes below.

*'Placements are the main part of our training – as I see its where you learn the job. So, anything you learn outside the formal university is really important. These informal ways of learning are really important to me I have learnt a lot form all sorts of people and by just being here. It would be good to give the nurses more recognition because they are really helpful. That would be good! Because they are really helpful. They maybe should be told you are really being useful to the medical students.'*(MS1)

*'Nurses are very good at make doing and making the best of a bad job. So, when your struggling with something nurses often have the experience to say you actually you don't have to it that way it's acceptable to do it this way and it's much easier and quicker. So, it's like tricks of the trade actually. So, you might have been taught that formally, but this is the way it's done here. Its quicker and more efficient. It's good to be informal rather than formal.'* (MS3)

*'I think it's really good that we spend a lot of time on the wards as we can learn loads form everyone. It's a bit scary at first as you don't feel you know much, even as a final year student as all the wards you goon are the same but different if you know what I mean... Nurses are really important when you are on the wards for certain things.'*(MS2)

It was also felt that there was a need for continual informal learning opportunities to occur and that both nurses and medical students are prepared and supported for these

interactions so that both benefit positively. It was highlighted by nurses in particular, that the danger was that by focusing on these interactions within training, that they then morph into more formal activities. It was recognised however, that there is however always going to be informal learning due to the nature of the ward setting and the activities going on including talking, verbal and non- verbal interactions and communication between these two professional groups will need to take place. These points are supported in the following quotes.

*'There are nurses out there who really want to, and they would really love to help the students on the ward. Where that it falls short is that resources and time if you have a busy day and there is no clarity about what the expectation is! I think nurses think yeah if they are coming informally to follow us they can come, and they can learn loads! but once you say right this is actually a formal thing and I want you to take on this responsibility they [nurses] get scared because they haven't got the support! (The tools of the trade) Yeah, they haven't got the support there, and they haven't got the time. But it's important.'*(N3)

*A nurse will say I have to really get this paperwork done. If were engaged more with them [ medical students] its interdisciplinary learning, isn't it? The director of nursing has been keen for the nurses in the department to go down and do more teaching on the wards' nurses can work on the wards while were doing it and it supports the wards and supports the students. But nobody has really looked at how we can make that work. I think there is a bit of fear of letting the students lose with a large percentage of nursing. If they're getting what 60% of teaching from nurses, they may get scared there not getting the medical stuff.' (laughs)(N6)'*

*'I think it's just taken for granted Its kind of just accepted what it is. isn't it just going to happen anyway as we are all working together and have to on a ward such as this?'*(N4)

*'Probably take us in that role for granted, I don't think they see it as a specific role no. I think they would just see it as an integrated part of our general teaching role to others I mean as a you know as a permanent member of staff anybody that comes on to the ward you would be expected to help them in anyway shape or form that you could. It's not seen as a specific.'* (N2)'

*'Its good to help the students when they come on the ward – good for us all me and them. It's a natural thing to do. You can't teach everything in a classroom but if you are asked to make this a more formal part of your job then it would become something different I think. People may want more money or and they would need time and may be training to do it as good as they can.'*(N1)

Key findings from this category relate to the wider context of the more formal training undertaken by medical students and the preparedness of students for placement and recognition of the potential for informal learning interactions in the workplace. It is clear that there is little discussion with medical students whilst in their formal training about the potential impact on their learning interactions with nurses can bring. Many medical students would have liked more information about the role of the nurse and the types of learning they can assist with. One medical student suggests a pre- hospital pack could be provided to assist with this. Nurses also identified that this informal educational role is not identified or recognised within their training (except one who trained in another country). However, felt that this was an important role that needs more recognition. Informal learning interactions and opportunities for potential learning by medical students from nurses was seen as an ongoing support in the training of doctors but that there were opportunities to help support both staff groups in making the most of opportunities presented.

### **Summary**

The findings from that data collected have been categorised and reflected upon supported by quotes from participant interviews and observational sessions. As a medical student starts a placement on a hospital ward they do so with a degree of expectation and nerves, informed by their own previous experiences, knowledge, understandings and perceptions. The nursing staff on the ward wanted to see medical students as part of the ward team and try to provide a safe emotional setting for the medical student to learn in. Being part of the ward team made the student useful, the sharing of reified knowledge, the ward to be run without problems and the patient flow kept moving.

The nursing staff also understood that the students required orientation as a key function of their learning and enculturation. By being part of the team, it also served as a way of avoiding asking the doctors for help all the time and adding to the already

busy workload of doctors. Participants adapted and modified these expectations as they journeyed through their placement experience. Nurses perceived medical students as learning and wanting to learn when they asked questions. Although a range and variety of types of interactions that had the potential for learning were stated and there was further diversity in relation to the topic area interactions and possible learning.

Adjustment and potential learning are central to medical students experience and is informed by their involvements and their encounters whilst on the ward. Informal learning opportunities were recognised by both medical students and nurses. Due to the nature and the length of placement being only four weeks orientation to the ward was felt to be of key relevance and significance. However, this was strongly linked with socialisation and culture on the ward. The ward setting itself also shaped and influenced interactions and learning opportunities. Professional identifies roles with territories and boundaries of the nurse's care, plus, patient care by the nurses were an important factor identified in the findings. Nurses and medical students both saw the informal educational role of nurses as important but there was a general feeling that this was not widely recognised within both nurse and medical student formal training.

Many of the categories, sub themes and issues of interest identified are interconnected and linked. They are characterised as reinforcing each other. These dimensions I have tried to present diagrammatically by developing a conceptual model of informal learning interactions between nurses and medical students in a workplace (ward setting context) in the next chapter. The next chapter will provide a more in-depth discussion of these findings contextualising them within the relevant literature and identifying the implication for these findings and the new knowledge generated by this research.

## CHAPTER 6 DISCUSSION

### 6.1 Introduction

This chapter brings together and discusses the findings identified previously in chapter 5. I will start by introducing a conceptual model of the core categories from the findings. Please see Figure 6.1 below (page 181). This model provides a representation of a possible understanding of informal learning interactions on a hospital ward between medical students and nurses resulting from this study. I have positioned the model early in this chapter as I will refer to and use each of the core constructs that make up the model throughout the discussion and as a way to help structure this chapter. However, it was clear during the data analysis that these core categories are not discrete but rather they often overlap and are interconnected. In this chapter I further unpack these categories by discussing them in light of the wider literature. I build on the literature by applying both practical and philosophical approaches to the data, further demonstrating the complexity of interactions between nurses and medical students.

The conceptual model in figure 6.1 (page 181) illustrates the components contributing to informal learning interactions between medical students and nurses in a hospital ward environment. The model proposes that within each of the four core categories there are a number of sub themes and principal and marginal elements that influence the potential for informal learning of medical students associated with interactions with nurses in a hospital ward. It also highlights the importance of a two-way relationship between the individuals concerned and possible informal learning interactions. The model is presented to help develop an advanced understanding of informal learning interactions between nurses and final year medical students in the work place (hospital ward).

It is acknowledged that the model is presented in a static manner and therefore in a way that does not represent the moveable and changeable nature of the interaction between each of the elements that would exist in the real social world. Informal learning and the educational interactions associated are in themselves also not an end point for medical students and nurses and the writing does not necessarily characterize the changeability and dynamic nature of these events. The reader is therefore reminded that as informal learning is a shifting and changing concept, subject to change in reality of practice, the model and the writing that supports it cannot fully reflect the complexity and inter-relationships of the lived experience. In addition, it is worth noting that the medical students and nurses do not work in isolation, instead forming part of a wider team in a complex and busy environment. This added complexity is also acknowledged to help ensure comprehensiveness is brought into this discussion.

## **6.2 The conceptual model**

In developing the conceptual model arising from this study's findings a number of layers of data and information have been synthesised. At the broadest level the core categories identify a way of representing study data and are seen to be the basic building blocks from which the conceptual model arises. These four core categories are;

1. Recognition of informal learning activities
2. Context (ward setting)
3. Perceived values
4. Wider training and role clarity

These are seen as having interlinked relationships. These relationships are graduated in the sense that some apply more at an individual level whilst others relate more to the

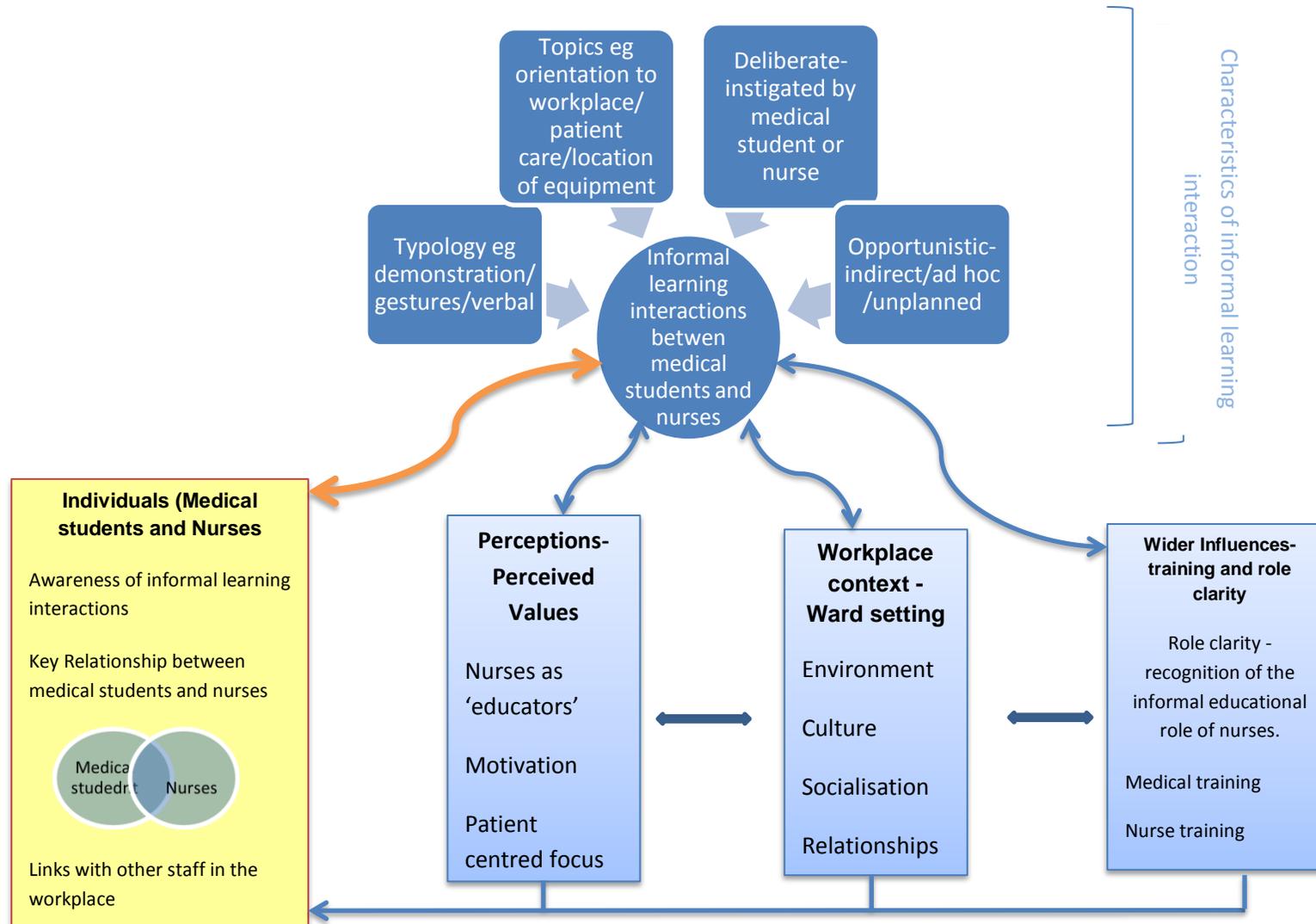
context of the workplace and then the wider perspective relating to roles and training. The themes within the categories are also interconnected with each other and influence and shape the interactions and potential learning taking place.

The top half of the model relates to the characteristics of the informal learning interactions between medical students and nurses in the workplace. This connects to Core Category 1 Recognition of Informal learning interactions as outlined in the findings. At the core of this part of the model are the interactions taking place between medical students and nurses. As in the study findings there was a recognition and awareness that such interactions did appear to be taking place and related primarily at an individual level. These interactions may be shaped by four key characteristics arising from the sub themes identified within this initial core category.

The first of these possible characteristics is the typology of the interaction. This includes verbal and non- verbal interactions such as demonstrations, explanations, gestures and conversations. The second is the topics that these interactions are about. The main area identified in the data was orientation to the ward, but other examples include clinical procedures, patient care and location of equipment. The final two characteristics relate to the fact that interactions being either deliberate or opportunistic. That is, if the medical student or nurse intentionally engaged in an interaction for a particular purpose or if an interaction or opportunity for informal learning arose by chance and was unintentional and unexpected. These characteristics are important to acknowledge as they can influence and shape the nature of the interaction and the subsequent possible informal learning experienced. For example, in this study the data identified that nurses said they showed medical students how to carry out clinical procedures such as catheterisation. This would be a deliberate

interaction as the nurse identifies this as a learning need that medical students have and so plans to engage with the medical student. The planned interaction may involve instruction and/or demonstration and it is focussed on a particular clinical procedure.

**Figure 6.1 Conceptual Model depicting core constructs relating to informal learning interactions between medical students and nurses in the workplace**



The lower half of the model relates to the further 3 core categories identified from the study data and which are reported in chapter 5. These core categories are: perceptions- perceived values of informal learning interactions, the workplace context of the ward setting and wider influences- training and role clarity. These categories and their related sub themes are inter- connected and linked as demonstrated by the two-way arrows on the model. They also come together to influence the individuals involved in the possible interactions. The themes identified for these individuals potentially influence and shape the nature of the interactions taking place. This is core to the model and why there is a specific part of the model highlighted to reflect issues of concern at the individual level and why the line linking the individuals and the informal learning interactions is highlighted in red and is wider, to represent the importance and strength of this link. This is also two-way process with the interactions taking place influencing the individuals or their perceptions and emotions and vice versa. Relationships are also important in forming a person's reality.

As part of this discussion, I will seek to illustrate the way in which the potential for informal learning interactions between medical students and nurses are influenced and shaped by each of the above categories and the related sub themes. A number of theoretical perspectives have been drawn upon, each one underpinned by different epistemic viewpoints. These include; -

- Symbolic Interactionist theory – this will bring a theoretical understanding to concepts of self, identity and roles and how these concepts inform both nurses and medical students' interpretation of their roles within the context of the workplace setting and in particular in relation to informal learning interactions. It provides a valuable perspective from which to study social interaction in the two ward settings used in the study and allows the complex processes by

which participants understand, interpret and create their world to be explored in detail.

- Social constructionist theory focuses on the processes by which people construct meaning and value through social interaction. As a metatheory, this orientation assumes that meaning is created in what people do together in this instance nurses and medical student interactions.
- Ethnography promotes the application of the 'lens' of culture to the discussions that is based on the experiences and perspectives of those being studied.

Reference to the wider literature from a variety of disciplines will also be applied throughout the discussion. The rationale for such an approach is to add depth and understanding to the study findings and is consistent with a constructivist ethnographic approach. This allows an 'understanding of the complex world of lived experience from the point of view of those who live it' (Schwandt in Denzin and Lincoln 1998 p 221).

### **6.3 Discussion of core constructs of the conceptual model.**

#### **6.3.1 The recognition of informal learning interactions in the workplace.**

In this study much of the data and the subsequent findings related to characteristics of informal learning interactions between nurses and medical students. These related to the types of interaction or activity, the focus of the interaction or topic/ subject of interest and whether these interactions were deliberate or opportunistic. These proposed characteristics of informal learning form the basis of a core category identified in the findings and which form a key element of the proposed conceptual model. These will now be discussed in more detail.

Merriam, Caffarella, and Baumgartner (2009) highlight that there is not much research regarding informal learning in adult education and that often, the unique feature of informal learning in the literature is situation or location of learning, rather than the learning process itself. This study contradicts this view by exploring the nature of informal learning interactions between nurses and medical students in their workplace. The findings of the study give an indication that there is a recognition and awareness by both nurses and medical students that informal learning interactions are taking place and an attempt is made to provide an indication of the characteristics of these as practical processes and the influences upon them. This is presented in the proposed conceptual model in figure 6.1. As a result of carrying out this study it is acknowledged that there is a paucity of literature relating to the informal learning interactions and process in a hospital ward environment, between medical students and nurses and within the UK. For these reasons, this study provides new insights and knowledge of informal learning interactions between nurses and medical students in the workplace in the UK.

### **6.3.1.2 Informal learning in the workplace**

The workplace has been widely recognised as a setting for informal learning to occur (Eraut 2000, Lave and Wenger Cambridge 1991, Hager 2011, Beckett and Hager 2002, Boud and Middleton 2003). This study is located within a particular workplace setting - hospital wards in a local general acute hospital in Northern England. Manuti et al (2015) identify that workplace learning cannot be investigated as a separate process which has nothing to do with the wider social and economic context. This wider context is characterized by the changing meaning of work, knowledge and learning that partly shapes and drives what we think of as workplace learning. Cullen et al (2002) acknowledge that if workplace learning is not contextualized in this way, workers will only be prepared with the skills and competencies for today but not for the future.

Therefore, in this study I consider the workplace to be a physical, socio-historical and temporal place and location with shared meanings, ideas, attitudes and behaviours. These features all help to determine and construct meaning for individuals in the working environment through networks of formal and informal relationships and interactions (Matthews, 1999). These constructs place learning at the centre of workplace learning, 'looking at work from the perspective of its learning potential is fundamentally different to looking at it simply in terms of competencies needed in order to perform the job well' (Cullen et al., 2002, p. 36), and as Collin (2002 p. 133) notes, 'learning is seen as a natural aspect of everyday work, and work itself is seen as a rich source of learning'. Acknowledging these expectations, the main objective of this study is to locate the 'how' and 'what' of workplace informal learning interactions between nurses and final year medical students. These hows and what's for this study are reflected in the conceptual model produced that can be seen in figure 6.1. p181

According to Jacobs and Parks (2009 p.134) the label workplace learning might be used to refer to 'the multiple ways through which employees learn in organizations. Workplace learning has also been deliberated and theorized by a lot of different fields of study and backgrounds (Boud and Walker, 1998; Hager, 1999; Stern and Sommerlad, 1999). This has created a number of different interpretations and explanations about workplace learning. Sambrook (2005) provides a useful contribution by distinguishing between learning at work, which is connected with planned training and education courses and learning in work which is linked with the more informal processes and activities, such as discussing, observing, asking questions and problem solving. These type of learning in work are reflected in the findings of this study in the quotes from participants on section core category 1-sub theme two (page 130) and are referred to as 'typology' one of the characteristics of informal learning interaction identified in the proposed conceptual model

Billett (2002) defines 'workplace affordances' as how the workplace structures and requirements influence an individual's contribution to work activities. He suggests, that the quality of learning is influenced socio-politically and shaped by access to workplace activities and management and support available. Workplace learning is therefore ultimately based on the workplace's participatory practices, so that the workplace endorses whether the individual is to be considered as a learner and defines the learning opportunities to be provided. This socio-cultural approach to informal learning in the workplace is relevant to this study as it reinforces the constructionist approach underlying this study by offering a model of the social world on the hospital wards and the relationships that influence informal learning interactions. Nurses and medical students construct ideas about informal learning based on the meaning and values they develop as a result of social interaction in this specific workplace environment. This construction of meaning and value of informal learning and the interactions between the different professional groups was observed and reflected in the information acquired within this study. This demonstrates how the participants involved in the study conceived informal learning as a socio-cultural phenomenon and the quotes offered in core category 2 sub themes 2 (page 147) and 3 (page 150) related to socialisation and culture which support this socio-cultural aspect. This is not in line with Swanwick (2005) who states that attitudes to informal learning in postgraduate medical education have tended not to consider the social context but that the mind is an independent processor of information.

Hospital wards are the workplace settings for this study which acknowledges that there is the potential for work-based informal learning interactions to occur in this setting. Informal learning is regarded as 'the natural accompaniment to everyday life' (European Commission 2000, p. 8). Tough (2002), described informal learning as a 'very normal, very natural human activity' which is 'so invisible that people just don't

seem to be aware of their own learning' (Tough 2002, p. 2). Caffarella, and Baumgartner (2009) describe informal learning as occurring in natural settings with learner guidance, even if the learner does not recognize learning is occurring. Similarly, Eraut (2004) described informal learning as 'implicit, unintended, opportunistic and unstructured learning and the absence of a teacher' (Eraut 2004 p. 250). The findings of this study support the definition of Eraut as there was no teacher or facilitator of learning present and many of the narratives and observations obtained highlight the possible informal learning as implicit, sometimes opportunistic and unstructured.

Mnuti et al (2015) describe informal learning as requiring an amalgamation of different individual constructs such as intellectual curiosity, self-directedness and self-efficacy. This reflects a symbolic interactionist approach where self-identity, roles and informal learning arises in situations where learning may not be the primary aim of the activity but is activated by some anticipated or existing problem situation that requires resolution e.g. Medical student being told to take the blood pressure who then asked the nurse where the blood pressure monitor was and then told by the nurse where to plug it in.

Informal learning may take place as a consequence of developing activities such as hypothesis testing, group problem solving, coaching, mentoring, and job shadowing. Although no one individual officially serves as the trainer or teacher in any of these activities, informal learning may involve seeking out certain persons who are recognized to have higher levels of understanding or proficiency. In this study these individuals primarily included nurses and other doctors on the wards. Informal learning may be undertaken by engaging with others or by embarking on some sort of self-initiated study. Most of this learning is unplanned and somewhat serendipitous in

nature, because it occurs as needed eg.in this study at one of the observational sessions a medical student going into the patient's room is stopped and nurse points to the barrier sign and the student then puts on apron.

Lohman (2005) described informal learning as involving employees starting learning activities themselves in the workplace, that involve effort, that can be physical, cognitive or emotional and that result in the development of professional information and abilities or skills. Similarly, Garavan et al. (2002) defined informal learning as the processes that occur within organizational environments that focus on gaining and integrating knowledge, skills, values and feelings that result in individuals and teams changing their behaviour. Informal learning might also involve some form of authorised learning in the workplace such as coaching, mentoring, job rotation, and special projects or tasks. In this study the process under consideration were the informal learning interactions between final year medical students and nurses which occurred within the specific context of a hospital ward which the findings reveal have the potential to link to Garvan et al's (2002) identified criteria. However, as previously stated whether actual learning has taken place in terms of knowledge and skills is difficult to judge and has not been the focus of this study. Benett (2012) suggests that Informal learning offers adults greater freedom and flexibility using their individual lines of thought and action, to result in tacit or unspoken knowledge. Nonaka's (1998) indicated that implicit or tacit knowledge could be passed on from one individual to another through a tacit to tacit exchange, or a tacit to explicit or overt interaction. He also suggested that tacit knowledge could be accessed through use of symbols, stories, and metaphors. This view is upheld by this study and is linked with the theory of symbolic interactionism which in this study, acts as a means of understanding and interpreting nurses 'and medical students' roles. Within this context the symbol of language is, I feel is crucial, with nurses and medical students talking to each other as

a key mechanism for making sense of, or providing an understanding that represents an idea, object, or relationship. In this instance, informal learning interactions between, either a nurse or a medical student. It is to be acknowledged that language is however open to many interpretations with perhaps non-verbal's adding means through visual showing for example in this study non- verbal clues were also part of informal learning interactions observed. On one occasion the nurse is in conversation with the consultant and uses a shake of the head to indicate to the medical student not to approach then uses a 'come here' arm gesture when it is appropriate to interrupt. Therefore, other symbols, such as non-verbal gestures and demonstrations also added meaning to the interactions taking place. Thus, allowing allow people to go beyond what they already know or see by creating linkages between otherwise very different concepts and experiences lived by these different professional groups. In fact, one of the supervisory team, who is a consultant found this point about the use of informal 'symbols' and these types of interaction between the nurses and medical students enlightening. In this study the ward environment as a workplace provides a small-scale perspective of the interactions between nurses and medical students and the interactions taking place between different individuals within this social world enables people to change according to their interactions. For example, some of the medical students in this study acknowledged that informal learning interactions helped them to understand the ward culture and the systems and processes at they were expected to follow. In the findings of this study recognition of informal learning interactions is a key perception that participants acknowledge but that the participants have different meanings associated with informal learning interactions. Some participants felt that such interactions were something positive and helpful; others viewed them as necessary to achieving specific aims in relation to their professional development (see page 147). Others saw interactions such as talking to a colleague but did not recognise that informal learning may be taking place; others did not see these interactions as motivating whilst some saw the value of the learning taking place. Many of these features are identified within

the study findings and led to the development of the key constructs within the proposed conceptual model and are further discussed in this chapter.

The epistemological perspective of constructionism does not, however, recognise one single truthful reality or an objective truth (Crotty, 1998; Blaikie 2007). As previously discussed social constructionism is used to refer to the influence the social world has on the individual's perception, meaning making and understandings (Gergen, 2009). The learner personalises new ideas by giving meaning to them based upon earlier experiences, learning is therefore understood and viewed as situated by the activity in which it takes place. As such, the meaning provided by participants in their narratives as well as by the observations made by myself as researcher represents the meaning and sense made of the world of the hospital wards as a workplace by participants and as interpreted by me as the researcher. Interactions taking place are identified by a range of cognitive and social processes in which the learners and educators engage to give meaning to new ideas and experiences and create meaningful social connections between nurses and medical students.

Borjk et al (2013) point out that there are few observational studies on staff learning in the clinical setting and suggest that this may be due to the tacit nature of informal learning, which makes it difficult to study. Therefore, in this study, it is important to acknowledge that it was the informal learning interactions between nurses and medical students that were documented. These interactions, one could assume, may indicate informal learning has taken place but it is important to state that this was not explicitly recorded. In some instances, the actual learning taking place was more obvious and explicit, for example when a procedure was demonstrated by nurses and then carried out by the medical student which demonstrated their memory of what was shown to

them and their skill in application. However, in most instances it was only possible to make a judgement about any possible learning taking place as there was no formal assessment of learning taking place was a result of the informal learning interaction. This is in line with Spaan et al (2016) in their study looking at informal and formal learning of GPs in the Netherlands, which supports that this distinction is important. They identify that the implicit nature of informal learning makes it difficult to observe or assess what has been learned.

Clarke (2005) distinguishes between opportunities to engage in learning activities or processes and the actual learning outcomes. Spaan et al (2016) also state that different activities or processes of workplace informal learning can be observed by researchers. This is reflected in this study where observations and accounts provided by participants have identified these practices and these have been termed informal learning interactions (See pages 131 typology and 133 more obvious learning).

### **6.3.2 Types of informal learning interactions.**

Within this study the findings identify a range of different types of informal learning interactions. These included demonstrations, conversations, being shown where equipment is located, explanations, instructions, gestures, body language and eye contact (see Category one Sub theme 2 Typology page131 and non- verbal opportunities p132). This typology of informal learning practices is identified in the conceptual model as one of the characteristics of these interactions. Cuinen et al (2015) in their European informal learning guide, look at the different ways in which informal learning can take place and suggest that informal learning includes a wide range of practices that may happen in just about any place and any time and that it can adopt different forms and that many have tried to organise and name these. They go

on to refer to the different types of informal learning according to Mattox (2012) which are identified in the table 2 below.

**Figure 6.2 Mattox's Types of informal learning**

Communities of practice	<ul style="list-style-type: none"><li>• Is described as organizing platforms, targeted on a particular theme, role or function.</li></ul>
Virtual knowledge sharing	<ul style="list-style-type: none"><li>• Done through websites, Wikipedia, social networking sites and blogs.</li></ul>
Mentoring	<ul style="list-style-type: none"><li>• Expresses itself in a relationship between different persons involving persons with the most knowledge and experience who help and guide people with less knowledge and experience.</li></ul>
Coaching	<ul style="list-style-type: none"><li>• The learning process is accompanied by one or more persons.</li></ul>
On-the-job experience	<ul style="list-style-type: none"><li>• Translates itself into the work experience of employees.</li></ul>
Performance support systems and job aids	<ul style="list-style-type: none"><li>• Is seen as resources that benefit performance at work.</li></ul>

These are broad areas and Mattox's typology of informal learning relates primarily to a more strategic organisational level of activity within a business context. Critically reviewing this model has made me reflect on the types of informal learning interactions identified within this study such as demonstrations/ explanations and conversations. I feel they provide a contrast to Mattox's model as they relate to an individual level within a different context and unique workplace setting - a hospital ward. I feel this demonstrates a constructionist approach focussing on the processes by which people construct meaning and value to informal learning interactions through their social interaction. This social interaction is explicit in terms of verbal and non-verbal communication and relationship building between individuals. This has led to this study identifying types of informal learning interactions that are more focussed on individual actions and behaviour and could perhaps be seen as a more detailed analysis of what

Mattox describes as on the job experience. For example, over the course of the study it was apparent that over time one of the students changed the clothes they wore to work changing to similar clothing to one of the consultants on the ward.

Many other types of informal learning activities and practices are identified in the wider literature. Crouse, Doyle, and Young (2011) and Clarke (2004) identified working with others, observing others, doing new tasks, reading/ researching, trial and error reflecting on action, mentoring, surfing the web, job shadowing, job rotation, and networking. Lohman (2000, 2006) included, sharing materials and resources with others, asking questions, searching the Internet, scanning professional magazines and journals, sharing and reflecting on other's practices, and trying out new thoughts and techniques. Van Woerkom, Nijhof, and Nieuwenhuis (2002) and De Groot et al. (2012) emphasized that to obtain effective informal learning at work that critical reflective behaviour such as learning from mistakes, asking for feedback, challenging group thinking, and evaluating findings from published research were required. Other authors have recognised these interactions as cooperation with colleagues, observing and listening to others, dealing with novel and challenging tasks, reflection and evaluation, and working with patients (Collin, 2002; Eraut, 2004a; Tynjälä, 2008, 2012). All of these alternatives reflect more the findings of this study as opposed to the areas identified in the model developed by Mattox.

Some prior studies have also noted that informal learning activities are also felt to be rooted in actions such as listening, observing, reflecting, problem solving, practising skills, receiving information, asking questions and giving and receiving feedback. Eraut (2004) also stressed that informal learning takes shape through doing, thinking and communicating. These examples of practices imply that informal learning occurs in a

number of different ways, involving the individual cognitive processes and actions as well as socio cognitive interactions, how people process, store, and apply information about other people and social situations. It focuses on the role that cognitive processes play in our social interactions (Clarke, 2004) and supports the constructionist approach applied in this study and the study findings. The findings of the study also support this view as demonstrated by the fact that medical students identified that nurses helped them to understand the culture of the wards, team working and patient care (see core category two Context page153 and also pages 162 cultural issues and 138 orientation to ward).

The current study is consistent with the literature in that a number of types of interactions involved verbal and non- verbal exchanges and a range of different contacts between nurses, medical students and on occasions other staff working on the wards and were identified in observations and stated by participants. Examples included activities such as demonstrations, showing where equipment/ files are located, explanations, conversations, instructions, gestures, body language, eye contact, body posture and facial expressions. Talking was the main medium of the interactions identified but many non -verbal activities were also identified in particular head nodding or shaking, pointing and gesturing. On many occasions more than one of these kinds of interactions was used. For example, a nurse may demonstrate a clinical procedure to a medical student whilst also discussing what they were doing at the same time and how this links with patient care. The informal learning interactions identified in this study employed a range of mechanism, activities or practices between at least two individuals in a hospital ward environment.

This study has produced information that helps to identify potential learning patterns and routines for how to participate and share knowledge informally between nurses and medical students.

### **6.3.3. The subject of informal learning interactions.**

Within this study the findings have highlighted a number of topics or subject areas that were the focus of informal learning interactions. These are identified table 5. 2 page 137 and are summarised as patient care, clinical procedures, administration, ward procedures and orientation to the ward. Olsen et al (2018) identify some similar topic areas of learning needs relating to specific diagnoses and the use of specific medical technology such as peripheral venous catheters, central venous catheters, analgesia pumps, infusions, respirators and cough assists. Their study is about informal learning patterns of community health-care nurses and so has a different focus in that it is community orientated and the learning taking place is for nurses not medical students. It is also predominantly on a 1:1 basis away from a clinical environment. However, I could only find one other existing study (Rees et al 2017) that described some of the topics used in informal learning interactions as only part of its discussion, although this was carried out in Australia.

Under each of these topic areas specific examples were identified that demonstrated a wide range of subjects relating to key areas of practice within the roles of medical students and nurses. This focus on subject areas allows the study to highlight key areas of interest shared between the two staff groups where there is overlap and a mutual recognition of how the nurses can help the medical students in their workplace learning. For example, both the nurses and the medical students in the study identified that orientation to the ward and its operational activities to ensure effective and efficient running were a key area for informal learning interactions. Orientation to the ward setting included issues such as knowing where things were kept, the lay out of the ward, procedures and practices, knowing who staff are and their roles and making

medical students feel that they belonged. The emotional element of the feeling of belonging may give the medical student a safe learning environment and motivation for informal learning to occur. Orientation to the ward has also been highlighted in the wider literature. Gfrerer (2014) whose research focussed on the informal learning by nurses as opposed to medical student's, also recognised 'orientation' as a focus for informal learning.

The nurses in this study felt this was a key area of informal learning interactions as it benefited their management and organisation of the ward environment and the flow of patients. They felt it was important in ensuring the efficient and smooth running of the ward and that by investing time in 'teaching' the medical students about how the ward worked they would be less disruptive in the future and be more integrated into the team. The medical students offered a different interpretation and meaning to the importance of orientation in that it helped them to understand the who what where and why of activities on the ward and that it was about their own ability to work more effectively. These two groups provided different meanings to the relevance of the orientation process which supports a symbolic interactionist approach. By developing an understanding of each other's meaning both may change their behaviour relating to orientation issues in the future. Please see page 138 findings relating to orientation.

The wider literature also indicates that orientation to clinical placements can improve learning by helping medical students to feel they fit in, by reducing anxiety and increasing motivation to learn (Worrall 2007). However, there are a number of practical challenges related to orientation such as timing of students' starting dates, staff time available, the consistency and level of information. Increased involvement of individual mentors in the ward setting; could improve orientation and enhance students' learning experiences.

Overall, topics or subject areas identified as the focus of informal learning interactions in a ward setting are generally not identified in the wider literature. Varpio et al (2014) noted that informal inter-professional education from nurses to residents (not medical students) mostly related to:(1) nurses discussing patient care with residents, (2) nurses sharing knowledge with residents about how to carry out certain tasks, (3) nurses giving advice to residents about managing patients (4) nurses acting as a resource with trainees seeking help with advice or skills. These areas are all reflected in this study. Table 5.2 page 137 identifies the topics that were the focus of interactions identified in this study. The most identified area related to orientation to the wards, which was also felt by both medical students and nurses to be the most important aspect of their informal learning experiences. Information about and demonstration of a range of clinical and administrative procedures was also highlighted along with patient care. However, the majority of information in prior studies tends to focus on the issues explaining what informal learning is within this context and generally does not discuss the actual focus of the informal learning in terms of subject area or topic. This study offers some possible new insights into informal learning areas of relevance to nurses and medical students.

#### **6.3.4 Deliberate or opportunistic informal learning interactions**

A final characteristic of informal learning interactions from the findings of this study focused on whether the interaction was an intentional informal learning activity or something that happened by chance or an opportunistic learning interaction. Intentional informal learning is easier to perceive, explain, and investigate than those that are unintentional and more combined with other tasks. Literature identifies some of the intentional informal learning activities in the workplace as self-directed learning

(Livingstone, 2000; Marsick and Watkins, 2001), mentoring (Conlon, 2004), networking (Eraut, 2004), asking questions (Eraut, 2004; Reardon, 2004), and receiving feedback (Eraut, 2004; Marsick and Watkins, 2001).

While much research deals with observable and somewhat structured aspects of informal learning, these activities are only a small fraction of what is surely taking place (Marsick and Volpe, 1999). Unintentional or opportunistic informal learning often takes place while carrying out daily tasks (Hodkinson et al., 2003; Slater, 2004), and so it is frequently hard to separate work and learning as staff are inclined to associate performance at work, such as learning from mistakes or trial-and-error, to learning (Marsick and Watkins, 2001; Tikkanen, 2002). Daily social interactions such as participation in groups, working along with others, undertaking challenging tasks, and working with clients also enable informal learning to take place (Eraut, 2004). In this study opportunistic informal learning interactions were observed in many of these situations described by Eraut (2004) for example a medical student over hearing conversations between consultants and nurses, during ward rounds and at handover conversations.

Schugurensky (2000) identified three forms of informal learning depending on the degree of consciousness and intentionality exercised by the learner: (a) self-directed - both conscious and intentional, (b) incidental learning -conscious but not intentional (e.g., learning as a spin-off of working), and (c) tacit learning, also known as socialisation, which is neither conscious nor intentional. In this study all three of these forms of learning interactions were highlighted as demonstrated in the table below.

**Table 6.1 Application of Schugurensky Classification to study.**

Schugurensky classification	Example in study
Self-directed	Medical student asks nurse to be shown how to use a piece of equipment
Incidental learning	Medical student overhears consultant discussing how she will handle a meeting with relatives
Tacit learning	Orientation into the ward by working was part of the team.

Eraut (2004) also described three types of informal learning varying by level of learning intention: implicit, reactive and deliberative learning. Interestingly, Eraut's work has been taken up by many inter-professional healthcare, being cited over 2000, times who argue that more attention should be paid to direct learners, in this instance the medical students, to seek out informal inter-professional workplace learning opportunities. Implicit learning is learning without being aware of this and with the absence of explicit knowledge about what exactly is learned as described by Schugurensky (2000) as tacit learning. Reactive learning is deliberate and takes place during an action with little time to think. Finally, deliberate learning It is planned, generates new knowledge with a clear obligation to learn (Eraut, 2004). More recently, Bennett (2012) suggested adding a fourth form of informal learning: integrative learning. This type of informal learning is non-conscious but intentional as it involves implicit processing of tacit knowledge and sudden insights generated from intuition (e.g., "aha" moments). From the study findings it would suggest that tacit, implicit knowledge such as practical know-how is primarily gained from the informal learning interactions in the workplace, as the majority of students do not see these interactions in a proactive manner with only one student indicating they did often instigate these opportunities. The medical students' explicit conceptual knowledge and skills seemingly gained from their formal course at medical school.

### 6.3.5 Summary

It is important to note that learning per se is difficult to prove as a result of many of these interactions but that there is a strong potential that the interactions do lead to informal learning taking place for the medical students. Interestingly, in the wider literature (Eraut 2004; Livingstone, 2000; Marsick and Watkins, 2001) informal learning is generally regarded as self-directed learning or learning from experience in a workplace setting but there is little description of the characteristics of the informal learning interactions taking place. The conceptual model developed from this study's findings (page 181) offers a representation of the characteristics of informal learning interactions and identifies possible determining and shaping influences of these interactions as related to the participants in this study. It suggests a way of developing understanding of informal learning interactions in the workplace between nurses and final year medical students. This potential informal learning by social interactions in the workplace is presented as an unavoidable constant happening phenomenon as opposed to the traditional view of teacher-centred learning by knowledge acquisition. This view of the importance of social interactions in relation to workplace informal learning is an underlying principle of the conceptual model provided. By having an insight into the characteristics and influences upon these interactions it could possibly help to enable and empower both the learners and educators to make the most of these opportunities in the future.

This study has shown that informal learning is difficult to quantify but that the interactions taking place between medical students and nurses are recognised by both groups as having the potential to offer informal learning opportunities. These interactions between medical students and nurses are observable and reported but the actual learning taking place is difficult to prove or express. Much has been written about the 'what is' informal learning but little about the how which this doctoral study covers. As Mosher (2004) identifies, informal methods of learning are frequently

located in the workplace as they are seen as practices learners benefit from immediately and with immediate relevance to their job. The characteristics of informal learning interactions offered in this study propose a different and original way of understanding types of potential interactions by identifying the possible focus or topics of these interactions and the nature or mechanisms of them when occurring between nurses and medical students in a workplace setting. With the advantage of being aware of these interactions before medical students start workplace placements it is hoped that both groups, both the learners and educators could ensure the instant application of learning indicated by Mosher (2004) occurs and that both groups may gain benefit from these opportunities.

#### **6.4 Perceptions - Perceived values**

One of the core categories identified in this study and included in the conceptual model relates to the perceived values of both the nurses and medical students. Values in the context of this study are considered to be described as a set of personal beliefs and attitudes about the truth and worth of any thought, object or behaviour, in this case the informal learning opportunities on a ward setting. Values are action oriented and give direction to how both nurses and medical students give meaning to their actions around informal learning interactions. In this instance, in particular the focus is about, how the role of nurses as educators is perceived, motivation for learning and educating between nurses and medical students and patient centred care, the ultimate goal of everyone's rationale for being on the ward. These will now be discussed more widely.

##### **6.4.1 Nurses as 'educators'**

One of the issues arising from the findings related to the role of nurses as educators of medical students. In this study the majority of the medical students had a positive experience of the nurse as an educator and valued the help and information they provided to them (See page 156). All of the medical students involved in the study recognised and perceived the educational role of the nurse and the informal learning

experienced from interactions with nurses as important to them. Unlike Dornan et al (2007) there were no bad examples of informal learning interactions. However, there were on occasion some comments about the negative image medical students had of nurses and therefore the potential value they placed on their role as educators, but this mainly related to the distinction between doctors and nurses' professional roles generally not the nurse as an educator.

Dornan et al (2007) in their study about medical student's experienced based learning in the workplace identify participation; be this observing or acting by performing clinical tasks, as the core condition for learning. They also state that nurses had a powerful influence for good or bad in relation to medical student's participation in learning. For example, they highlighted that nurses could leave medical students feeling passive, unskilled and unconfident by claiming they had arrived unannounced. Sometimes they even denied respondents access to the workplace. At the other extreme, nurses could be welcoming, supportive, willing to share their expertise, and able to offset the anxiety of doctors. This may be viewed as related to the influence of professional socialisation in medical school and the stereotypes of other professions portrayed in medical school. Dornan et al (2007) also identified that medical students' experiences with nurses were more positive in outpatient than ward settings, in district than teaching hospitals, with specialist rather than generalist nurses, and as senior rather than junior medical students. This study took place in two different hospital wards in the same hospital and there were no differences recorded in terms of the medical students' interpretation of the nurse as an educator. The medical students involved in this study were all fifth year 'senior' students and interestingly it was only the nurses in this study who distinguished a difference in the value junior and senior medical students placed on their interaction with nurses. They highlighted that more senior medical students (fifth years) didn't see

the nurse's role as an 'educator' as quite as important as junior medical students (third years) thus reflecting the findings in the Dornan et al (2007) study.

This reflects the work of Eich– Krohm et al (2016) whose study showed that nursing is still perceived as a physician's assistance job and not as a profession in its own right and that the hierarchical order between nursing and medicine is well established.

According to the students in the Eich-Krom's study, the most important part of nursing is to 'help the physician in his daily quest' (Eich- Krohm 2016 p3) and that this perception hinders rather than helps inter-professional teamwork and informal learning interactions between the two groups. Hierarchical differences were therefore seen as a challenge by medical students unlike this study where this issue was only perceived by the nurse participants. However, it must be noted that the Eich- Krohm study took place in Germany and not the UK. This reflects a symbolic interactionist approach where the understanding each of the groups placed on the issue of hierarchy between the two professional groups had different meaning and interpretation. This diversity of meaning may be due to the levels of establishment felt by the two 'professions' in that medicine is a long-term well-established profession within society whilst nursing is still fighting to be recognised as a profession. Thus, nurses may be more acutely aware of anything that implies that they are of lower status.

Medical students in this study also felt that the educational role of the nurse could be developed more and that they had more to learn from them but that their role and the fact that they were perceived to be very busy meant that in practice this often did not happen. Interestingly only one student felt that it was the student's responsibility to be proactive in seeking help and potential learning from nurses they worked alongside which may be likened to a lack of understanding of the value of the nurse in terms of informal learning opportunities. Helmich et al (2010) in their study in the Netherlands identify that medical students have positive perceptions of nurses that grows even

more positive after closer interaction with them. Their study involved describing first-year medical students' perceptions of nurses, doctors and their own future roles as doctors before and after a nursing attachment which involved working for four weeks in a hospital or nursing home as an assistant nurse while training to be a doctor. This study offers some interesting insights in that prior to the attachment nurses were seen as empathic, communicative and responsible with a high workload. The latter of these points was also reflected in this study where medical students perceived nurses to be busy which made it difficult on occasions to be proactive about asking for help and information. After the nursing attachment in Helmich et al's study, students reported nurses had more competencies and responsibilities than they had expected. Many students reported that nurses:

*'Know more, do more and are able to do more' than they had believed before. Students stated they had gained more insight into and more respect and appreciation for the roles and competencies of the nursing profession '*

(Helmich 2010 p 677)

This study's findings on understanding and appreciating each other's roles also confirms Allport's (1954) contact hypothesis and Hean and Dickinson's (2005) inter-professional education findings. These studies propose that an early nursing attachment stimulates more respect for the nursing profession within medical students in their future career as a qualified doctor and advocates such attachments are offered to all students early in their medical education. This is an interesting suggestion that would possibly help to support greater understanding between the two groups that would assist in engaging in informal learning interactions effectively. Similarly, in an Indian study by Chari et al (2015) the concept of early clinical exposure was advocated to help overcome their tension and stresses reported by medical students in real clinical situations (Imamwerdi, 2013) and to also motivate them to develop a better insight and awareness to the medical profession (Kumar, 2007). This is another

example emphasising the need for early links with the clinical workplace environment to help medical students to make the most of their placement activity.

It may not be possible to practically offer such attachments or early clinical exposure within medical schools but the principle of developing a greater understanding of the role of nurses and in particular their influence in relation to informal learning interactions is advocated by these study findings. Alternative operations to achieve this such as inviting nurses into the formal training of medical students and/ or developing resource materials that should be looked at prior to placement may be other ways of achieving this.

#### **6.4.2 Motivation**

Motivation is defined as a reason or reasons for acting or behaving in a particular way (Oxford Dictionary 2018), it is the source of effort which leads to achievements. From an educational point of view, motivation is a complex construct that incorporates a variety of meaningful meanings associations relating to learning. It is particularly relevant to formal learning activities when student learning is focussed on hard work and performance as a means to achieving goals. It was identified in the findings of this study as a key value influencing informal learning interactions within this study. On the conceptual model provided it features as a sub theme within one of the core influencing categories of perceptions – perceived values. Here motivation is highlighted as primarily important for the medical students as to their reasons for participating on informal learning interactions with nurses. The main motivation was acknowledged as helping with achievement of required learning outcomes for placements.

In the education setting Pintrich et al (1991) identifies 3 main categories of relevant concepts: The first relates to personal beliefs about ability this relates to intensity, the second is about reasons for engagement or motivation and the third is concerned with

emotional reactions. Nyien Aung et al (2015) argue that self-determination theory (SDT) is the most relevant in medical education. Orsini-Jones et al (2015) support this and feel that SDT also supports the idea of a students' intrinsic curiosity and wish to learn. This theory divides motivation into two different types; "extrinsic" (arising from external factors) and "intrinsic" (arising from internal factors) motivation. Deci et al (1991) consider intrinsic motivation as indicating doing something because it is fundamentally interesting or enjoyable, and extrinsic motivation, as doing something because it leads to a distinguishable outcome or effect. Extrinsic motivation means that students strive toward rewards and ambitions which may range from individual goals such as obtaining good grades and passing exams, to institutional goals such as competence, skills, and professionalism. For example, in this study medical students were keen to get their log books signed off as required by medical school. There are various forms of extrinsic motivation, which differ in the level to which the motivation is controlled or self-determined. Such motivation although it may lead to increased effort to achieve these rewards, may also cause greater anxiety and a poor ability to cope with failure (Ryan and Deci, 2000).

Alternatively, intrinsic motivation is more autonomous and self-directed that can involve exploration and curiosity-driven academic efforts and is associated with a better ability to cope with failure (Ryan and Deci, 2000). More autonomous motivation seems to relate to a better quality of learning and increased effort in studies (Ryan and Deci 2000). Self-determination theory also hypothesizes that for students to achieve intrinsic motivation and internalisation of independent self-regulation towards academic undertakings three basic psychological needs, autonomy, competence and relatedness must be satisfied. Orsrini et al (2015) identified that the need for autonomy, competence and relatedness can be supported or diminished by informal learning, which may have a positive or negative impact on a learner's motivation and performance.

Within medical education, Nyien Aung et al (2015) feel that it is important to facilitate the evolution of medical students' motivation toward the autonomous stage. However, motivating learners is clearly, not a straight forward task and few studies have investigated and evaluated medical students' motivation within a clinical setting. A literature review by Kusurkar et al (2012) revealed the necessity of research being conducted with regard to motivation, in order to fill the gap in medical education literature. This is even more relevant in relation to informal learning of medical students where there is a paucity of written evidence available.

Within this study the motivation of the medical students to learn through informal interactions whilst on placement was identified and related primarily to achieving their formal education requirements in the university. It could be argued that this demonstrates a more extrinsic form of motivation according to the SDT. The medical students involved in the study were very clear about the value learning whilst on placement this would bring them and that this influenced their motivations to learn whilst on the ward. This primarily focussed on making sure they could get their log books signed and pass the objectives of the placement and their exams when back at university, extrinsic goals as defined above (see page 164). This reflects other studies in the wider literature which also acknowledge that medical students frequently focus their learning on that which will enable them to pass examinations, including informal learning activities (Zhang et al 2011).

In this study the motivation for nurses to interact with medical students was different and focussed on ensuring the smooth running of the wards so that the wards ran effectively and efficiently (See pages 148-149). However, they also acknowledged that medical students would be the next F1 doctors and so it is important that they feel

comfortable in practice and understand the learning the nurse can help provide to help them in the future and that hopefully they would be better prepared for their future role. In relation to SDT this straddles both extrinsic, the needs of the organisation for the ward to run effectively, and intrinsic motivation, the need to help medical students understand the help a nurse can provide in their future career. This point relates to the discussion previously provided in more detail under section 6.4.1.

Begum et al (2016) also identify that a key factor to motivating medical students to learn on the wards is sign-offs for their log books. They argue that this can become the sole reason as to why some students attend placements but that this may distract them from the principle of clinical teaching as they tend to focus on quantity rather than the quality of the clinical examinations they perform. They advocate that ward-based learning should be less target-driven. They suggest that rather than medical schools using logbooks to monitor performance, possibly having mock clinical exams at the end of the placement would potentially help to motivate students to learn to a good quality standard rather than practice in quantity. This would also represent a move towards a more intrinsic approach to motivation to learn in the clinical environment which as stated above is felt to be something to strive for in relation to medical students learning in the clinical environment when applying SDT.

In a study about medical students' motivations to learning in Brazil, Sorbal (2004), indicates that medical students portray distinct patterns of motivation. These he argues appear to relate to both the educational environment and the learner's attitude towards learning. Autonomous or intrinsic motivation had a closer relationship with self-regulation of learning and freedom of choice, but controlled or extrinsic motivation also seemed to contribute to the learners' academic success in the context of a challenging

medical programme. Mann (1999) stated that undergraduate medical education is related to theories of motivation in relation to both the learners and the learning environment. She asserted that as medical students go through their learning experiences that they respond within a context of linked rewards and relationships, incentives and barriers. Misch (2002) asserted that there is no single answer to the question whether medical students are internally or externally motivated to learn, on account of the frequent, mutual interaction of internal and external factors. Within this study this link was not obvious with medical students primarily relating to extrinsic motivations.

Therefore, from the perspective of the theory of self-determination, individuals differ in relation to the level and type of motivation. This is reflected in this study which identifies different motivations for engaging in informal learning interactions between medical students and nurses. Some of these have more of an extrinsic focus when in fact the wider literature favours a more autonomous intrinsic approach having a more positive impact. However, few studies of the literature on learner motivation have targeted medical students particularly in relation to informal learning interactions within the workplace and in the future, it would seem appropriate to undertake research in area.

#### **6.4.3 Patient centred Focus and communication**

In the finding from this study one of the key values driving the work of all staff on hospital wards, the settings for this study, is that of patient centricity. Medical student clinical confidence and positive attitudes to patient centeredness are important outcomes of medical education. The literature identifies that the clinical placement setting is regarded as a critical support to these outcomes, so understanding how the setting is influential is important. Some authors agree (American Nurses Association

[ANA], 2012; George and Shocksnyder, 2014; Samuels and Woodward, 2015) that nurses are ideally positioned for this role. This is because nursing has consistently embraced an approach to care that is holistic which is inclusive of patients, families, and communities. This facilitates empowering patients to assume responsibility for self- and disease management care.

The heart of all activity on a ward is the patient and ensuring their safe and effective treatment. This was reflected in the findings of this study and is a key sub theme of the core category perceived values in the conceptual model developed. In this study the medical students all saw the importance of the role of the informal interactions with nurses in helping with this focus on the patient. They identified that it was nurses who they felt knew more about the patients than other professionals on the ward as they clearly understood that the nurses worked with patients for the majority of their time and so that they could learn from nurses in terms of developing a patient centric approach. The medical students identified nurses as helpful in learning about the information about patients and their relatives and in particular communicating with these groups.

The nurses involved in the study also saw their daily contact with patients and their patient centric values as important to the informal learning of the medical students. As they had most contact with patients they felt that medical students could learn a lot from watching them interact with patients, the knowledge they had about patients and how to communicate with patients and their families. Something that is difficult to obtain in a more formal learning environment (Collins 2005).

In the literature patient-centeredness is seen as an approach that puts the patient at the centre of the medical consultation, thus focusing the patient instead of on their disease or illness and has been identified by most medical schools worldwide as a looked-for core competence of their graduates.(Archer and Van Heerden 2017)

Patient-centred describes an orientation of medical practice that consciously adopts the patient's perspective by valuing the patient's experience, acknowledging the psychosocial aspects of illness and offering the patient an equal role in decision-making ( Hurley et al 2018). This core philosophy challenges an emphasis on biological aspects of disease and the uneven balance of power in patient-provider relationships often present in healthcare. The wider literature identifies a variety of reasons why patient-centred medical care seems to be important: it shapes caring relationships between healthcare providers and patients; it improves health outcomes and reduces costs (Bower, Mead and Roland, 2002), while it can also increase levels of patients' quality of life (Lewin, Skea, Entwistle, Zwarenstein and Dick, 2001). There is also evidence that a patient-centred approach can boost doctor and patient satisfaction and reduce anxiety in patients (Lorig, 2002; Stewart, Brown, Donner, McWhinney, Oates, Weston and Jordan, 2000). The General Medical Council identifies that a patient-centred approach is a necessary part of clinical competence and 'fitness to practise' is required for tomorrow's doctors (General Medical Council 2009).

It is therefore positive that the medical students and nurses in this study acknowledge and understand the importance of this in their interactions and so mirror this philosophical approach (see pages 165-167). This is particularly pertinent as the medical students in this study are in their fifth year as much of the literature identifies that patient centeredness is found to deteriorate as students' progress through their medical studies (Bombeke et al, 2010). Also, Ponzer et al (2004) in their study of inter-professional training in a clinical environment indicated that the role of the patient was

rated lowest in relation importance by medical students. The concept of the patient as partner or the role of the patient as an active partner in his/her own care was not familiar to medical students. The medical students in Ponzer et al's study did not consider these skills relevant to their future profession were therefore unable to see the relevance of participating in basic patient care. This does not seem to be the case within this study where patient care was identified as a key topic of informal learning interactions (see table 5.2 page 137). However, a consideration for the future may be considering whether patient centred care can truly exist? There may be a possible tension between patient centred care and getting the work done that perhaps influences the low status of this for medical students.

Patient-centred communication is helpful in building a working collaborative relationship with the patient and a tool of facilitating a doctor's professional competence in relation to the patient–doctor relationship. The advantage of using patient-centred communication in the patient–doctor encounter is supported by a large body of research (Simpson et al. 1991). The medical students in this study acknowledge this identifying it as an area they can learn from nurses through their informal learning interactions and acknowledging that nurses as the most knowledgeable when it comes to patient care. Burmen and Chutka (2016) identify that from the point of view of the patient's the ability to communicate well forms a major component of a healthcare provider's clinical competence.

Davis et al (2012) identify that being a good doctor requires not only knowledge and technical skills, but also communication skills. Patients commonly complain that physicians do not listen to them. Communication skills are not just restricted to talking, but also to listening and nonverbal communication (Ornstein and Lasley 2003).

Assessment of the medical students' ability to use effective communication skills continues to be a concern of medical educators. Rosenbaum (2017) identifies that informal workplace teaching fails to explicitly address learner clinical communication skills. However, this study suggests that medical students perceive nurses as helping to develop patient centred communication skills in dealing with both patient's and relatives. As Berman and Chutkan (2016 p244) state; -

*'For over a century, the goal of medical education has been to produce thinking physicians, scientifically competent, who are sensitive to the emotional as well as the medical condition of the patient.' Unfortunately, there is evidence that suggests good communication skills are not universally practiced by physicians'*

This study demonstrates that there is a possibility that informal learning interactions between medical students and nurses can help, alongside other activities to develop this key skill that will also help to promote a more person centric philosophy and practice of future doctors. The findings demonstrate that many of the informal learning interactions taking place involve communication, both verbally and non-verbally with patient care a key focus of this communication between individuals (See Core category 3 page156).

#### **6.4.4 Summary**

This core construct of perceived values identifies a number of core values and attitudes relevant to the participants in this study that help to shape and influence the informal experiences taking place in the workplace. Many of the issues discussed are interrelated and connected not only within this construct but also across the others identified in the proposed conceptual model. They are deep-rooted values in the individuals involved in the interactions taking place but are also influence the wider development and learning of medical students throughout their training. These attitudes and values can change across the training of medical students and so in the longer

term should have an impact on shaping qualified doctors of the future. Communication, motivations and attitudes to the value placed on other professions in this case the nurse, all require consideration in relation to informal learning in the workplace environment for medical students.

In using symbolic interactionism as an analytical lens for discussing the findings of this study it is clear that these perceived values have different meanings for different individual. Through communication processes including informal learning interactions the medical students and nurses on the wards used in this study transform themselves and their environments and then respond to those transformations. For example, by participating in non- verbal and verbal interactions between different professional groups individuals may develop values and attitudes and skills in operating and communicating in a more a patient centric manner. Topics associated with symbolic interactionism such as the interaction approach, the establishment and association with meaning and social roles and reflexivity of self can all be acknowledged with regards to the extent to which communication in this context is influenced by the meanings and perceptions of those involved or the social context in which it occurs. For example, the influence of culture, professionalism and professional hierarchies can influence such meanings. Symbolic interactionism allows the complex processes by which participants understand, interpret and create their world to be explored in detail.

### **6.5 The context of the ward environment**

Van der Zwert et al (2010) identify that workplace learning in undergraduate medical education has predominantly been studied from a cognitive perspective, despite the complex contextual characteristics which affect medical students' learning experiences. The findings of this study demonstrate that informal learning interactions are influenced

by not only the physical environment of the ward setting but also by other contextual issues including relationships, culture and socialisation. One of the core influencing categories in the proposed model concerns this wider context in this instance the ward environment. (See Core category 2 Context page 143) These will now be discussed in more detail.

### **6.5.1 Physical environment**

In hospitals the ward is the operational centre of care delivery and this study recognizes this reality particularly as the findings have highlighted the context of the ward setting as having an impact upon informal learning interactions. This is also reflected in a core category of the conceptual model where issues relating to the context of the ward setting are felt to have an influence of the informal learning interactions taking place. Both wards used for the location of the study are physically laid out similarly in that they are 'T' shaped and they are similar in design and the number and size of the rooms available. Areas or the physical environments on the ward where informal learning interactions were observed included the wards, nurses' station, and corridors. Other physical locations and the lay out of the ward were felt to possibly prevented opportunities as they do not encourage nurse/ medical opportunities to meet and enable informal learning interactions. This included having separate doctors and nurses rooms and a lack of a central meeting point or hub of the ward. Bjork et al (2013) in their study of informal learning amongst nurses identified that several factors seemed to mediate the opportunities for informal learning including the size and physical structures of the ward. Their study indicates that opportunities for informal learning were partially dependent on the arenas where learners met, communicated and acted together. The central arena that afforded informal learning in their study was the staff room, which was also identified as the hub of the ward where much informal learning took place. In this study however, medical students used and

were accepted in the doctor's room and spent much time in this location discussing issues with other medical students and junior doctors. Similarly, the nurses spent time in the nurse's room. As both groups did not use the same physical locations as meeting places it meant the opportunities for any ad hoc informal learning interactions was limited to the physical spaces in terms of corridors, the wards and the nurse's station. The wards were observed as the main locations of interactions taking place closely followed by the nurse's station. This separation of both professions may also reinforce the hierarchy between professions and whether structural conditions echo social structures in the workplace. It also poses the question as to why in this day and age the two professional groups have separate meeting rooms.

The idea of a hub or heart of a ward and its importance in enabling informal learning interactions is not reflected in this study where a lack of a common meeting point it is felt restricted informal learning opportunities. It may be that it was unfortunate that the two wards chosen as the setting for this study were physically designed in a manner without a central hub or staff room but include separate rooms for different professional groups i.e. a doctor's room and nurses' room. Or is it that in England as opposed to Norway (where Olsen et al's study took place) the design of the ward environments is quite different. It would be interesting in any future studies that the physical environment and lay out of the wards chosen as a setting for such a study would be considered to determine the impact this has on informal learning interactions.

Research has focused on conditions in the work environment that foster or inhibit learning in the workplace (Nordhaug, 1994; Clarke, 2005; Crouse et al., 2011; Jeon and Kim, 2012). Joseph (2006) recognises that the physical environment of the healthcare workplace, impacts on the healthcare workforce and Olsen et al (2017) point out that a the lack of formal arenas for sharing knowledge as being a condition influencing learning. Therefore, structural conditions of the workplace environment can

have an impact on learning opportunities and interactions and should be acknowledged.

### **6.5.2 Socialisation**

Workplace learning in hospital settings has the potential to contribute to a socialisation process of medical students into their future profession and is reflected in this study as it features in the conceptual model proposed, being identified as a sub theme of the core category of; context(ward environment). The findings of the study highlight that informal learning interactions are influenced and are useful to both medical students and nurses. In particular orientation to the ward both formally and informally was identified as a positive feature. Critically, the hospital ward is seen as the site of professional socialisation, where professional identity is shaped (Morris 2010). Clark (1997) identifies the process of acquiring a professional identity and norms of practice as an ongoing tension of professional socialisation that is both reflective and dynamic, in that it involves interaction between the self and others in the environment. As well as the relatively passive internalisation of a structurally defined role, socialisation may also be seen as the means of construction of a role through interactions with others (Clouder, 2003). This reinforces the social constructionist approach of this study.

Nurses have an important role in the socialisation of new doctors and the role nurses play in doctors' professional socialisation in their development into a professional role and identity was apparent in this study's findings. Socialisation in this study's context is taken to mean the process by which the individual medical student learns socially acceptable behaviour for that ward setting. This also links to belonging, knowing and affirmation of how the ward operates and what is acceptable behaviour within that context. Within the wider context it also involves internalization and development of professional identity. Indeed, socialisation is reflected as necessary for involving the

medical students in professional practices in the ward setting. The acquisition of unique patterns of language, modes of dress and demeanour, and norms of behaviour are all manifestations of socialisation. In this study for example one of the medical students was observed changing their style of dress to that similar to one of the wards consultants.

In sociological terms, there are two main ways in which socialisation has been described (Clouder,2003). In the first of these socialisations is identified as a process of conformity with structurally determined roles. Formal education is felt to be a large part of this 'socialisation as internalisation', but it may include perceptions of what Clouder (2003) has termed a normative, structural hierarchy. The second is a view of socialisation as interaction. This suggests that roles are constructed in interactions and discourse. Several recent studies have reinforced the latter view, albeit from different theoretical perspectives (Apker and Eggly, 2004; Bleakley, 2006; Weaver, Peters, Koch, and Wilson, 2011) and this study also does this. Medical students in this study highlighted an understanding about behaviour on the ward and how informal learning interactions with nurses helped them to understand how the ward operated and the different process that were required to be followed. For example, medical students were able to observe how nurses behaved and talked to patients and their relatives. Some of the nurses and ward managers interviewed also identified how the orientation to the ward environment also related to the socialisation aspects of ensuring medical students knew how the ward functioned and what behaviour was expected. Nurses saw their role in helping students understand this. They also saw this as a self-centred activity as they just wanted their ward to work as it should with no problems and that the students needed to fit into the existing approach, methods, systems and processes to prevent any unnecessary disruption to the management and efficient running of the ward. This was obviously mostly felt by ward managers and sisters (see

page 164). Therefore, this socialisation process perhaps serves a number of agendas, functionality for nurses in getting the ward to run smoothly and professional for medical students in relation to orientation to professional behaviour, how to deal with relatives and patients and hierarchy in terms of their place in the wider society as a doctor

The development of a professional identity is thus socially constructed through interactions with individuals or groups within (e.g. nurses) and outside (e.g. having a parent who is a health professional) the learning context. An individual's professional identity is a set of attributes, beliefs, values, motives, and experiences by which he/she will define him/herself within the profession in wider society. However, according to Atherley et al (2016) learning and socialisation during workplace learning in medicine could be challenging and discuss how many medical students experience difficulty developing relationships with team members. Their study indicated that students with a positive attitude experiencing a smoother transition. However, many students were uncertain of their roles, concerned about the workload and desired guidance to meet assistantship demands. This transition resulted in varied outcomes from enjoyment, increased confidence.

Seabrook (2004) has stated that medical students expressed that they often felt that they were in the way, and that their individuality was not valued. In this study this wasn't expressed to be the case but different aspects of socialisation were identified but primarily related to socialisation into the ways of working on the wards. This is in some way to be expected as the interactions being focussed upon in this study are with nurses. Obviously medical students also interacted with other doctors in this setting who would also have the potential to socialise students into their professional role as

well as the ward environment but as these were not included as participants in this study this is not explicitly reflected.

Boud and Middleton (2003) identified that people have explicit contacts for learning, are determined by structural relationships or created informally. Informal learning in the workplace they argue may be represented as sets of overlapping communities of practice as well as informal networks dependent on work flow. This may be the case in this study as the model implies that medical students develop a number of social interactions with different groups in the ward setting. The healthcare workplace can be denoted as a community of practice (Lave and Wenger 1991). Wenger (2000) identifies that communities of practice define competence by combining three elements; a joint enterprise where the members contribute to the community; mutual engagement where members establish norms and relationships; and a shared range of communal resources like shared norms for collaboration and problem-solving, language, tools and routines. Accepted members of a community share its goals, methods and values, and are expected to contribute to its development.

Noble and Hassall (2008) also identify that learning in the workplace results in an individual's learning being influenced by their participation in workplace social communities or communities of practice. Individuals becoming members of these communities through participation and they enable and facilitate learning to take place. Lave and Wenger (1991) feel that all learning at work is attained through engagement in a community of practice (CoP) as in their view; learning at work includes becoming an insider and acquiring the ability to behave like a practitioner. By increasing participation, the learning of language, technical skills and cultural knowledge takes place. This theoretical perspective on learning in CoP's has been broadened recently,

due to increasing recognition of the value of tacit knowledge and knowledge sharing for organizations (Nonaka et al., 2001), including hospitals (Nicolini et al., 2008). Well-functioning CoP's develop and provide a feeling of shared identity and provide a social context for exchange of explicit as well as tacit knowledge (Brown and Duguid, 1998), which in turn facilitates knowledge creation and learning (Krishnaveni and Sujatha, 2012). Nonaka et al. (2001) suggest the leader's role is to ensure the best functioning of a CoP. Important prerequisites for sharing tacit knowledge are, to work together in a culture with shared values, care, trust, independence, spare time and information and difference in work. This is an interesting point as in this study it could be suggested that there is no surplus of time for busy nurses as they were perceived by medical students in this study who did not want to bother them. However perhaps this lack of time was overridden by the nurses by the desire to make sure the medical students fitted in and helped with the smooth running of the ward. (See page 164). As Illeris (2003 p. 169) also states learning in the workplace must be understood 'as both an individual and a social process, comprising both ordinary everyday learning and more complex personal development'.

According to Lave and Wenger (1991) novices, in this case medical students, participation is on the periphery and gradually their involvement and participation develops and becomes more multifaceted. This is particularly significant for medical students as they can potentially belong to several CoP's for example, other medical staff such as junior doctor or other medical students, nurses and other healthcare professionals, and so may be required to work with different teams or individuals. Further to this, an individual's participation within these communities is neither passive nor accepted (Lave and Wenger 1998). The findings of this study fit well with current social learning theories which advocate that expertise is not simply an asset that passes from teacher to learner, but an active commodity that exist in communities of

practice. According to the theory, learning is therefore a progression of engaging and being absorbed into the culture of such a community.

CoP's are normally seen as self-managing systems whose participants spontaneously share working practices (Lave and Wenger, 1991; Brown and Duguid, 1998; Tagliaventi and Matarelli, 2006) and are an important way of understanding informal learning in a ward setting. However, Boud and Middleton (2003) highlight the value of making informal learning visible in order to enhance the quality of work life and suggest that accounts of workplace learning may be limited as a classifying concept which reflect the complexities of actual practice, if the focus on CoP's is seen as exclusive. This is most likely appropriate to informal learning interactions in this study which as the discussion in section 6.3 has shown are complex in terms of their characteristics and the influences impacting upon them as outline in the proposed conceptual model.

### **6.5.3 Culture**

Culture, as defined by Kleinman (1983) involves the interplay of structures such as protocols, routines and standards, as well as attitudes, beliefs and rituals.

Organizational culture has been described as a collection of subcultures characterized by variations and uncertainty. Wolf et al (2017) suggest that in health-care settings diversity of organizational cultures has been shown to improve communication, teamwork and co-ordination of activities. For example, Xiao et al (2004) described, how integrative cultural components have supported swift and active collaboration in hospital teams. The definition of culture used in this study "the way things are done around here," Drennan (1992). This theme illustrates the medical students' experience of ward culture and interactions between staff in the workplace. In this study medical

students saw nurses as introducing them to the culture of the wards, in particular team working and patient care which were issues identified by the majority.

In relation to culture it is important for the medical students and the nurses in this study that the students are not just as a spare part but part of the team so they are useful. This was particularly highlighted by nurses in this study who saw an important part of their informal learning interactions with medical students helping medical students to understand how the ward worked and different protocols, routines and standards, as well as attitudes, beliefs and rituals that enabled this. Assumptions medical students highlighted were felt to be the 'taken for granted' views of the world within the ward setting and how as medical students they could understand and participate in it. Values were felt to constitute the basic foundations for making judgements and distinguishing right from wrong behaviour and again nurses felt it was their role through orientation and day to day interactions to consciously and subconsciously make medical students aware of these (See pages 147-151).

Hägg-Martinell (2014) identified the way that communication and interaction take place in a CoP, affects how staff treat students e.g. If they appreciate students, if students are seen as a necessary evil or as future colleagues. If students are ignored they cannot count on opportunities to participate in daily activities. Dornan et al (2007) confirmed that the ability to be involved in a workplace community is strongly connected to the behaviour of its staff. When students in their study did not become a natural part of the workplace culture, they experienced feelings of not getting enough space, time and room to develop their knowledge and performance. This was not reflected in this study where both nurses and medical students worked to be part of the wards culture, as demonstrated by the fact that nurses felt it important to orient students

into the wards and medical students recognised the role of the nurse in introducing them to the culture on the ward in particular in relation to team working and patient care.

We see that hierarchies are sometimes ingrained in a workplace culture at healthcare departments. Some of these hierarchies occur within a profession and others between different staff and professional categories or between staff and students, or even between different student groups. These hierarchies may degrade the working climate and create barriers to learning. An illustrative description of this in the present study is a student who visited an operating theatre but did not get invited to participate in the surgical activity. This can be seen as an example of a legitimate but very peripheral participant in the community, and of how such a person is treated in the workplace culture.

Hospital wards have been shown to develop their own culture, and the cultures of various wards are mirrored in the overall hospital culture (Berlin and Carlström 2010). This is reflected in this study as medical students and nurses identify with both the individual ward cultures but also that of the organisation. There were occasions identified where the wider culture of the organisation impacted on the learning of the medical students as on one occasion staff who were external to the wards, but members of the trusts HR department came to make staff aware of a new policy being introduced (see page 153). Hägg-Martinell et al's (2014) provided insight into how an acute internal medicine ward culture can facilitate medical students' possibilities to participate and learn. This is one of a few studies discussing culture and medical students and although the setting was not the same wards as used in this study their findings are considered relevant. Hägg-Martinell et al's (2014) previous ethnographic

study, demonstrated that on arrival to an acute internal medicine ward, medical and nursing students were tasked with understanding and adapting to its culture, and to become part of that culture. Furthermore, it was culture that created conditions that challenged students' acclimatization to the ward and created a space for learning. This is also reflected in this study where nurses and medical students' informal learning interactions are influenced by adapting to the cultural norms of the wards. Medical students' opportunities for learning in the ward was characterised by a huge variation in conditions and possibilities to build relationships. Students were particularly involved in practice and had opportunities to perform administrative work. As discussed earlier (see pages 136) informal learning interactions taking place were primarily at an individual level and by the use of questions and answers although this does not negate the place of learning by observation. This may imply a learning culture on the ward was based predominantly on questions and answers between the medical students and nurses.

This study reflects the views of Hagg-Martinell et al (2014) who explained that students' mission on arrival in a new workplace was to enter the community of practice, to understand the specific culture, adapt to it and try to become an accepted part of it. As Choa (2012) identifies it is common amongst medical students to feel apprehension and uncertainty in the clinical environment. It can be an intimidating setting, where medical students may feel as if they are at the bottom of the pecking order. However, there are many ways medical students can contribute to their respective healthcare teams.

## **6.5.4 Relationships**

### **6.5.4.1 Inter- professional working**

The World Health Organization (WHO) has highlighted the importance of inter-professional teamwork and recommended educational programmes that equip health care students with the necessary skills and competence to become effective team players (World Health Organization 2010 and World Health Organization 2011). Aase, Hansen and Aase (2014) support the position taken by the WHO but identify that international research studies also reveal difficulties in implementing inter-professional educational efforts (Broers, Poth and Medves, 2009 and Lapkin , Levett-Jones and Gilligan, 2013).

Studies also expose difficulties in instigating inter-professional educational efforts and suggest that undergraduate education largely fails to address key elements, such as the understanding of professional roles, authority, hierarchy and gender related dimensions of teamwork (Zolnierkand, Dimatteo(2009), Lapkin, Levett-Jones and Gilligan 2013 : Reeve et al 2010). Some of these issues have already been identified and discussed in this thesis (see core category 3 page 156 and pages 160-163) supporting this view. However, participants in this study did acknowledge that forming friendly and positive working relationships between the nurses and the medical students is identified by the participants as a key important objective that can help potential informal learning interactions.

West et al. (2004) concluded that clear professional roles are essential, and that team members may benefit from a comprehensive understanding of not only their own role but also the professional roles of their colleagues. Inter-professional teamwork is also discussed by Reeves et al (2010 p. 3–4) who stated that the key features of inter-

professional team work included, 'common goals, shared team identity, shared commitment, clear team roles and responsibilities, interdependence between team members, and integration between work practices. Within this study it has already been highlighted that there is a lack of understanding by medical students about the role of nurses generally and in particular as an educator and that this may influence informal learning interactions (see page 167).

Petri (2010) suggested that inter-professional teamwork is best attained through activity that educates and promotes mutual trust and respect, helpful and open communication, and the awareness and recognition of the roles, skills, and responsibilities of different participatory professional groups. D'amour (2005) suggests that educating different professionals early in the curriculum, prior to the embedding of professional identities and the formation of stereotypes was crucial. Some authors have suggested that strong collaborative skills are of importance in developing inter-professional teamwork but that these are often not included in the training of health professionals. Thus, the lack of consideration to inter-professional teamwork in educational programmes some suggest may reflect an expectation that professionals will automatically know how to work collaboratively (Barr et al 2005; Reeves et al 2010). This study along with others (Aase, Hansen and Aase 2014 : Reeves et al 2010) demonstrates this may not always be the case as in this study medical students were not aware of the professional role of the nurse.

Nadolski et al (2006) identified that even though it has been suggested that effective health care depends on multidisciplinary collaboration and teamwork, little is known about how medical students and nurses interact in the hospital clinical environment. Ideally, as two principal members of the health care team, there should be a

'collaborative relationship' between doctors and nurses. This should include both groups work together in a true partnership, demonstrated by mutual understanding of roles and responsibilities, and shared mutually- derived clinical goals. However, the relationship between doctors and nurses has been shown to be often less than optimal, even confrontational (Fagin 1992, McMahan, Hoffman and McGe1994; Blickensderfer, 1996). A variety of factors have been offered to explain the physician-nurse relationship, including medical students' misconceptions about the responsibilities and capabilities of nurses and these have been raised and discussed in this study (see page 153 relationships sub theme).

This is supported by Laschinger and Weston (1995) who reported that fourth-year medical students were less knowledgeable about the competencies important for nursing than were fourth-year nursing students in their knowledge of the competencies important for medicine. This observation suggests that medical students, even those close to completing their training such as those in this study, do not have the knowledge base about nurses that would encourage the best interaction and lead to cooperative decision-making.

Nadolski e al (2006) later confirmed this is still the case a decade later. In their study a survey was used to assess medical students' perceptions about their interactions with nurses and other health care team members during third-year clinical rotations. They also surveyed nurses about their interactions with the medical students and other health care team members. Their findings suggest that interactions between third-year medical students and practicing nurses are not the best and do not provide sufficient opportunities to establish higher levels of mutual understanding and collaboration. They suggest that medical students place minimal importance on the role of nurses and this

coupled with the hierarchical nature of the health care team, appear to limit the development of relationships among the team members. They speculate that neither medical students nor nurses view each other as being particularly relevant or important to them fulfilling their team role. They suggested that that nurses have a lot to teach and medical students have a lot to learn to become effective medical practitioners and that a current lack of interaction is a significant limitation on the educational possibilities and role modelling that accompany learning to be a doctor. Their findings suggest that to improve physician-nurse relationships there is a real need for inter-professional teamwork education. Their findings suggest that if medical students are to better understand the roles of nurses, that additional curricular experiences will be needed. Although they do not state what type of experiences would be helpful it seems that informal learning interactions with nurses could be some of these. By improving relationships between the two groups interactions would have the potential to be more a productive source of informal learning.

#### **6.5.4.2 Communication**

As was first described in the 'doctor-nurse game' in 1967 (Stein, 1968), the challenges in communicating effectively between health professionals persist today (O'Daniel and Rosenstein, 2008). As previously discussed there is a lack of co-educational experiences involving the two professions and studies suggest that this possibly leads to a lack of understanding of what each profession contributes to the interdisciplinary team and complicates communication between nurses and doctors (Robinson, Gorman, Slimmer, and Yudkowsky (2010).

According to Dixon et al (2006 p. 377), doctors express being frustrated with nurses' communication style, describing it as 'disorganization of information, illogical flow of

content, lack of preparation to answer questions, inclusion of extraneous or irrelevant information, and delay in getting to the point'. Each professional group sees the other to be the primary offender in this communication breakdown. In addition to each profession's potential opinions of the other, multiple barriers exist that impede nurse doctor communication. A busywork load, continuous flow of interruptions and multiple patient handoffs affect the ability of nurses and physicians to link effectively and establish a trusting and collegial relationship (Tschannen et al., 2011). Finding time to communicate properly becomes a pressing issue because nurses and physicians can be independently busy; which makes time is a major factor in communication breakdown (Burns, 2011). Other factors contributing to a communication breakdown for these groups also includes work environments characterized by high patient awareness, staffing shortages and sex disparity among health care team members (Fernandez, Tran, Johnson, and Jones, 2010). Males tend to prefer clear, quick, fact-based communication, while females prefer a more in-depth discussion style. (McCaffrey et al, 2011). Other authors identify factors such as the inherent ways that nurses and physicians communicate their understanding of each other's' respective roles, disruptive practice environments; and physician dominance (Bujak and Bartholomew 2011, Rosenthal 2013, O'Daniel and Rosenstein, 2008). Rosenthal (2013) reported that physicians communicate in a more concise style, as opposed to a more expressive style used by nurses. In this study issues of communication between the final year medical students and nurses was not really highlighted a negative as outlined above issue although there was an awareness that there were issues in recognition of the different professionals' roles and responsibilities. (page 167). Informal learning interactions have been characterised by referring to the type of process involved all of which relate to communication methods both verbal and non-verbal.

Advances in technology used to increase quality and effectiveness have a part in communication breakdown too. Communication modalities now used in a hospital setting, such as text pagers, patient inbox messaging, and electronic ordering systems, can all contribute to increased mistakes. Use of these methods can often misrepresent the importance or the tone of the communication taking place; on some occasions, a message may not be received at all due to equipment malfunction. According to Robinson and colleagues (2010) indicate that often there is a desire to follow up on urgent orders or electronic messages with some form of verbal contact between nurses and physicians. Many strategies have been developed to address this communication breakdown between doctors and nurses (Flicek 2011). For example, Implementation of unit-based care teams ensures that physicians and nurses work close to each other, increasing opportunities for better communication (Gordon et al., 2011). Mandatory bedside rounds have also been shown to promote effective communication, creating greater satisfaction not only for the patient and members of the health care team (Burns, 2011). These studies focus on doctors and not medical students, but it is felt to be appropriate that similar issues would also relate to medical students.

Communication is therefore a key influence in terms of informal learning interactions as these depend on verbal and non-verbal communication activities. If medical and students and nurses have difficulty communicating it will not be possible to engage effectively in informal learning interactions. In this study for example on one occasion a nurse failed to communicate that a difficult patient had already been seen and dealt with and the medical student failed to check that it was appropriate to see the patient as the patient complained about the same thing again. This could have been avoided with improved communication. The fact that nurses and medical students and doctors had separate staff rooms also hindered the effective communication between these groups. More recently, Lacoste (2017) states that both nurses and physicians agree

that nurse physician-communication are an important problem that needs to be improved upon. It is important to recognise that improving nurse-doctor communication is a complex issue, and therefore cannot be solved with one, simple solution. This is also demonstrated in the shared examples above that occurred in this study.

Tan et al (2017) identify that due to discipline-specific or workplace-embedded cultures and practices still today effective nurse–physician communication remains a challenge. That current interventions, only tackle information needs of nurses and physicians in limited situations and specific settings but cannot sufficiently address the wider inter professional communication skills that are lacking in practice. For meaningful change, inter- professional education programmes around effective communication strategies are highly recommended at the undergraduate level.

### **6.6 Wider influences training and role clarity**

This core category focuses on the links to the wider context of the more formal training undertaken by medical students and the preparedness of students for placement and recognition of the potential for informal learning interactions in the workplace. Also identifies issues relating to the recognition of the educational role of nurses informally and how prepared nurses feel with respect to this. Finally, the future of informal learning between nurses and medical students is considered. Many of these issues are discussed in earlier sections of this chapter and reference will be made to these rather than repeating discussion points.

### **6.6.1 Links to Medical school formal training**

Since the early 1900s, the structure in medical education has undergone a complete revolution. Traditionally, medicine has been an area where the emphasis has been on didactic training, rather than facilitated learning, as doctors need to gain and keep acquiring tremendous amounts of knowledge and practical skills. In social terms, medicine has always had a hierarchical structure, alongside high social status which as previously mentioned may have various influences upon informal learning interactions between final year medical students and nurses.

Swanwick (2014) identifies that medical education is a busy, lively place, where a host of educational practices, philosophies and conceptual frameworks come together. It is a place where academic journals compete for attention, institutions and professional bodies contest for political influence, and where improvement occurs faster than, and often independently of, the sequence of evaluation and research. It is a place of increasing accountability and regulation because of health being one of the main socio-political concerns of government and finally as Cooke et al note, it 'in a perpetual state of unrest (Cooke et al 2006 p.1339). It is worth noting that medical students involved in this doctoral study were part of a medical education typical of the time.

In 1993, the General Medical Council's (GMC) 'Tomorrow's Doctors: Recommendations on Undergraduate Medical Education.' (1993) report, recognised disparities in what medical schools expected students to know on completing final examinations and recommended all medical schools moved towards working to a core curriculum. 'Tomorrow's Doctors' led to a change in the provision of undergraduate medical education, with the emphasis moving from gaining knowledge by memorising and reproduction of factual data and the use of lectures or seminars to a learning

process that includes critical study and the development of independent thought. There are also opportunities for students to study areas in depth that are of particular interest to them and opportunities to develop skills to interact with patients and colleagues.

Medical education involves several pedagogical practices, educational beliefs and conceptual frameworks (Swanwick, 2011) and tends to distinguish between formal learning (medical school) and informal learning (In the clinical work environment). Awanwick (2005) argues that medical education is mostly sited in the workplace and so work-based learning has now taken centre stage in the training and ongoing development of the medical workforce. This has increased the need to understand the processes taking place, particularly those relating to informal learning. This doctoral study provides some useful insights that help to comprehend some of these informal learning interactions between nurses and medical students. Also, the medical students involved in the study all commented that there is a need for wider recognition and acknowledgement of the importance of informal workplace-based learning on placement within their overall medical school training. They felt that this could be discussed more whilst at university and that it should be more explicitly recognised (see page 161 and 167-175). It was suggested that maybe a pre-hospital pack or some other type of resource could aid this process.

### **6.6.2 Role clarity and appreciation of the informal educational role of nurses in the ward**

Burford et al (2011) have provided a useful if limited discussion that acknowledges the informal educational role of nurses in a workplace setting. They acknowledge that informal learning by doctors from other professions has not been widely acknowledged, particularly in relation to nurses, despite nurses being the most numerous professional

group in clinical workplaces. In this study Interpretations about the appreciation of the role of the nurse in educating medical students whilst on placement were identified. Medical students identified that the nurses were just there and that there was an assumption that they provided them within informal learning opportunities, however nurses felt that medical students were not aware of their own professional development and the knowledge and skills they possess. This mirrors discussions in the wider literature (page 168) which identifies a lack of understanding about the role of the nurse by medical students and how this influences possible informal learning interactions.

In terms of being prepared as an educator on an informal basis many of the nurses felt that this wasn't something that was recognised or that they were prepared for in their training. Only one nurse said they were and interestingly this nurse trained in another country. When asked if they thought it should be discussed as part of nurse training the majority of nurses said yes, they thought it should (see page 170).

Nearly 30 years ago, Dowling and Barrett (1991) suggested that nurses' educational role with newly qualified doctors should be formally recognised. It seems that although the importance of this role has not diminished, it remains unrecognised (GMC, 2009). Bjork et al (2013) identify studies that specifically explore informal learning by nurses are scarce. This study therefore can provide up to date new knowledge of this role in the UK setting. Varpio et al 2014 indicate, nurses are already informally teaching; what remains to be done is to formally acknowledge this educational work and advocate that perhaps it is also time to extend this acknowledgement beyond instruction to include assessment. Varpio et al (2014) argue that it may be that nurses are best positioned to observe and assess certain elements of a resident's performance in the clinical

environment if not already doing so. However, if this would sit with the medical profession is questionable.

### **6.6.3 Future role of informal learning**

This theme relates to acknowledgement by participants in this study of the need to recognise informal learning interactions between medical students and nurses within the workplace setting in the future. Overall this study has highlighted a general recognition of the importance of informal learning interactions as part of medical students learning whilst in the clinical setting. Changes to medical education curricula and approaches was discussed in section 6.6.1 (page 233) and focuses on changes to training doctors now recognising and enabling informal learning activities as part of the overall process. Gilmour et al (2014) identify that nurses and midwives work closely with medical staff in all aspects of health care delivery and have an important role in teaching junior medical staff in the clinical environment. However, there appears to be little formal recognition of this role. Gilmour et al (2014) carried out a review of the international literature which indicated that nursing contributions to medical education in the clinical environment is under researched and poorly understood. They identified only two key studies explicitly explore informal nursing education roles with medical staff (Lublin and Gething.1992; Vallis, Hesketh and Macpherson 2004). This study helps to fill this gap in the literature.

The study by Lublin and Gething (1992) was an Australian qualitative study where nurses and interns were interviewed about nursing teaching activities. Nurses in the study discussed interns' knowledge gaps about hospital protocols and clinical procedures. The need to teach doctors in order to maintain patient safety was complicated by roles and expectations. The recommendations of Lublin and Gething although published in 1992 are perhaps still relevant today. Vallis et al. (2004) studied Scottish senior nurses and the informal training of pre-registration house officers. It was

reported that nurses had a desire to formalize their teaching roles in order to get their experience and expertise recognised. These are key issues that are also identified by this doctoral study where nurses state that they felt their educational role is not recognised and that there is no preparation for this role within their training.

Gilmour et al (2014) go on to say that there is little research evidence that documents the contribution by nurses to medical staff education. Placements are a key element of their medical training programmes and it is important that informal learning opportunities continue to be provided by nurses. There is a need for continual informal learning interactions to occur and that both are prepared for these interactions so that both nurses and medical students benefit positively. This is the basis of this study which totally reinforces this statement. The danger however is that by focusing on this role and informal learning interactions within training role development that they then change into more formal activities. There is however always going to be informal learning as by the nature of the ward setting and the activities going on including talking verbal and non- verbal interactions and communication between these two professional groups will need to take place and that it should be more explicitly recognised.

All nurses participating in this study stated that they believed collegial education was part of their role. The most common specified topics identified were ward procedures and documentation, which are all part of professional orientation and enculturation. (see pages 136-138). Respondents also reported teaching clinical medical tasks related to medications, use of equipment consent and other skills. It is also implied in the literature that medical students might seek out advice of a senior nurse in relation to certain procedures, or medication advice. However, in this doctoral study medical

students identified that they didn't want to bother other doctors and so would approach a nurse for help and advice. Christenson and Hewitt-Taylor (2006) point out that if nurses have the opportunity for additional roles they must make sure that it is in the best interest of patient care and not just to free up medical staff. This is an important point as it could be argued that informal educational roles of nurses could be advocated merely as a cheap alternative to other doctors and consultant. However, Pearcy (2008) identifies that nurses are often de facto gatekeepers of learning opportunities, and there is a risk that rather than absorbing tasks that doctors don't want to do, extended nursing roles may in fact limit learning opportunities for doctors.

In the era of inter-professional education and multidisciplinary health care teams, across discipline teaching is of overriding importance and it may be that nurses assume greater responsibilities in medical education. This study helps to explore relevant issues concerned with the nature of informal learning interactions that help to deliver this future role. Burford et al (2011 p 399) state that 'Making staff explicitly aware of their educational impact on other professions, even if they have no formal educational role, may benefit all professional groups'.

#### **6.6.5 Preparation for placements**

In this study medical students were clear that there was little information provided about the informal learning opportunities they may encounter from interactions with nurses (and other staff) whilst on placements. Many identified that they would have liked some information about the role of nurses to have an understanding of how they could support them whilst on placement and that they could be more prepared for this prior to placement taking place. Preparedness for placements was seen as key to enhancing the experience for all.

Evidence suggests that this transition from medical school to placement is a source of high levels of stress and anxiety for medical students (Radcliffe and Lester 2003; Moss F, McManus 1992). This was not explicitly reflected in this study. This is of concern, as stress can impact on cognitive function and learning (Dahlin, Joneborg and Runeson 2005). A potential source of this stress and anxiety may relate to students' perceptions of being inadequately prepared for placement; concerning socialisation and culture on the ward environments (see page 171) Improving medical students' perceptions of preparedness for placements may ease the transition while facilitating learning and informal learning interactions within the workplace.

Although pre-clinical medical education is supposed to prepare students for clinical education, there are signs that medical schools are not entirely successful in this respect, and as stated above, this was reflected in this study. Prince et al (2005) indicated that final year medical students indicated that transition periods were prime causes of stress. (Prince et al, 2005). Changes in the learning environment, teaching styles and expectations were all causes of stress with students describing feeling useless and unable to contribute to patient care because they had insufficient knowledge or skills. In the study by Prince et al (2015) more than half the students wanted more information about what was expected of them, their role and their responsibilities whilst on placement. They wanted to learn how to admit patients, and particularly how to carry out a quick, structured, physical examination.

The academic progression of medical students is often based on performance in nonclinical assessment tasks within medical school formal studies. These formal assessment tasks generally centre on knowledge of the basic sciences and basic clinical skills depending on the pedagogical approach underpinning the curriculum

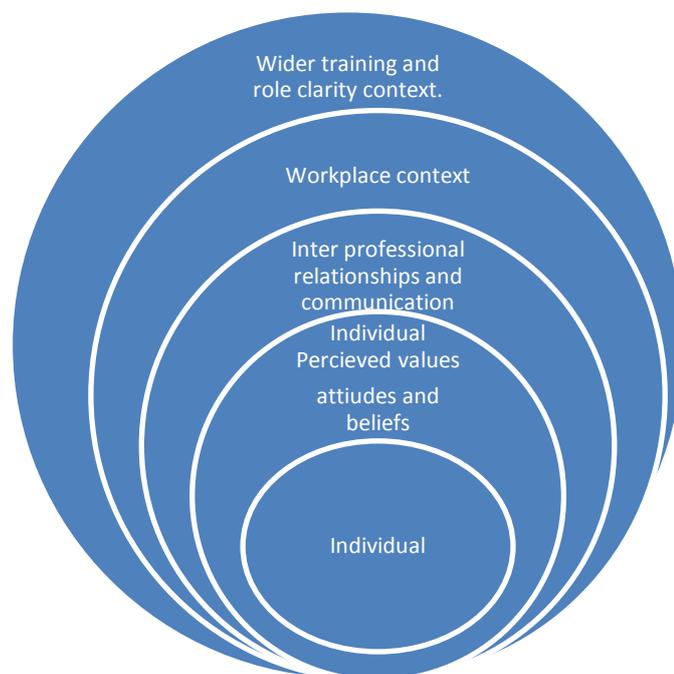
basic clinical skills may be taught in simulated and/or actual healthcare settings (Fowell et al 2000). Other additional factors potentially may influence student preparedness for placement, including individual student characteristics, the nature of university-based pedagogy and the structure or lack of structure in the clinical environment (Bigh 2013). By better understanding these factors, activities may be developed to better prepare medical students for this transition. Well-designed interventions could help prepare medical students better for placement and help to minimize any negative impacts on student learning or wellbeing during this period.

The GMC in its document 'Clinical placements for medical students'(GMC 2011 p13) states that 'students should be adequately prepared for all clinical placements'. They should be aware of the learning objectives for each placement and have had the educational preparation necessary to meet these objectives. Unfortunately, both in the wider literature and in the findings of this study, medical students seem to say that they don't feel prepared sufficiently for placements. In this study students identified that better preparation would help them to understand the opportunities for informal learning interactions with nurses. One suggestion by a medical student in the study was to be provided with more information before going onto placement such as a resource pack. In Birmingham medical school medical students are prepared for placement by provision of a 'Hospital Preparation Course' which complements existing early placements in community-based medicine and helps students to adjust to hospital-based learning. It provides familiarity with the hospital where they will spend semester one and helps them make links between prior and future learning. A handbook, self-directed learning activities and reflective tasks are provided. Medical school sessions are also provided to highlight the inter-professional nature of hospital medicine. Such an approach could be adopted for other medical students across different medical

schools to ensure that more support and preparedness of students for placements takes place.

### 6.7 The influences of all the core constructs at an individual level

The conceptual model developed as a result of this study identifies number of key constructs that influence the informal learning interactions between nurses and medical students. These have each been discussed in detail. One key element of the model is the fact that these influences relate at an individual level. Individuals must attain requisite background knowledge or skills through schooling, training, practice, and experience. Given limited time, individuals often choose either to focus on few areas, where they build deep expertise, or to delve less deeply and distribute their attention and efforts across several areas. From this study a model has been constructed that highlights the importance of the individual in informal learning interactions in the workplace between medical students and nurses. All of the factors discussed previously influence and impact upon both the learning (medical students) and education provided (nurses). This is represented in figure 6.3 below.



**Figure 6.3 Individual Influences**

The influences are considered to be overlapping and interconnecting relationships emphasizing gradation in the sense of things that are internalised by the individual and those things that are external influences. They are all interconnected and linked to shape the individual's participation in informal learning interactions. For example, from the findings in this study an individual final year medical student, may be influenced by their perception of nursing not being valued as an equal profession and this may be linked with socialisation and cultural issues in the ward environment. This may then shape and influence social relationships and communication within the workplace. These relationships also being influenced by the individuals own values and beliefs which in turn may influence if informal learning interactions of differing types and topics that are opportunistic or deliberate will take place or not.

### **Summary**

Swanwick (2005) describes how work-based learning has now taken centre stage in the training and ongoing development of the medical workforce and with this has developed the need to understand the processes in action, particularly those relating to informal learning. This discussion has provided some insights into understanding these informal learning interactions between medical students and nurses in their workplace by providing a conceptual model. The characteristics of these interactions and the core constructs influencing these are complex and constantly changing and moving. This dynamic nature of the processes at work is difficult to capture in such a model but it is vital that this is recognised. The individual nature of these interactions is also significant, and every interaction will be unique and different for each individual and in each instance. However, providing a model of these relationships and connections can lead to a greater understanding of what is important in helping make both learners and educators be aware of the importance of this form of learning in a workplace environment and help both to benefit from these interactions. This study has

illuminated a hidden component of nursing activities but also raises questions and issues that could be usefully explored in further studies and these will be discussed in chapter 7.

In this study an understanding of informal learning interactions between final year medical students and nurses in the workplace has been achieved through the use of ethnography and the analytical lens that this has provided in forming the basis of this discussion. As Rice and Ezzy (1999) contend one of the benefits of conducting ethnography is that it allows a better understanding of diverse cultures by way of a meaningful understanding of why people behave in certain ways and have certain beliefs. This is reflected study through an exploration of the behaviour and beliefs of nurses and medical students in relation to informal learning interactions.

The study is located within a qualitative interpretive paradigm utilising a social constructionist approach which recognises that knowledge is generated between individuals in the course of their everyday social life. The theoretical perspective grounded in this epistemological paradigm is symbolic interactionism (SI). This emphasises the construction of the social world and meaning through the use of symbols. This has underpinned the discussions provided.

## **CHAPTER 7: STUDY IMPLICATIONS RECOMMENDATIONS AND CONCLUSIONS**

### **7.1 Introduction**

This concluding chapter provides a review of this research reflects on the journey undertaken and offers conclusions and recommendations resulting from the study. The chapter will first focus on the initial aim, objectives and research question and whether these have been met. I will then reflect on this study from both a research perspective but also a personal viewpoint. Issues addressed within the discussion chapter are revisited to make suggestions for further research and to identify implications for policy, practice and education, all of which are summarised at the end of this chapter.

The study findings were presented independently of the academic literature in chapter 5. This decision helped to ensure that the participants' observed behaviours, actions and the narrative of their experiences was kept central and at the forefront. This positioning also acted as a point of differentiation between the first stage literature review and my subsequent return to theory and literature when interpreting, making sense of and exploring the findings within the context of the discussion.

The discussion drew upon a wide range of sociological, informal learning and medical education and training literature, which both supported the analysis and illuminated the findings, whilst also illustrating my development as a researcher. I have reflected in more detail later in this chapter to further illustrate my academic development (section 7.3.2). The paucity of previous research on the subject of informal learning interactions between nurses and medical students in the UK meant that much of the empirical evidence was found in the overseas literature, particularly in the Netherlands, Scandinavian countries and Australia and concerned various informal learning

experiences operating in specific cultural contexts. This evidence, reviewed and synthesised in chapter 2 of the thesis, demonstrated a need for more robust qualitative studies to shed light on the components of nurse and medical students informal learning interactions as well as investigating the views and experiences of people who choose to engage with these interactions.

A description of the philosophical and methodological focus of the study was given in chapter 3 and 4, along with a detailed overview of the research design. The study findings were presented in chapter 5. In chapter 6 my discussions interpret and describe the significance of my findings in light of what is already known in the wider literature and I try to explain any new understanding or insights from my findings.

This study has added to existing understandings of informal learning interactions between nurses and medical students in the work place via the use of an ethnographic approach. The focus is on informal learning interactions that occur during everyday interactions in the workplace, when the emphasis is on work rather than education (Eraut, 2007), in contrast to the explicitly educational interventions that are often at the centre of research into inter- professional learning (e.g. Reeves, Zwarenstein et al., 2008). It is recognised (Varpiro et al 2014) that research has yet to describe in detail the extent to which informal intra- professional or informal inter- professional education is part of graduate medical education (GME), and the nature of informal interactions particularly between nurses and medical students. With this in mind this study covers:

- (i) The awareness of informal learning interactions and their characteristics
- (ii) The perceptions of medical students and nurses about these interactions.

I acknowledge that these objectives are broad and the rationale for this was to ensure that there was an opportunity to provide rich, holistic insights into people's views and actions, as well as the nature (that is, sights, sounds) of the informal learning interactions taking place in the workplace, whilst ensuring that the research remained within the overall frame of inquiry, ethnography. As Hammersley (1992) states, the task of ethnographers is to record the culture, the perspectives and practices, of people in their settings. The aim is to get inside the way each group of people sees the world and act within it. In this study the focus was on specific features that occurred within the research setting - in this instance the informal learning interactions (practices) taking place between nurses and medical students in the workplace and advancing an understanding of the associated social action that occurred.

The next section of this chapter will review the original aims and objectives.

## **7.2 Review of the research study**

### **7.2.1 Restatement of study purpose and findings**

The aim of this study was to develop an understanding of informal learning interactions taking place between nurses and final year medical students in the workplace. I have achieved the overall aim of this research through the careful consideration and application of methodology, methods and data analysis. This has resulted in the production of a conceptual model (page 181) that depicts the characteristics of informal learning interactions as well as core constructs relating to informal learning interactions between medical students and nurses in the workplace.

In line with much research, the initial title developed and changed, led by the emergent findings. The final title for the study is as follows:

“Developing an understanding of informal learning interactions between nurses and final year medical students in the workplace: an ethnographic study”

**Study research questions:**

What is the nature of informal learning interactions between nurses and final year medical students in the workplace?

What is the perceived value of these interactions for both of these groups?

**Overall study aim:**

To develop an understanding of informal learning interactions taking place between nurses and final year medical students in the workplace and to explore the perceived values of these interactions for both the nurses and final year medical students.

**Objectives:**

1. To increase awareness and knowledge of informal learning interactions between nurses and final year medical students in the workplace.
2. To gain an insight into the characteristics of informal learning interactions between nurses and final year medical students in the workplace.
3. To consider the factors that influence informal learning interactions between nurses and final year medical students.
4. To explore the perceived value of these informal learning interactions for both nurses and final year medical students.

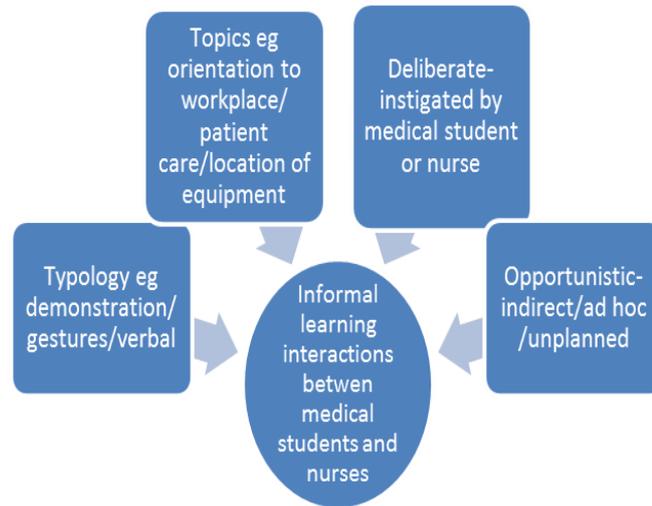
The aim and objectives have been met via the qualitative ethnographic research study reported within this thesis. A brief summary of achievement of these objectives will now be discussed.

### **7.2.2 Achievement of Objective 1**

One of the central issues identified within this study was that all participants, both nurses and medical students, acknowledged that informal learning interactions were present in their day to day activities in the workplace. This awareness and acceptance of the fact that these interactions took place is fundamental to this study and the formation of the associated understanding developed about the nature of the interactions in the form of the conceptual model identified on page 181. However, it must be noted that acknowledgement of these interactions only implies informal learning takes place, as in this study actual informal learning was not explicitly recorded. This is in the sense that no testing of knowledge acquisition or skill development was undertaken to 'test' learning had taken place. There is little documented that explores informal learning taking place by medical students as a result of their interactions with nurses in the ward as a workplace in the UK. Future research may help to understand this more fully and may help medical students and nurses take greater advantage of these interactions. This will be discussed more in section 7.4.2.1 Implications for future research.

### **7.2.3. Achievement of Objective 2**

This study provides insights into a range of characteristics of informal learning interactions, discussed as practical processes. These characteristics were shaped and identified from both observations undertaken and by the experiences discussed in the narrative of participants. These characteristics are identified on figure 7.1 below.



**Figure 7.1: Proposed Characteristics of informal learning interactions**

These characteristics include the type of interaction, the subject area and if the interaction is either a deliberate event initiated by either the nurse or the medical student or simply opportunistic. Some examples are shown in table 7.1 below. Such examples of interactions could potentially be used to develop both medical students and nurses’ awareness of these interactions and the types of possible learning that can take place. This awareness then can help the medical students and nurses to recognise and make effective use of these interactions in the future. Such examples could be used as part of simulation teaching activities and or provided to medical students prior to placements.

**Table 7.1 Examples of interactions.**

Specific examples identified in data	Subject area that is focus of interaction	Deliberate	Opportunistic
Asking the nurses where they will find a particular patient	Patient care	Yes, by medical student	No
Information about how the wards are run and organised	Administration	Yes, by nurse	No

When a nurse sees a medical student unsure whether to disturb the consultant, without being asked she offers advice to medical student about which consultants are happy to be disturbed or not.	Ward Procedures	No	Yes
The medical student overhears a conversation between the nurse and consultant about a meeting with relatives and how she was going to talk to them.	Communicating with relatives	No	Yes

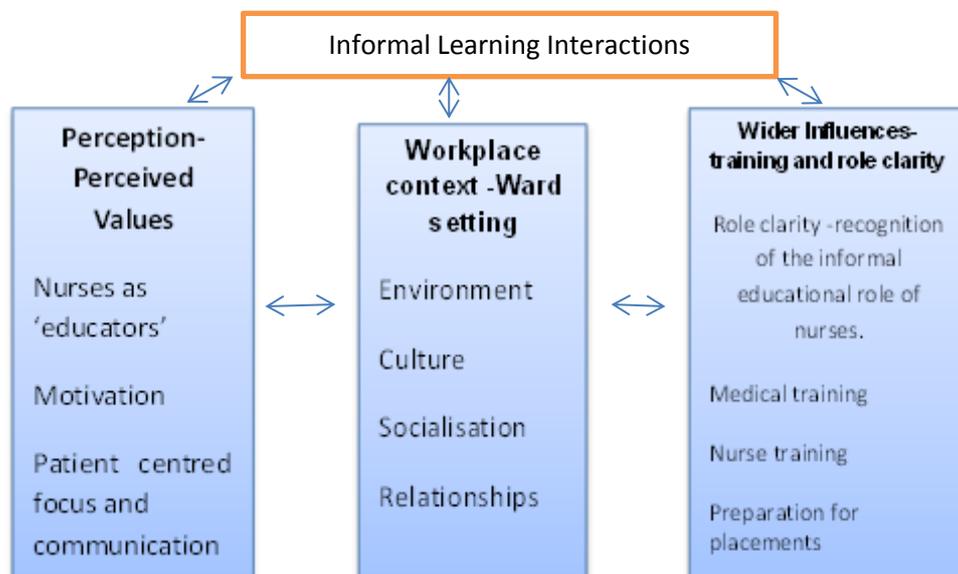
These characteristics reveal the how and what of workplace informal learning interactions between nurses and medical students. They are predominantly focussed on individual actions and behaviour and provide opportunities for 'On the job experience' as identified by Mattox (2012) as part of his typology of informal learning in the workplace as discussed on page 192. In order to develop an understanding of possible informal learning interactions between nurses and medical students in the workplace, it is important to identify some of the characteristics of the nature of interactions.

As identified in section 6.3.1 on page 183 there is a lack of existing evidence in the literature regarding informal learning interactions and processes between medical students and nurses in a UK hospital ward environment. This study has identified potential forms and practices of informal learning interactions between nurses and final year medical students and offers a conceptual model that further develops understandings of these interactions. This information has helped to identify potential informal learning patterns of final year medical students and the practices and processes for how to participate and share knowledge informally between nurses and medical students.

### 7.2.4 Achievement of Objective 3 and Objective 4

In this section the final two objective of the study will be reviewed together. This is felt appropriate as from the findings of the study, factors influencing informal learning interactions are also strongly linked to the perceived value of these informal learning interactions for both nurses and final year medical students which in themselves are also influencing factors. As outlined in chapter 6, three core categories of influences were identified and within these core categories a number of interrelated sub themes were constructed. These are identified and represented in the figure below.

**Figure 7.2: Influencing factors**



These factors relate not only to the individual themselves but also to their wider and previous experiences and the context or environment where the interaction takes place. Many influencing factors have been previously discussed in the wider literature, as demonstrated in chapter 6, in relation to their importance in informal learning but not specifically the interactions that take place between nurses and final year medical students.

All of the participants in the study indicated their belief about and acknowledged the importance of informal learning interactions between nurses and final year medical students and a number of perceived meanings were highlighted for both potential learners and educators. In fact, this distinction is unnecessary as although individuals may be classified in these roles, participation in these personal interactions is of value to both participants (as identified within this study) with a two way process of learning and educating taking place. Although the focus of this study is the informal learning of medical students this also applies to nurses who by interacting in this way also learn and develop a better understanding of the needs and role of medical students on placement.

The study indicates that number of the perceived core values and attitudes relating to participants in this study help to shape and influence the informal learning experiences and interactions taking place in the workplace. In considering these influencers it is important to acknowledge that these are all interrelated and associated and that there is a constant change and fluidity in the development and importance of these perceived values. The deep-rooted values relating to communication, motivations, culture, socialisation and attitudes to the value placed on other professions all require consideration in the way that they influence informal learning interactions between nurses and final year medical students. For the individuals involved, these interactions, their perceived values and participants personal attitudes and experiences undoubtedly continue to have an impact throughout their training and professional practice. These attitudes and values may change both positively and negatively across the training of medical students and in the longer term should be recognised as having an impact on shaping qualified doctors of the future.

### **7.2.5 Summary of study achievement of objectives.**

Overall, therefore, the aim and objectives of this study have been achieved. The study offers an understanding and insights adding to the current research into informal learning interactions between nurses and medical students in the workplace. This understanding is founded upon an identification and awareness of these interactions, their characteristics, influencing factors and perceived values. One of the key findings from this study, which makes a significant contribution, is the identification of the characteristics of informal learning interactions and influences upon these interactions. As an interaction by its very nature involves at least two individuals the study also offered insight into the importance of these issues from an individual perspective.

Previous studies have tended to focus on informal learning in relation to the acquisition of knowledge as opposed to the interactions between nurses and medical students, and have generally been located in different geographical locations other than the UK. They have tended to focus either on medical students (Hartford 2017; Stefamark) or nurses (Bjork 2013; Corrigan 2017) but rarely both groups (Gilmour et al 2014). Previous studies perhaps also fail to place sufficient emphasis on the influence of factors as identified in this study: perceived values, the environment and the wider influences relating to training and professional role clarity. Another important aspect is the way this study proposes the complex, fluid and ever-changing nature of informal learning interactions between these two groups in a clinical workplace as outlined in the conceptual model developed.

The rest of this chapter will reflect on the research journey undertaken and finally offer conclusions and recommendations of the study.

## **7.3 Reflections on the research journey and process**

### **7.3.1 Strengths and limitations of this study**

There are a number of strengths, limitations and challenges associated with this study. These will now be discussed in relation to the methodology, the study process and as personal reflections. It is important to identify these in order to provide an overall appraisal and interpretation of their impact on the study findings.

#### a) The research methodology.

This study used ethnography as its research approach. Baines and Cunningham (2011 p73) identify that ethnography is a 'complex and heavily debated research method' and a method used to study social phenomena and human society (Brewer, 2000; Fine, 1993; Seale, 2004). Ethnography is naturalistic, in that it permits the collection of data within the everyday world of social relations and lived experiences (Fetterman, 2010). Moreover, ethnography usually involves participant observation, which 'enables us to juxtapose what people say they are up to against what they actually do' (Burawoy, 1991 p2), permitting greater analytic depth and complexity. Participant observation in this study offered me the opportunity to gather empirical insights into social practices, the informal learning interactions, in the clinical environment that are normally hidden from public gaze. These workplace environments, by their nature, are generally closed to others than patients and staff. Goodson and Vasaar (2011) identify that hospitals are often cultures within themselves and, while some can be very similar, the community of the hospital is often unique. I would argue, as a result of undertaking this study that this is also the case for the individual wards involved, and the ward teams within the hospital setting as the patient care and decision making processes can vary widely depending on the differing cultures. The benefits brought by ethnography enable the development of a more detailed understanding of ward cultures and staff interactions within them, in this instance informal learning interactions.

Reeves et al (2008) state that ethnography is a highly useful methodology for addressing a range of research questions within the health professions. They highlight that in particular, it can generate rich and detailed accounts of clinicians' professional and inter-professional relationships. This study would support this view. The findings and discussion identify the influence relationships of the medical student relationships in relation to informal learning interactions both with other medical students, junior doctors and in particular the nurses in the clinical setting.

Goodson and Vasaar (2011) state that ethnography is a qualitative approach that involves relative submersion into the setting to be studied, and that it is an appropriate methodology for a wide variety of research topics, within both healthcare and medical education. They go on to say that they feel that while, to some extent, ethnography has been applied in healthcare settings and in the medical education environment that there is a general lack of research employing this methodology. This opinion has also been expressed by Leung (2002). A strength of this study is therefore that it is adding to the ethnographic evidence base in medical education using an appropriate and recognised qualitative approach.

However, it has been noted (Nurani, 2008) that ethnography is good at discovering reality, rather than reliability, and criticisms could be made regarding is the difficulty in generalizing from ethnographic research. The field observations took place in natural settings and focus on ongoing processes. It is impossible to accurately replicate the entire situation and another researcher might generate different descriptions from the same field observation in the same ongoing process. When researching a certain culture, the results cannot necessarily be totally transferred or applied to other populations as the results are based on the cultural responses and so the outcome of

this study cannot be applied beyond where the study was conducted. For this reason, from a positivist perspective this study could be criticised regard representativeness. So, the validity of this type of research cannot be substantiated. In addition, it also has the issue of breadth or representativeness. For instance, this study is only situated in two wards and only within one hospital and may not be applied to other hospitals. The results of this study are developed based on the population of medical students and nurses in those particular wards in the hospital used.

Subjectivity could certainly be suggested as a limitation of ethnography (Goodson and Vasaar, 2011) in this study where there was a lone researcher this was certainly the case. There is not a list of answers from which to choose but rather the use of field notes made by the researcher and later analysed and categorized by the researcher to inform the findings of the study. The entire study is subject to the processes and interpretations developed by me as the researcher drawing upon my ontology, epistemology and paradigm view.

However, Hammersley and Atkinson (2007) suggest that because ethnography is usually based on only one or a small number of cases, the representativeness of the research findings will always be in doubt. It is not the intention of this research to make such generalisations. Instead, the reader is provided with the context of this study and can then they can decide whether the findings of the research can be transferred to other situations. This is the case for this study.

Hägg-Martinell (2017) identify that a limitation of ethnographic studies is the risk of researcher bias, as the researcher is used as a tool during the observations. A researcher with pre-understanding and experience of the studied context may not

recognise important aspects. On the other hand, an experience of the studied context might allow the analysis to be performed in more depth. In this study as the researcher I was familiar with the hospital context due to previous professional roles but not the specific wards where the data collection took place. Nor was I familiar with the subtleties of the specific professional roles not being a doctor or nurse myself. As such I felt I was a knowledgeable outsider using participative methods with the medical students and nurses that allowed me to develop meaningful relationships that included developing both trust and, in turn perhaps more authentic knowledge construction within the interviews. The quality of ethnographic data Hägg-Martinell (2017) argues depends on whether participants are willing to participate and if they act as they would have done if not observed. Initially, in this study some of the nurses and medical students I felt were a bit cautious, but all agreed to participate and soon expressed that the research was important and that they wanted to contribute. This I felt was helped by the development of the meaningful relationships described above.

b) The study process itself

Reeves et al (2008) identify that ethnographic studies require comprehensive recording of the multifaceted nature of social action that occurs within a ward and that this is a difficult task, as a range of temporal, spatial, and behavioural elements need to be documented. Indeed, the study was hampered by a series of factors which reflect the unpredictability of social (and clinical) life. Such unpredictability is suggested by Reeves et al (2008) as often meaning that ethnographers have to be flexible, patient, and persistent in their work, as data collection activities can be disrupted, or access withdrawn as local circumstances and politics change. All of these issues were reflected in this study as discussed below.

## Sample

In relation to the sample it is worth noting that there was little ethnic variation with only two of the nurses coming from the Philippines. There was a mix of both male and female respondents. Goodson and Vasaar (2011) identify that sample size is a limitation of ethnography and the time required being involved in participant observation and conducting interviews greatly limits the sample size. In this study, due to various constraints, including a time delay due to a change in university ethics procedures, I was unable to observe and interview as many medical students as originally anticipated. The data collection process was shortened by 2 months due to the timing of the students on placement and the ethics procedure delays. It would have been beneficial if the study could have been conducted throughout the entire student placement period. This would have enabled access to a greater number of medical students both to observe and to interview and increased the sample size from 4 to potentially 9. This would have also increased the sample available to be interviewed. To compensate for this, I carried out additional observational sessions in the two wards selected over the shorter period of time and ran an additional focus group with other final year medical students.

Also, during the study one of the nurses who had agreed to be interviewed unfortunately died unexpectedly. As I had observed this nurse in field sessions and got to know him/her during my time on the wards, I found this had an emotional impact on me. This tragic situation meant I had to recruit an additional nurse for interview which I did.

Finally, within the timeframe of the study the NHS nationally was compromised by a computer virus (The Guardian 2017) which resulted in difficulty in accessing the wards

and me being unable to arrange a suitable interview date with one medical student who subsequently returned home making it impossible to interview them.

### The environment

In this study the time available for observations and interviews was influenced, and on occasions limited, by the timing of activities and requirements of the workplace. The wards where the study took place in terms of layout and space available meant observations had to take place in a range of different locations and there was no central point where all activity on the ward could be observed at the same time. No appropriate space for interviews was available near the wards so these had to take place in another part of the hospital. Timings of the observations were also dependent upon the practices and day to day activities of the staff concerned e.g. ward round timings. This was partly overcome by ensuring a range of fieldwork sessions took place at different times of the day.

In relation to obtaining ethics approval, I found the process helped me to fine tune some of the requirements of my study such as sample size, procedures of recruitment, maintaining anonymity of participants and safe management of the data collected. The study was initially reviewed by the University and then submitted to IRAS as it was located in the NHS and involved NHS staff. The completion of documentation was time consuming but worthwhile the time spent on preparing materials as there were only minor amendments to be made. No major ethical issues were highlighted. However as previously alluded to the slowness of the university processes imposed an unforeseeable time delay which in turn affected the available time for data collection.

Brewer (1990) discusses several practical problems he encountered when conducting an ethnographic study, including getting access to the field, winning the trust of the participants, and personal security. I was fortunate that I had no difficulties gathering the data, and I had access to documents and other artefacts that contributed to the study. In obtaining an honorary contract with the trust and through building good relationships with the medical school and ward consultants I was quickly accepted by both the nurses and medical students. I felt that they saw me as trustworthy and accepted as I had the support and backing of the consultants and management. I also spent time on the wards prior to actual data collection in piloting activities which helped me to be seen and known and accepted.

According to Scott-Jones (2010), another criticism often associated with ethnography is in relation to its context-specific nature. In other words, by the time the research is written up, 'the social world it seeks to represent inevitably will have changed' (Scott-Jones, 2010, p.26). In my view, all research is subject to this limitation including this study and needs to be considered by the reader.

This study has many strengths and limitations, notwithstanding the limitations I feel it provides many insights about informal learning interactions between nurses and medical students in the workplace. Furthermore, the analysis of findings from these descriptions has allowed extension of the considerations to theoretical constructs in the proposed conceptual model (page 181) Using ethnographic methods allows researchers to collect information directly from the source. Researchers actually spend time in the settings they are studying, rather than simply hearing about them through participants. This is a great strength and of the utmost importance, because what research participants tell you they do, what they actually do, and what they think they do are not necessarily one and the same (McLeod, 2016).

### 7.3.2 Personal reflections

In this section I will offer my reflections on my personal research journey. It is worth pointing out at this stage that within the reflexivity section in chapter 4, I discuss the reflexivity approach undertaken throughout the study. This section will provide a much more personal reflection on my development so far as a researcher and in undertaking this study. As Waddington and Wright (200 p.51) who cite Reid (1993) identified ‘...reflection is a process of reviewing an experience of practice in order to describe, analyse, evaluate and so inform learning about practice’.

Miller and Brimicombe (2010 p.408-409) suggest that the PhD process can be viewed as a journey. They note that ‘...in the original sense, a journey is the act of moving from one place to another. The journey of life also includes both the passage of time and changes of phases in our being as we age, learn and develop’. They argue that it is helpful to conceptualise the PhD process as a journey and to use travel metaphors to examine experiences. I agree with Miller and Brimicombe’s suggestion, and further argue that the milestones in a PhD journey can also be examined as stages in a ‘rite of passage’ in the academic world. Boglea et al. (2011) find that there is a combination of factors that lead people to embark on doctorate study. Some people aim for professional advancement or due to personal interest in the topic, or a combination of both. I am in the latter category. I had been interested in pursuing a PhD for a number of years as a way of enhancing my professional development as an educator. As an ex-teacher with a Master’s in Education, but also as someone who had worked within the healthcare sector for many years. I also found this particular studentship drew on my previous experiences both academically and professionally incorporating a focus both on education and health. I was particularly interested in undertaking a PhD to gain the learning necessary to further develop my existing research skills knowledge under

the guidance of experienced researchers- my supervisors and in a research focussed environment- the university.

Initially, my academic interest in the PhD journey predominately concerned the technical aspects of the doctorate. Initially this focused on a number of pragmatic areas, such as, deciding on and narrowing down the topic area; getting to know the supervision team, as I wasn't involved in selecting these individuals as this was a studentship advertised by the university; the pitfalls associated with supervision; alternative methodological approaches to research; and writing up the thesis. However, through my PhD I have also come to acknowledge and appreciate the emotional and intellectual experiences in undertaking this journey.

As this was a studentship co-funded by the local NHS trust and the university, thus the topic and focus of the research was to some extent prescribed although through initial reading and discussions with my supervisory team I was able to modify and adapt and focus the research aims and objectives. This helped me to take more ownership of the study and to make it mine. However, I was not involved in choosing my supervision team as this had been previously agreed as a funded studentship. There emerged a supervision team that met monthly and a wider management group that met less often (every 3 months). Both of these groups initially helped with issues relating to the practicalities of undertaking the research in particular certain individuals were particularly helpful in obtaining access to the wards and building relationships with key stakeholders such as the consultants on the wards. However, I did feel that initially the supervisory team as individuals were helpful, but that on occasions different messages were being given by different individuals which were on occasions frustrating. The principal supervisor was however a constant throughout the whole process and was

willing to provide assistance, information, and support throughout. One member of the supervisory team left half way through the process due to a changing role. This actually made the remaining supervisors easier to work with which made the supervisory process more effective and enjoyable.

At the beginning of my journey I spent a lot of time reading and discussing with other students and colleagues the philosophical discussion around research methodology. This was useful and as I reflect now, very necessary in order to develop my conceptual thinking and how this related to my proposed study. The methods to be used were also debated between me and my supervisors but the nature of the focus of the study meant I personally felt this was quite clear cut as it was important to witness the interactions between nurses and medical students in the workplace in real time and so the use of ethnography and observations was conclusive and indisputably worthy.

It was also at the beginning of the journey that strangely I was focused on the end, that is the written thesis. I was conscious that I would have to write and present a thesis much different to those I had previously prepared in my other academic studies. I was keen to look at others as exemplars and to view the end product I had to deliver. This was helpful as it enabled me to envisage what I had to achieve and areas that I needed to think about as developmental needs. These included practical concerns like developing my IT skills; I even purchased a laptop to make the process easier; I had to learn how to use new software such as NVivo8. My ideas and concepts around the thesis however did change over time as my research got underway and developed. Flexibility being a key feature of my journey and a skill I had to grow throughout the process. For example, I had to adapt to situations throughout, such as, the issue with ethics and the associated time related issues.

In terms of my journey as a researcher and writer, I have found writing a difficult process although I have learnt the importance of the importance of writing and re-writing. I would like to add that as I adopted ethnographic techniques, the writing and re-writing of the field work observations and interviews required a number of levels of writing analysis. It was only when I started to think clearly about my data and ideas that I was able to contextualise my data in line with the research questions.

I found that it was important to have time to think alone and work alone, but also to have time to share thoughts and develop ideas with other people. It is not uncommon to feel that the PhD thesis is an insurmountable task that will never end. From my experience the key to completing such a big project is perseverance, hard work, good time management and plenty of good music! In addition, I realised the importance of keeping the main thesis and research questions in focus when writing the different chapters.

As part of my research journey I presented the study as a poster presentation (See APPENDIX 12) at two conferences which meant I was able to make progress in my producing my thesis whilst communicating key ideas from my journey at both a postgraduate doctoral research conference and an international conference. This was a useful exercise in developing my thinking and analysing my work critically. I aim to publish at least one article based on chapters five six, and seven within a twelve-month time frame upon completion of my PhD. More specifically, I would like to target journals which rest in medical education and nursing fields.

I knew a three-year full time PhD was not going to be without significant challenges.

Not least I was leaving a team of colleagues that I worked closely with and where I had

a social identity to being on my own. I had to acknowledge there was much to learn and would this PhD equip me in that journey for a potential career change. I am mindful of the academic growth that has now supplemented my potential for a future career as I am reaching the end of my three years. Moreover, as the sole researcher I acknowledge that my personal experiences, my particular disciplinary background, and the wider sociocultural context of my life will have influenced my interpretations and constructions (Aull Davies, 1999).

In this process of reflecting on my PhD journey I am able to recognise the change in me in a number of ways, my beliefs, my perceptions and my questioning. I now reflect frequently in both my academic and personal life. For me my PhD journey has been like going on a foreign holiday, it has involved the exploration and investigation of unknown settings and encounters with unfamiliar cultures. The experience has been as much emotional as intellectual, and aspects of the journey have been inspiring, worrying, puzzling, stimulating, exhausting and at times dreary. My journey has been assisted and sometimes hindered by the guidebooks consulted and by fellow travellers and people I have met along the way. Overall on my PhD journey I have juggled a variety of personal and professional roles and responsibilities at the same time as developing my skills and identity as a researcher. I now feel much more confident in my writing abilities and research skills. Presentation skills are crucial in almost any professional setting and I feel the presentation aspect of this thesis has helped to develop that as well.

I have come to realize that this doctoral thesis is only the first step in my journey as a researcher. During my research journey, I experienced elation and some frustration as well. There were delays along the way, and this taught me to be patient. Conducting

research is not a quick process. Overall, I enjoyed the journey and I have grown as an individual. I had to do a lot of introspection to discover who I really am during this journey. I had to read literature from many disciplines, including medical education, nursing, informal and workplace learning and research philosophy to broaden my knowledge base. I have also enhanced my skills as a researcher by gaining insight into conducting research using observations and interviews and an ethnographic approach. I know I am now at a critical stage on the journey to becoming a scholar. I feel privileged to have been able to enter the world of the hospital ward and the culture within. The challenge for me now is to explore these issues further, along with the unanswered questions emanating from the research. I am aware that the journey is not over until it is over. Finally, reflecting on this process adds another deepening dimension to the experience.

#### **7.4 Conclusions and recommendations**

Hammersley (1992) suggests that even if the findings of a study are considered to be true this does not mean that they will necessarily be of significance and value. Two criteria related to the relevance of the study should also be satisfied. Firstly, has the topic importance and secondly do the findings contribute to existing knowledge, for just repeating what is already known about a topic is not a valued addition to knowledge. Additionally, Hammersley (1992) notes that what is important to researchers may be different to what is important to other interested parties. In this section the relevance and contribution of the findings are considered and recommendations arising from the entire study identified. This section of the conclusion derives from the discussion in chapter 6 which illustrated the relationship of this study to the pre-existing literature and thus will present new knowledge and insights. It also addresses the recommendations and implications for further research, policy, practice and education.

#### **7.4.1 Impact and unique aspects of the study.**

As a result of carrying out this study it is acknowledged that there is a paucity of literature relating to the informal learning interactions and processes in a hospital ward environment, between medical students and nurses within the UK. Most of the relevant literature found relates to other countries with different medical education systems and health services. This is one aspect in which this study provides new insights and contributes to existing knowledge that potentially increase our understanding of informal learning interactions between nurses and medical students in the workplace in the UK.

As previously stated the aims and objectives of this study were achieved and the study has provided a more developed understanding that adds to the evidence base and literature relating to informal learning interactions between nurses and medical students in the workplace. This study seems one of few that focuses on interactions that may lead to informal learning between nurses and final year medical students on two wards in a general hospital in the UK. Much of the scarce literature available tends to focus on informal learning from a cognitive perspective rather than the process of the interactions taking place. Merriam, Caffarella, and Baumgartner (2009) noted within the literature the distinguishing feature of informal learning is the context or location of learning, rather than the learning process itself. This study adds another dimension to this view by exploring the nature of informal learning interactions between nurses and final year medical students in their workplace. The findings of the study also demonstrate that there is an awareness and recognition of informal learning opportunities for final year medical students as part of their placement learning through their interactions, in particular, with nurses.

This study provides further understandings of the how and what of workplace informal learning interactions between nurses and medical students and provides indications of some characteristics of these as practical processes and the influences upon them (as summarised in the conceptual model developed). It proposes types, topics and nature of these interactions in a clinical environment between final year medical students and nurses by offering an insight into the characteristics of these interactions which has the potential to help to enable and empower both the learners and educators to make the most of these opportunities in the future. This study has provided information that helps to identify potential learning patterns, routines and interactions to enable individuals to consider how to participate and share knowledge. It also considers the importance of informal learning in the wider context of training, education and professional roles.

Another key issue emerging from this research is the concern regarding recognition or indications of 'learning' having taken place as a result of informal learning interactions? Eraut (2004) identified that the main problems in conducting research into informal learning as being that it is largely invisible, because much is either taken for granted or not recognized as learning. Thus, it is difficult to capture, assess or measure what learning (i.e. knowledge acquisition or skill mastery) takes place. This potentially is as a result of individuals lacking awareness of their own learning; the resultant knowledge is either tacit or regarded as part of a person's general experience and ability, rather than something that has been learned. This difficulty in identifying that learning (i.e. acquisition of knowledge or skills) may have taken place was highlighted within this study and is a key issue for consideration for any future research in this area to understand this more or to simply recognise this as an inherent feature of informal learning interactions.

This study also identifies a number of key categories and themes and within these themes: factors, characteristics, and elements that influence informal learning

interactions. A key feature is the interlinked and interdependent nature of these influences which seem to operate primarily at the individual level. One of the key categories focusses on perceived values and relates to a number of ideas that are intrinsic to medical and nursing education and inter professional education and working. These include attitudes to the role of the nurse particularly as an educator and the hierarchical order between nursing and medicine, motivation, patient centricity and communication. These attitudes and values can change across the training of medical students and nurses, so in the longer term should be recognised as having an impact on shaping qualified doctors of the future.

The contextual characteristics of the clinical environment as a workplace setting were also identified as a key influence on informal learning opportunities. This supports views of Reeves et al (2008) but it also provides an additional perspective by identifying that informal learning interactions are influenced by not only by the physical structural environment of the ward setting but also by other contextual issues including relationships including inter- professional working and communication, culture and socialisation. These latter issues seem key to how nurses and medical students interact within the ward setting. For meaningful change, inter- professional education programmes (IEP) around effective communication strategies are highly recommended to be commenced at the undergraduate level and continue into practice. It is recognised organising these IEP's are testing but in light of findings of this study are necessary for positive change. After consultation with the medical school it has been confirmed that although some IEP exists for these medical students this is primarily with pharmacists. Therefore, more IEP with nurses in particular, as recommended, in this study is would be helpful.

A final issue arising from this study that adds to the existing literature relates to wider influences linked to training and role clarity. Nearly 30 years ago, Dowling and Barrett

(1991) suggested that nurses' educational role with newly qualified doctors should be formally recognised. It seems that although the importance of this role has not diminished, it still remains unrecognised. From this study it appears that nurses may be well positioned to observe and assess certain elements of a medical students' performance. It is suggested that the word 'nurse' could be put into the medical student log book for the signing of certain procedures. An example of a log book reviewed showed that this was not currently used. This simple change would explicitly identify that medical students can benefit from interactions with nurses and that nurses can be assigned as an assessor for particular procedures. In the era of inter-professional education and multidisciplinary health care teams, cross discipline teaching is of paramount importance promoting cooperation between the medical and the nursing profession (Homeyer et al 2018) and it is possible that nurses may assume greater responsibilities in medical education (Gilmour et al 2014) This study helps to explore relevant issues concerned with the nature of informal learning interactions that help to deliver this future role.

The study therefore offers a range of new areas of knowledge and a better understanding of the informal learning interactions between nurses and final year medical students in the work place environment. It also presents a number of possible recommendations that could be considered for future research, practice, education and policy. These are presented in the next section.

## **7.4.2 Recommendations**

### **7.4.2.1 Research**

In this case, ethnography was a useful method in addressing the research question in this study. Goodson and Vasaar (2011) indicate that ethnography is a method quite amenable to medicine, and the application of ethnography to healthcare is widely supported.

Medical education historically has been an enterprise focused on developing competent physicians however, there are multiple and competing cultural influences on any given learning experience, including those of educational institutions, individual learners, attending physicians, and the profession as a whole. Ethnography can help us to understand the complexity of General Medical Education (GME) by considering the interactions of these multiple influences. The findings presented from this study provide a starting point for further research into the informal learning interactions between nurses and medical students with an ethnographic approach advocated. Several further research projects could be carried out to further explore the findings in relation to informal learning interactions between nurses and medical students in the workplace.

**Recommendations for the research community are:**

- Further exploration using this ethnographic research design could be carried out in other clinical settings. This would enable researchers to see if there are similar appreciations for informal learning interactions in other contexts and with different participants. The value identified in relation to these interactions requires further exploration, within other healthcare settings. The individual relationships and influences identified within this research could be further explored, to identify how these influences impact on informal learning interactions, particularly for medical students learning linked to their formal training and considering other contexts and clinical environments where medical students may be found in a placement.
- As other similar studies have taken place in other countries it would be useful to design a cross cultural study. In particular the nearest study to this in terms of aims and objectives took place in Canada and focussed on residents rather than medical students. The opportunity for an international project linking Canada and the UK would provide the opportunity to further develop the understanding about

informal learning opportunities and interactions for medical students and postgraduate learners, this would build on the existing findings from both studies.

- Undertaking this study has highlighted that there are still significant gaps in our understanding of informal learning of medical students. We need to know more information about: which competencies and skills are addressed in this informal manner; the wider range of interactions and events that are classified as informal learning, the processes involved, the possible learning that takes place and the impact of that the physical environment and lay out of the chosen settings. More information and understanding could be obtained about the how and what of informal learning interactions but also the who and where.
- A literature review by Kusrkar et al (2012) revealed the need for research being conducted with regard to the motivation of medical students within a clinical setting. This is even more relevant in relation to the motivation of medical students to engage in informal learning activities where there is a paucity of written evidence available.
- This study has highlighted the educational role as a largely 'taken for granted' component of nursing activities. Further studies could be carried out to develop a better understanding of the educational role of the nurse in a clinical setting and in particular explore how this relates to socialisation and culture within the workplace. Another key aspect of this could explore the preparation of nurses during training and continuing professional development opportunities for this educational role.

#### **7.4.2.2 Practice**

As a result of this study discussion around the core categories and sub themes has led to a number of proposed recommendations for consideration in practice including medical education. In relation to the attitudes and beliefs of the medical students about nurses this study indicated that nursing is still perhaps largely perceived as a physician's assistance job and not as a profession in its own right. In order to enhance the impact of

informal learning interactions between nurses and medical students it is important to accept that hierarchical differences exist between the two professional groups which has the potential to pose challenges with inter professional communication and working. This study offers a principle for developing a greater understanding of the role of nurses and in particular their influence in relation to informal learning interactions with medical students as part of their general medical education. Medical students need to become more aware of the role of nurses and the development of the profession of nursing within its own right. Eich-Krohmet al (2016) state that nursing and medicine are professions that have to work together closely because nurses have the most contact with patients and physicians rely on nurses' observations and reports to make the best choices regarding the effectiveness of medical treatment. Eich-Krohmet et al (2016) also state that this important link is regularly neglected in both educational pathways. Generally, nurses and physicians acquire inter-professional skills on the ward by watching how both groups interact with each other. Therefore, the learning by doing approach depends highly on real life role models both groups experience during their internships on the ward.

Motivation was identified as a key value influencing informal learning interactions within this study. This study advocates a move towards a more intrinsic approach to motivation for medical students to learn in the clinical environment. This study found that medical students' motivations for engaging in informal learning interactions was focused towards getting their log book completed. It may be that nurses are well positioned to observe and assess certain elements of a medical student's performance.

One of the key values driving the work of all staff on hospital wards, the settings for this study, is that of patient centricity. Medical student clinical confidence and positive attitudes to patient centeredness are important outcomes of medical education. In this study the medical students all saw the importance of the role of the informal interactions with nurses in helping with this focus on the patient. This study suggests that medical

students perceive nurses as helping to develop patient centred communication skills in dealing with both patient's and relatives. Communication is already identified as a core skill for medical students in terms of their chosen career. Most clinical communication skills training systems focus on the verbal content of consultations. Non-verbal consultations which are 65-95% of essential communication between individuals are often not given enough attention but are crucial to informal learning interactions.

Unfortunately, both in the wider literature and in this study, medical students seem to say that they don't feel prepared sufficiently for placements and in this study that better preparation would help them to understand the opportunities for informal learning interactions with nurses.

Recommendations for action:

- A practical measure suggested is to that the word 'nurse' could be put more explicitly into the log book for signing of procedures and the nurse could help to assess medical student placements.
- Possibly having mock clinical exams at the end of the placement may motivate students to learn to a certain standard rather than practice in quantity. This would also represent a move towards a more intrinsic approach to motivation to learn in the clinical environment.
- One suggestion by a medical student in the study was to be provided with more information before going onto placement via as a resource pack. Such a resource pack would help the students to be aware of the importance of informal learning interactions with nurses that could lead to more effective opportunities for informal learning. Such a pack could also provide information relating to other issues identified in this study such as communication skills and inter-professional working.

- In Birmingham medical school (GMC, 2011 p13) medical students are prepared for placement by provision of a 'Hospital Preparation Course' which complements existing early placements in community-based medicine and helps students to adjust to hospital-based learning. It provides familiarity with the hospital where they will spend semester one and helps them make links between prior and future learning. A handbook, self-directed learning activities and reflective tasks are provided. Medical school sessions are also provided highlight the inter-professional context of hospital medicine. Such an approach could be adopted for other medical students across different medical schools to ensure that more support and preparedness of students for placements takes place.
- For meaningful change, specific targeted inter- professional education (IPE) programmes around effective communication strategies are highly recommended to continue to be offered that commence at the undergraduate level and continue into practice. It is recognised organising these IPE's are testing but perhaps necessary for positive change. Eich-Krohms et al (2016) discuss a German' inter-professional communication and nursing course that reflects medical students' experiences from a nursing. This approach shows how important it is to raise medical students' awareness about this topic and demonstrated a positive outcome in terms of that learning from each other to support inter-professional communication better than emphasizing hierarchies. The aim would be to develop a similar a course that could be taken together by nursing and medical students as part of the core curriculum for both groups.
- Increased involvement of individual 'mentors and educators could improve orientation and optimise students' learning experiences. They could help medical students be aware of the informal learning interactions they may be involved in and help them take advantage of these,
- Nurses should be informed about their role as an educator and informal learning interactions with medical students and the importance of these. They could be

prepared for this currently 'taken for granted and not acknowledged by all role' as part of nurse training. Student nurses could be formally taught about this role and for experienced nurses CPD activities could be offered to help develop skills in ensuring informal learning experiences are positive for both them and medical students. A teaching session should be developed and allocated within the formal curriculum and other informal learning interventions such as on online video, social media postings and information available for student nurses to access.

#### **7.4.2.3 Policy**

The context, within which healthcare systems and education systems operate, is framed by health policies. Clancy et al (2012 p343) identify that 'research does and should influence policy' Health Education England works across England to deliver high quality education and training for a better health and healthcare workforce. The General medical council (GMC) and the NMC are two key professional bodies. They have responsibility for setting the standards for undergraduate and postgraduate medical and nurse education, and by monitoring training environments. They do not set national policy but can influence it. I have been unable to find any policy related information that identifies or acknowledges informal learning issues within general medical education. However, in the Future of Medical Education in Canada Medical Doctor (FMEC MD) Report focuses on undergraduate medical education (UGME) with one of its key recommendations relating to addressing the 'Hidden Curriculum' the report states that the hidden curriculum is a 'set of influences that function at the level of organizational structure and culture,' affecting the nature of learning, professional interactions, and clinical practice. Faculties of Medicine must therefore ensure that the hidden curriculum is regularly identified and addressed by students, educators, and faculty throughout all stages of learning (Association of Faculties of Medicine of Canada, 2010 p 5). This reflects a number of key areas that this study relates to. It would be beneficial if in the UK these areas

were also highlighted as important and relevant in any future policy statements concerning general medical education.

Just as health services worldwide are under ever-greater pressure, so there is ever-greater potential demand on what professionals need to know. The rate of change in health systems is accelerating, driven by diverse factors, including rapidly advancing technology, changing societal attitudes and demographics of disease. While a great part of learning is experiential, space is at a premium in all formal curricula. It is always difficult to argue the case for adding new learning requirements to medical school curricula and so recognition of informal learning as part of a medical student's overall education will be important. As above this needs incorporating into the thinking and information relating to relevant policy.

As Vapiro et al (2011) identified clinically based informal learning is consistently celebrated. Teunissen et al (2007) acknowledges the pivotal functions of informal learning. Although it is not surprising that informal inter professional education plays a lesser role than informal intra professional education in GME (Vapiro et al 2011), these findings suggest that the role of informal inter- professional interactions and learning e between nurses and medical students is worthy of support. Echoing the calls of Vapiro et al (2011) I suggest that medical education should recognise and capitalise on the contributions of informal learning interactions, whether it occurs intra or inter professionally.

Recommendations for action:

- Policy makers and professional bodies should be informed in order to be able to make clear statements about the importance on informal learning as a key part of general medical education. For example, in the GMC's revised document 'outcomes for graduates' (2018) it would have been helpful to have included

reference to informal learning as part of the section identifying that medical students are responsible for their own learning on page five.

- Medical schools should build on existing inter- professional collaborative activities. This is supported by the GMC which states ‘newly qualified doctors must learn and work effectively within a multi-professional and multi-disciplinary team and across multiple care settings’ must be able to ‘demonstrate working collaboratively with other health and care professionals and organisations when working with patients (GMC, 2018 p 12).
- Nursing and medical professional bodies, The GMC and RCN should liaise and work more collaboratively to help drive this agenda forward within both professions.

## **7.5 Concluding Remarks**

In undertaking this research, my goal was to understand the informal learning interactions taking place between nurses and medical students in the workplace. I recognised that there was a lack of research specifically on this subject in UK settings, and on the wider potential of informal learning interactions in medical education. I feel that the study participants benefitted from being able to share their experiences and perceptions with me and I also benefitted from furthering my understanding of qualitative research methods.

A persistent finding of this study is that informal learning interactions between nurses and medical students are acknowledged and recognised by the participants and are a key part of the general education of medical students albeit often hidden. Informal learning interactions are complex and constantly changing. The product of this study is the presented conceptual model of the characteristics and influences of informal learning interactions. By increasing understanding of these informal learning interactions it's

hoped that medical students, nurses and relevant others will recognise the importance of “learning to learn”. An important skill to help support medical students training as t doctors of the future.

The study findings will be fed back to the nurses, medical students and other staff working on the wards that were the setting for the study, the medical school and the local NHS trust. They will also be disseminated widely in order to have an impact on policy and practice. They will also be shared across the academic community with the aim of informing future research. By adopting the ethnographic social constructionist perspective advocated in this study, it is hoped that researchers, practitioners and policy-makers will be better able to meet the needs of medical students in their general medical education.

This study has contributed to advancing knowledge related to the informal learning interactions between nurses and medical students. The research strategy utilised, and its design has been defended and the conduct of the research has been reported in detail. Throughout the study the collection, analysis, and interpretation of data has been rigorous. Finally, plausible arguments about the significance and validity of the findings and the claims of the study have been offered and their relevance detailed. My contribution in this field of study is to add new knowledge on how informal learning interactions are recognised and characterised and to understand the nature and influences upon these interactions. I hope that this will lead to the future development of this area of study in the future.

## APPENDICES

### Appendix 1: Underlying assumptions

<b>My underlying assumptions</b>	<b>Where is the evidence?</b>
Final year medical students work and interact with nurses	literature and professional experience
Informal learning may result from interactions between nurses and medical students	literature and professional experience
Medical students understand how a hospital ward functions and the role of the nurse	literature and professional experience
Formal training recognises the importance of informal learning for medical students	literature

Appendix 2: Excerpt from Reflexive Diary

7th Jan A  
Hospital Teaching Fellow Staff Room

- Met with T.A. Hosp. Manager  
Filled in Honorary Contract  
(Need to check with R.C. about DBS at Northumbria)
- Went to Hosp library used computer & looked at nurses magazines journals for any informal learning -
- History of Informal learning - looked up \*Events were useful as base layer\*
- Spoke to 2 Teaching fellows -  
Nurses good at emotional side - paper with patients - calming down patients "Empathy"  
"doctors no less surprised if make a mistake but nurses are afraid of mistakes more likely to be told off!  
Fear Factor.
- Introduced to ~~XXXXXX~~ <sup>consultant</sup> ~~XXXXXX~~ <sup>about wards obs</sup> ~~XXXXXX~~  
Practicalities of ward discussion  
- need to - e-mail him
- Read about learning - becoming a full member LAM + Winger 1997.5  
need to type up as way to go.  
Spoke to Nurse Practitioner SH on way out <sup>good</sup> <sub>cont</sub>

### **Appendix 3: Critical Review model for literature review.**

**Title:**

**Date reviewed:**

**Citation:**

Why am I reading this?

What are the authors trying to do in writing this?

What are the authors saying that is relevant to what I want to find out?

How convincing is what the authors are saying?

How can I use this information?

#### Appendix 4: Gantt chart for project

	Sep -17	Oct -17	Nov -17	Dec -17	Jan -18	Feb -18	Mar -18	Apr -18	May -18	Jun -18	Jul -18	Aug -18	Sep -18	Oct -18
<b>Year 3</b>														
Maintaining contacts /networks	■	■	■	■	■	■	■	■	■	■	■	■		
Data analysis	■	■	■	■										
Supervision meetings continue	■	■	■	■	■	■	■	■	■	■	■	■		
Writing up draft thesis	■	■	■	■	■	■	■	■						
Draft whole thesis complete							■							
Correction and amendments	■	■	■	■	■	■	■	■	■	■	■	■		
Submitting thesis												■		
Viva													■	■
Draft publications developed	■	■	■	■	■	■	■	■	■	■	■	■		

## Appendix 5: Interview Schedules

### Interview Topic Guide for medical students

*Introduce myself what the research is about i.e. the informal learning by medical students from interactions with nurses in the ward environment, Informal learning meaning any learning not taking place in a formal teaching programme.*

#### 1. Their experience of education and learning on the ward from nurses

Do you recognise the value of workplace learning that takes place in the ward environment whilst on placement? - If yes why? If no, why not?

Is your experience of learning whilst on placement - positive or negative?

How important is informal learning from nurses to you?

Is there other staff on the ward that you feel provides you with informal learning opportunities? Who and what sorts of things do you learn?

#### 2. Role as a learner

Do you think others recognise your informal learning whilst on the ward? Could be peers/ other doctors their tutors?

What do you think are the main areas of learning that you experience informally from nurses?

Do you think it is important that there is a wider recognition of this informal learning within your overall medical school training? If yes, why? if not why not?

Do you think medical students know about the potential educational role of the nurse before they go on placement? If yes how are they made aware of this? e.g. Does the medical school make students aware the educational role?

If not, would it have been helpful to have been told about this before placements? Why

Do you think nurses could provide more informal education for medical students whilst on the ward?

#### 3. Examples of educational activities/interventions received from nurses

Please give me some examples of activities/ interventions where you experienced informal learning? E.g. how to use a piece of equipment/ where to find information/ etc.

Also examples of things you have learnt in this way?

Do nurses talk to medical students in a certain way that help their learning?

#### 4. Outcomes of workplace learning encountered/ undertaken

What has worked well to help you learn from nurses on the ward? Is it their personality / the relationship you have/ how knowledgeable they are / their communication skills etc.

What is your evidence of learning? e.g. you know where a piece of equipment is now or understand a procedure more?

Has the informal learning you have experienced helped with any of the following issues?

Socialisation/Relationships/Knowledge /Skills development

*Thank you very much for your help! Offer to send copy of results if they'd like them.*

## **2. Interview Topic Guide for nurses**

*Introduce myself what the research is about i.e. the informal learning by medical students from interactions with nurses in the ward environment, Informal learning meaning any learning not taking place in a formal teaching programme.*

1. Do you think nurses have a role in educating medical students when they are on placement on the ward?
2. Do you feel you carry out this role?
3. If yes - What types of educational mechanisms do you use?/ eg demonstrating, showing where things are located , just talking etc?
4. If no, why not and do you think you should?
5. How important do you think your interaction with medical students is important to the learning of medical students?
6. What works best when you talk to medical students?
7. Do you think they appreciate the educational role of the nurse?
8. What do you think are the main issues you educate medical students about? Please give me\_give me some examples? E.g. how to use a piece of equipment/ where to find information/ etc.
9. Do you think there should be a wider recognition of this educational role of nurses by medical students?
10. Do you think medical students know about the potential educational role of the nurse before they go on placement?  
If not Do you think they should?
11. Do you think nurses could provide more informal education for medical students whilst on the ward?  
If yes what would help this? E.g. recognition of the role? Resources? Time?

12. Is there other staff on the ward that you feel you feel nurses also educate??  
Who and what sorts of things are they educated about?
13. Do you think others recognise your educational role as a nurse on a hospital ward? Who and how?
14. Do you think this role is valued?
15. Was this informal education role identified in your training? If yes what was discussed? if no do you think it should be – what would be helpful to know about e.g. to have the role identified/skills to help/ anything else?
16. Do you think informal learning helps medical students with any of the following issues?  
Socialisation/Relationships/Knowledge /Skills development

*Thank you very much for your help! Offer to send copy of results if they'd like them.*

## Information sheet

# Developing an understanding of informal learning between nurses and final year medical students in the workplace.

## Participant Information Sheet Observational sessions and Interviews

You are being invited to take part in this research study. Before you decide it is important for you to read this leaflet, so you understand why the study is being carried out and what it will involve.

Reading this leaflet, discussing it with others or asking any questions you might have will help you decide whether or not you would like to take part.

### What is the Purpose of the Study?

Nurses work closely with medical staff in all aspects of health care delivery and have an important role in teaching final year medical students in the clinical setting as a part of their contribution to the work of the health care team. However, there seems to be little recognition that non-formal teaching of medical students in the workplace is an accepted function of what nurses do on a day to day basis. The aim of this research is to develop an understanding of informal learning that occurs during everyday interactions between nurses and medical students in the workplace within a general acute hospital in the North East of England. It will try to develop an understanding of the educational mechanisms and activities used in these interactions as well as exploring the perceived value of these interactions for both the educators and the learners. It is hoped that this will lead to a greater understanding of the importance of this informal learning and recognition of this role for nurses. It is also hoped that this could help to develop a culture of mutual support and learning within the working environment.

### **Why have I been invited?**

As you are a nurse or final year medical student on the ward chosen as the setting for this research you have been asked to participate in this study. This is so that your activities in relation to informal and non- formal learning and education between nurses and final year medical students can be observed and to find out what you think about and your experiences of either educating or learning through informal processes in the workplace.

### **Do I have to take part?**

It is completely up to you to decide whether or not to take part in this research. If you decide to take part, you are still free to drop out at any time and without giving a reason. A decision to stop at any time, or a decision not to take part, will not affect

### **What will happen if I take part?**

The research has two main activities that you will be asked to participate in.

Firstly, you will be asked to participate in observation sessions. There will be a total of 15 observational sessions spread over a period of months that will take place to accommodate different shifts and staff groups. Each observation session will last approximately 2 -5 hours. These setting will be in your workplace. You may be involved in observation where the researcher will shadow you on a on a one to one basis or as part of wider observation within the whole ward from the nurse's station or other relevant locations. The observations will watch routine work and routinized actions and the observer will be able to see education mechanisms and activities used by nurses in the interaction. The observations are not judging clinical or work practice and are taking place with the understanding that the researcher will remove themselves from the area if a member of staff asks them to leave. The researcher will not observe in a shadowing position if the patient is going to be embarrassed by a procedure or a doctor or nurse asks them to leave. Respect and dignity are key at all times. The data collected at the observation sessions will be recorded as hard copy field notes. These notes will be kept in locked storage that will only be accessible to the researcher. The field notes will be analysed only by the researcher who will use a content analysis approach which involves combining the text (notes) into a series of fragments which are then regrouped under a set of thematic headings.

Secondly you may be asked to take part in one to one semi structured interview. The interviews will be tape-recorded (with your permission) and will last for about for 30- 45 minutes. During the interview you will be asked to describe your experiences relating to either educating or learning through informal and non-formal processes. The interviews will take place in a mutually agreed venue where you feel comfortable talking about key issues e.g. a room in the education centre in the hospital.

If you do not want to take part in either the observations or the interview or both then you need to complete the 'opt out' reply slip and return this to the researcher in person at the briefing session or via e mail.

If you are happy to take part, you will be asked to attend a briefing session two weeks before the research will actually begin. This session will be held in xxxxxxxx General Hospital. At this session the researcher will explain about the study emphasising that there will be no judging of clinical practice and that people have the option of participating or not in the research and will obtain consent for you to take part by asking you to complete a consent form. You will be asked to sign two consent forms; one of these will be for the researchers and the other will be for you to keep.

As it is likely that not all staff will be able to attend the briefing meeting then copies of the information sheet, opt out form and consent form will be available on the ward for you to read, or alternatively you will be contacted by e mail and sent copies of this information sheet, opt out form and a consent form. Following on from the observations semi structured interviews will take place with a sample of nurses and medical students observed on the ward. The sample for these interviews will be recruited by the researcher at the observation sessions or by e mail.

After you have completed the study the investigator will give you a debrief sheet explaining the nature of the research, how you can find out about the results, and how you can withdraw your data if you wish.

### **What are the possible disadvantages of taking part?**

It is not envisaged that there will be any risk, or distress arising from your participation in the study. You will be asked to give up some of your time to take part in an interview. However, you are able to withdraw from the research at any point without giving a reason. Your confidentiality at all times will be respected and wishes adhered to.

### **What are the possible benefits of taking part?**

By taking part in the study you will be helping to generate a greater understanding of informal education and learning between nurses and medical students. You will help the researcher to understand the factors which enhance or hinder individual or group learning in the workplace which will help to develop a culture of mutual support and learning. The importance of comprehending what is learned purely because people work together should not be underestimated.

### **Will my taking part in this study be kept confidential and anonymous?**

Yes. Your name will not be written on any of the data collected; the written information you are included on will have an ID number, not your name. Your name will not be written on the recorded interviews, or on the typed-up versions of your discussions from the interview, and your name will not appear in any reports or documents resulting from this study. The consent form you have signed will be stored separately from your other data. The data collected from you in this study will be confidential. The only exception to this confidentiality is if the researcher feels that you or others may be harmed if information is not shared.

### **How will my data be stored?**

All paper data, including field notes from the observations and the typed-up transcripts from your interview and your consent forms will be kept in locked storage. All electronic data; including the recordings from your interview, will be stored on the University U drive, which is password protected. All data will be stored in accordance with University guidelines and the Data Protection Act (1998).

### **What will happen to the results of the study?**

The findings will be written up as a PhD thesis. The general findings might be reported in a scientific journal or presented at a research conference, however the data will be anonymized and you or the data you have provided will not be personally identifiable, unless we have asked for your specific consent for this beforehand. The findings may also be shared with other organizations/institutions that have been involved with the study. We can provide you with a summary of the findings from the study if you email the researcher at the address listed below.

The Study is funded by Northumbria University and xxxxxxxxHealthcare Foundation Trust

Before this research could begin, permissions were obtained from xxxxxxxx Healthcare Foundation Trust and Northumbria University.

The Faculty of Health and Life Sciences Research Ethics Committee at Northumbria University and the NHS Health research authority have reviewed the study in order to safeguard your interests and have granted approval to conduct the study.

### **Contact for further information:**

**Researcher email: [jon.geddes@northumbria.ac.uk](mailto:jon.geddes@northumbria.ac.uk)  
Supervisor email; [xxxxxxx@northumbria.ac.uk](mailto:xxxxxxx@northumbria.ac.uk)**

<b>INFORMED CONSENT FORM</b>		
<b>Interview Participants</b>		
Project Title: Developing an understanding of informal learning between nurses and final year medical students in the workplace.		
Principal Investigator: Jonathan Geddes		
<i>Please tick or initial where applicable</i>		
	Yes	No
I have carefully read and understood the Participant Information Sheet.	<input type="checkbox"/>	<input type="checkbox"/>
I have had an opportunity to ask questions and discuss this study and I have received satisfactory answers.	<input type="checkbox"/>	<input type="checkbox"/>
I understand I am free to withdraw from the study at any time, without having to give a reason for withdrawing, and without prejudice.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in this study.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to the interview being audio recorded.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my personal details will be anonymised and that real names will not be used to maintain confidentiality.	<input type="checkbox"/>	<input type="checkbox"/>
I understand my data may be used when disseminating the research.	<input type="checkbox"/>	<input type="checkbox"/>
I understand my data will be stored in password protected files.	<input type="checkbox"/>	<input type="checkbox"/>

Signature of participant.....	Date.....
(NAME IN BLOCK LETTERS).....	
Signature of researcher.....	Date.....
(NAME IN BLOCK LETTERS).....JONATHAN GEDDES.....	

**INFORMED CONSENT FORM  
OBSERVATIONL SESSIONS**

Project Title: Developing an understanding of informal and non-formal learning between nurses and final year medical students in the workplace.

Principal Investigator: Mr. Jonathan Geddes

	<i>please tick or initial where applicable</i>	Yes	No
I have carefully read and understood the Participant Information Sheet.		<input type="checkbox"/>	<input type="checkbox"/>
I have had an opportunity to ask questions and discuss this study and I have received satisfactory answers.		<input type="checkbox"/>	<input type="checkbox"/>
I understand I am free to withdraw from the study at any time, without having to give a reason for withdrawing, and without prejudice.		<input type="checkbox"/>	<input type="checkbox"/>
I understand that my personal details will be anonymised and that real names will not be used to maintain confidentiality.		<input type="checkbox"/>	<input type="checkbox"/>
I understand my data may be used when disseminating the research.		<input type="checkbox"/>	<input type="checkbox"/>
I understand my data will be stored in password protected files.		<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in this study.		<input type="checkbox"/>	<input type="checkbox"/>

Signature of participant.....	Date.....
(NAME IN BLOCK LETTERS).....	
Signature of Parent / Guardian in the case of a minor .....	
Signature of researcher.....	Date.....
(NAME IN BLOCK LETTERS).....	

Participant code:

## **PARTICIPANT DEBRIEF**

**Name of Researcher: Mr Jon Geddes**

**Name of Supervisor (if relevant): Dr Alison Steven**

**Project Title: Developing an understanding of informal and non-formal learning between nurses, final year medical students and junior doctors in the workplace.**

### **1. What was the purpose of the project?**

Nurses work closely with medical staff in all aspects of health care delivery and have an important role in teaching final year medical students and junior doctors in the clinical setting as a part of their contribution to the work of the health care team. However, there seems to be little recognition that informal teaching of junior doctors in the workplace is an accepted function of what nurses do on a day to day basis. The aim of this research was to develop an understanding of informal formal learning that occurred during everyday interactions between nurses, and final year in the workplace within a general acute hospital in the North East of England. This study was a post graduate research project leading that will lead to a PHD qualification.

It tried to develop an understanding of the educational mechanisms and activities used in these daily interactions as well as exploring the perceived value of these interactions for both the educators (nurses) and the learners (medical students and junior doctors). It is hoped that this will lead to a greater understanding of the importance of this informal learning and recognition of this role for nurses. It is also hoped that this could help to develop a culture of mutual support and learning within the working environment.

### **2. How will I find out about the results?**

It is hoped that the study will be completed within 3 years. A final PhD thesis will be produced. Alongside this a short summary of the findings will be produced. For those who participated in the research the short summary will be made available. This will be e mailed to managers in the Trust where the research has taken place and the researcher will ask for a copy to be pinned up in an appropriate place on the ward where the studies observations took place for all to see. Any participants who indicated that they would like to see a copy of the findings will have these emailed to them. It is hoped that the findings and results will be written up in a publication that will appear in a relevant peer reviewed journal so that the findings are available to a wider audience.

**3. If I change my mind and wish to withdraw the information I have provided, how do I do this?**

If you wish to withdraw your data, then email the investigator named in the information sheet within 1 month of taking part and given them the code number that was allocated to you (this can be found on your debrief sheet). After this time, it might not be possible to withdraw your data as it could already have been analysed.

The data collected in this study may also be published in scientific journals or presented at conferences. Information and data gathered during this research study will only be available to the research team identified in the information sheet. Should the research be presented or published in any form, all data will be anonymous (i.e. your personal information or data will not be identifiable).

All information and data gathered during this research will be stored in line with the Data Protection Act and will be destroyed 12 months following the conclusion of the study. If the research is published in a scientific journal it may be kept for longer before being destroyed. During that time the data may be used by members of the research team only for purposes appropriate to the research question, but at no point will your personal information or data be revealed. Insurance companies and employers will not be given any individual's personal information, nor any data provided by them, and nor will we allow access to the police, security services, social services, relatives or lawyers, unless forced to do so by the courts.

If you wish to receive feedback about the findings of this research study, then please contact the researcher at [jon.geddes@northumbria.ac.uk](mailto:jon.geddes@northumbria.ac.uk)

This study and its protocol have received full ethical approval from Faculty of Health and Life Sciences Research Ethics Committee. If you require confirmation of this, or if you have any concerns or worries concerning this research, or if you wish to register a complaint, please contact the Chair of this Committee (Dr Nick Neave: [nick.neave@northumbria.ac.uk](mailto:nick.neave@northumbria.ac.uk)), stating the title of the research project and the name of the researcher: Developing an understanding of informal and non-formal learning between nurses, final year medical students and junior doctors in the workplace.

Mr Jon Geddes

## Appendix 7: Recruitment e mail

Dear Colleague

### **A PhD Research project: Developing an understanding of informal learning between nurses and final year medical students in the workplace.**

I am a student at Northumbria University carrying out a research project taking place as part of a Trust sponsored PhD study. The aim of this research is to develop an understanding of informal learning that occurs during everyday interactions between nurses and final year medical students in the workplace. It will try to develop an understanding of the educational mechanisms and activities used in these interactions as well as exploring the perceived value of these interactions for both the educators and the learners. It is hoped that this will lead to a greater understanding of the importance of this informal learning and recognition of this role for nurses. It is also hoped that this could help to develop a culture of mutual support and learning within the working environment.

Nurses work closely with medical staff in all aspects of health care on the ward and have an important role in teaching final year medical students. For example, showing someone how to carry out a procedure or telling them how to fill a form in or discussing a patient's medication. The aim of this research is to develop an understanding of how nurses educate final year medical students and the learning that occurs during everyday workplace exchanges.

The Trust fully supports the study. As you are a nurse or final year medical student working on the ward chosen as the setting for this research you are being asked to participate in this study. It is completely up to you to decide whether or not to take part in this research. I hope you will agree to participate.

The study has two main data collection methods. The first of these involves observational sessions of staff working on the ward. The observations will include shadowing staff and recording any educational/ learning that takes place and the mechanisms used. The second will involve semi structured interviews with staff. An information sheet is attached to provide more information about the project, along with a consent form and opt out slip.

You are invited to meet me on the ward in the day room on XXX (date and time) where I will be available to give you further details and clarification about information about the proposed research.

If you don't wish to participate in the study you should complete the attached opt out slip and return to me in person when I am on the ward or by e mail to [jon.geddes@northumbria.ac.uk](mailto:jon.geddes@northumbria.ac.uk)

I do hope you will agree to participate in the study and I look forward to meeting you on the ward.

Yours sincerely

*Jon Geddes*

Post Graduate research Student

### **Opt Out slip**

I do not wish to participate in the research study: Developing an understanding of informal formal learning between nurses, final year medical students and junior doctors in the workplace.

Name: ..... (please print)

Please return this reply slip to the researcher Mr Jon Geddes at Northumbria University in person at the briefing session or at the observation sessions or by e mail xxxxxxxxxxxxxxxxxxxx who will ensure you will not be involved in any of the studies data collection methods.

## **Appendix 8: Information sheet for patients**

### **Information leaflet for Patients on the Ward**

#### **A research project: Developing an understanding of informal and non-formal learning between nurses and final year medical students in the workplace.**

A research project is currently taking place on the ward in which you are a patient. The research does not involve patients on the ward and you will not be asked to take part in the study. However, it is important that you are aware that this research is taking place as it does involve staff working on the ward involved in your care, the nurses and final year medical students. They will be observed carrying out their day to day work activities which obviously will relate to patients in their care.

Nurses work closely with medical staff in all aspects of health care on the ward and have an important role in teaching final year medical students. For example, showing someone how to carry out a procedure or telling them how to fill a form in or discussing a patient's medication.

The aim of this research is to develop an understanding of how nurses educate final year medical students and the learning that occurs during everyday workplace exchanges.

If you would like to know more about the project, one of the nurses can arrange for you to speak to the researcher Mr Jon Geddes. Please ask.

If you do not want the researcher to observe staff when they are carrying out any activities relating to your care you are free to ask the researcher to leave and this will not affect your care in anyway.

We thank you for your consideration at the time that this study is taking place.

Mr Jon Geddes

Postgraduate Researcher.

Please Note a research study is being carried out in this location today.

**This does not include patients**

It is exploring the learning taking place between Nurses and final year medical students in their day to day learning interactions.

It is not looking at any clinical procedures.

If you want to know more, please ask your nurse or speak to the researcher

Mr Jon Geddes

## Appendix 9: University Ethics approval letter



*Professor Dianne Ford*

**This matter is being dealt with by:**

Professor Pauline Pearson  
Ethics Lead  
Department of Healthcare  
Faculty of Health and Life Sciences  
Coach Lane Campus  
Newcastle upon Tyne  
NE7 7XA  
Tel: 0191 2156472  
Email: [pauline.pearson@northumbria.ac.uk](mailto:pauline.pearson@northumbria.ac.uk)

20<sup>th</sup> September 2016

Dear Jon

**Faculty of Health and Life Sciences Research Ethics Review DHCGeddes270616**  
**Title: Developing an understanding of informal and non-formal learning interactions between nurses and final year medical students and junior doctors in the workplace.**

Apologies for the delay in providing this letter due to various peoples' annual leave. Following independent peer review of the above proposal, I am pleased to inform you that University approval has been granted on the basis of this proposal and subject to compliance with the University policies on ethics and consent and any other policies applicable to your individual research. You should also have recent Disclosure & Barring Service (DBS) and occupational health clearance if your research involves working with children and/or vulnerable adults.

In general this was a well-considered application, but there were some areas where minor amendments might be helpful – particularly for IRAS.

You may wish to include the following on your consent forms:

- confirmation that the participant understands confidentiality issues.
- confirmation that the participant understands their data may be used when disseminating the research.
- confirmation that the participant understands how their data will be stored.
- two columns of boxes for 'yes' and 'no' responses.

There are a number of grammatical and formatting errors throughout, but particularly in the participant information sheet. Please proof read prior to sending this information to participants.

The University's Policies and Procedures are available from the following web link:

<http://www.northumbria.ac.uk/researchandconsultancy/sa/ethgov/policies/?view=Standard>

You may now also proceed with your application (if applicable) to:

- NHS R&D organisations for approval. Please check with the NHS Trust whether you require a Research Passport, Letter(s) of Access or Honorary contract(s).
- Research Ethics Committee (REC). [They will require a copy of this letter plus the ethics panel comments and your response to those comments]. **Please read and follow the attached directions from Step 2 before you submit your application to IRAS.** If your research is subject to external REC approval, a 'favourable opinion' must be obtained prior to commencing your research. You must notify the University of the date of that favourable opinion.

You must not commence your research until you have obtained all necessary external approvals.

Both the University and NRES strongly advise that the supervisor accompany the student when attending an external REC.

All researchers must also notify this office of the following:

- Commencement of the study;
- Actual completion date of the study;
- Any significant changes to the study design;
- Any incidents which have an adverse effect on participants, researchers or study outcomes;
- Any suspension or abandonment of the study;
- All funding, awards and grants pertaining to this study, whether commercial or non-commercial;
- All publications and/or conference presentations of the findings of the study.

We wish you well in your research endeavours.

Yours sincerely



Professor Pauline Pearson  
Ethics Lead, Department of Healthcare

## Appendix 10: IRAS queries and responses

Sent: 26 January 2017 16:01

To: Jon Geddes <jon.geddes@northumbria.ac.uk>;

Subject: IRAS 198876. Changes and clarifications required

Dear Mr Geddes

I have now had an opportunity to review the study below and will need the following clarifications/changes to documentation before being able to give HRA approval.

- 1) You provided a poster with the application. However, the IRAS form (A28) states that posters/advertisements will not be used. Please clarify if the poster will be used. You should note that the poster does not actually contain any contact details for you.
- 2) The IRAS form states that "Trust staff" will disseminate information to potential participants for the observational sessions. Please clarify who this will be. If it not yourself, how will you know which staff to email 2 weeks later? How will you record who you have initially approached? How will the integrity of this information be kept?
- 3) Please clarify the method for recording the verbal consent, where this is taken instead of written consent.
- 4) The information sheet says, "If you do not want to take part in either the observations or the interview then you need to complete the 'opt out' reply slip and return this to the researcher in person at the briefing session or via e mail." However, this does not give a potential participant the option to only take part in the observations. Please clarify the use of the opt-out slip, and whether this is a mistake in the wording of the information sheet.
- 5) Please add the IRAS reference – 198876 – to the information sheet and consent form.

- 6) Please add a version number and date to the protocol.
- 7) You need to add a statement to the information sheet about collecting field notes during the observation sessions, and how these will be stored and analysed.
- 8) The applications suggest that digitally-recorded interview data will be put on a laptop or USB device before being transferred to a space on the University network. How can the integrity/security of the data collected be ensured if using a laptop computer or USB device before transferring the data to University space?

Thank you for your time, and I look forward to receiving clarifications regarding these points.

Best wishes.

Xxxxxxxx/| Assessor

## Health Research Authority

IRAS Integrated Research Application System version 5.9.1.23/07/2018. IRAS Dataset version 3.5.  
 The Health Research Authority (HRA) acknowledges the Integrated Research Application System (IRAS) partners in developing IRAS content. © Health Research Authority 2018.  
 Copyright and other intellectual property rights in the content of the Integrated Research Application System (IRAS) belong to the HRA and all rights are reserved. [Terms & Conditions](#) [Privacy Policy](#)

Project Title	IRAS Project ID	Created On	Status	Last Opened
(duplicate) Informal and non-formal learning in a hospital ward	211446	27/06/2016	Active	27/06/2016
Informal and non-formal learning by medical students in the workplace.	198876	28/12/2015	Active	05/11/2018

## IRAS COMMENTS AND RESPONSES

- 1) You provided a poster with the application. However, the IRAS form (A28) states that posters/advertisements will not be used. Please clarify if the poster will be used. You should note that the poster does not actually contain any contact details for you. I can confirm that the poster will not be used for recruitment.

2) The IRAS form states that “Trust staff” will disseminate information to potential participants for the observational sessions. Please clarify who this will be. If it not yourself, how will you know which staff to email 2 weeks later? How will you record who you have initially approached? How will the integrity of this information be kept?

It will be the ward manager(s) that will disseminate to all relevant staff on the wards concerned. The ward manager is someone independent of the study which will help to preserve the anonymity of the participants. The ward manager will keep a record of who the data has been given to. This data will be held on a password protected computer only accessible by the ward manager. The ward manager will also send the follow up email from the researcher two weeks later.

3) Please clarify the method for recording the verbal consent, where this is taken instead of written consent.

Verbal consent for the observational sessions will be recorded as part of the field notes for that observational session. If verbal consent is obtained at interview this will be recorded by the digital recording of the interview and written on the notes taken at the interview.

4) The information sheet says, “If you do not want to take part in either the observations or the interview then you need to complete the ‘opt out’ reply slip and return this to the researcher in person at the briefing session or via e mail.” However, this does not give a potential participant the option to only take part in the observations. Please clarify the use of the opt-out slip, and whether this is a mistake in the wording of the information sheet.

This was a mistake in the wording of the information sheet. I have amended the information sheet attached which now reflects that participants can opt out of either the observational session, the interviews or both. It now reads

“If you do not want to take part in either the observations or the interview or both then you need to complete the ‘opt out’ reply slip and return this to the researcher in person at the briefing session or via e mail.”

5) Please add the IRAS reference xxxxxx to the information sheet and consent form. Please find attached the amended forms including the reference number.

6) Please add a version number and date to the protocol. Please find attached amended document including version number and date.

7) You need to add a statement to the information sheet about collecting field notes during the observation sessions, and how these will be stored and analysed. Please find a copy of the amended information sheet outlining collection and storage of field notes.

8) The applications suggests that digitally-recorded interview data will be put on a laptop or USB device before being transferred to a space on the University network. How can the integrity/security of the data collected be ensured if using a laptop computer or USB device before transferring the data to University space?

All the data collected will be safely stored on the password protected university provided student account before any transcription/ analysis begins. This will be to ensure that all the raw data with all the information that might be used to identify individuals from the study can only be accessed by the researcher through the university account that is unique to only him. The computer that will be used on the day to day data storage during the field work will be password protected and all the files will be saved under password secured files. These files will then be transferred to the researcher’s university online account as soon as possible and deleted from the computer that is used on the field. The data will be stored under password protected files in the university online account for as long as is necessary and in accordance with data storage regulations for PHD programmes. If a USB device is deemed necessary to use for transportation and storage of data, this will be encrypted. The fieldwork laptop computer and any USB device will be kept on a locked case during time in the field when not being used and during transportation.

## **Appendix 11: Full transcript medical student interview example**

### MS2. Transcription

#### Their experience of education and learning on the ward from nurses

##### Question

**Do you recognise the value of workplace learning that takes place in the ward environment whilst on placement? If yes, why? If no, why not?**

Medical Student

Yes, it's a good way of learning on the job and learning for the job you're going to do. Its good to see people doing the roles you're going to be doing. And how they interact within the teams and putting yourself in that position and seeing yourself as part of the team and obviously, a lot of the team have varied roles. Their priorities are often different from medical priorities and its useful to see all their different roles and it was good that the ward I was on was good for that it had a huge staff and allied professionals'

##### Question

**How important is informal learning from nurses to you?**

Medical student

Definitely useful Learning - how to engage in information gathering from them (Nurses) and nurses are frontline in taking observations, seeing patients and knowing how patients are generally - because there with the patients the whole time. So, its learning the best ways to allow communication about information

(Was there any communication from nurses that you viewed as negative) No I was viewed as part of the medical team They would often say doctor and I would say not there yet but can I help. If its medical information I can either deal with it or pass it on, but I never felt at any time I was denigrated by any of the nursing staff. There was no negative tone of voice nor did they jump in at work or conversation to others that annoyed me. Learning the roles of the nurses also

##### Question

**Was your experience of learning whilst on placement -positive or negative?**

Medical Student

-Definitely positive learning on the job learning in a team.

##### Question

**Is there other staff on the ward that you feel provides you with informal learning opportunities. Who and what sorts of things do you learn?**

Medical Student

Talking to physios and how they rehabilitate patients. Their decisions and how they come to their decisions. How mobile people have to be. And watching them work. How they facilitate a patient's mobility. Or the occupational therapists assessing patients' needs. If we cure a hip fracture and they go home then if the home is not suitable they will only again fall on the hip, so it just complicates the whole issue. So obviously, a team has to work together for it to work and it does. The ward clerk also shows how the ward is set up where the paperwork is filed. The ward clerk will know where all the stationary is and how the ward runs. So, it's an example of how you are expected to behave on a ward- She would come into the office and say your office is so untidy, so we would shift it around. I also learnt things from her answering phones and booking transport. So, that's useful.

**Do you find that you do most of the interactions with the F1?** -Yes, typically I go to the F1 rather than the nurses as they are part of my team. If I have been asked to take a blood sample and I haven't I would go to the F1 for support on that one. **The experienced nurses have tricks and tips that are useful for certain seals.** They do them more often it's only the more difficult ones that cross to the doctors. The easier ones are done by nurses taking bloods and catheters - I've learnt from nurses on bloods and you collect that information.

Question

**Do you think others recognise your informal learning whist on the ward?**

Medical Student

I think so! It's never actually said. The implication that you're there on ward to learn. The nurses are very used to having student nurses, who are learning on the job as well. There's a culture you're here to learn the ropes. I've never had anyone actually mentioning it - Of course your learning while your here its implied. You are in a hospital setting and working in a team is furthering your knowledge. It's just how the hospital environment works your constantly having people coming up to you and you try your best. We did a teaching session for the 3<sup>rd</sup> years before Christmas it all gets past down.

Question

**What do you think are the main areas of learning that you experience informally from the nurses?**

Medical Student

There the ones constantly monitoring the patients. Changes in observations and see how well or ill the patients are. Also, learning what makes nurses worry. If nurses worry, I'll go and see the patient and see what there like - because if they worry about

a patient it's understandable - Because there's Observational charts and they're very strict if they score above certain amounts they have to be seen by a doctor. If a nurse says I want, you to see a patient right now because of this. This is what you've got to do and if they sound worried I was working in A and E and A and E Charge nurses are the calmest you can get as they organise the whole thing and we were having our ATM handover and A and E charge nurse came down from triage and said I need a doctor right now and all doctors went straight away. Nurses know their patients and how they are and if they are worried. And its learning what makes nurses worried I've learnt

Question

**Do you think it is important that there is a wider recognition of this informal learning within your overall medical school training? If yes, why? If not, why not?**

Medical Student

YES, it's something that could be – In formal learning we have to do a lot of feedback forms -Maybe one of the outcomes could be thinking about informal learning what it could be -The role of the log book is the learning role and responsibilities of an F1 doctor working on a single ward. Informal learning could be stressed more explicitly. Definitely not told that nurses may help you or you can get information from nurses. We have hospital visits from year one we could maybe learn how the team works. First visit is social history who they are, how they are, who they live with, and where there from. It could be factored in spending time with the nurses. And **highlighting they have a skill set which could be listened too**. Told to experience the ward and meet the nurses -Always introduce yourself to the sister or charge Nurse. They will know what's going on its good manners and they will know where the doctor is they know how the ward works hopefully be expecting you **Maybe a pre- hospital pack could help**

Question

**Do you think medical students know about the potential educational role of the nurse before they go on placement? If yes, how are they made aware of this? E.g.does the medical school make students aware the educational role?**

Medical Student

More could be done on that one Its always informal that be nice to nurses and they will be nice to you. Equally some medical students I have worked with maybe less appreciative of a nurse's role and they're the ones that have fallen by the wayside it comes to clinical exams' and they come across as not having that/ having experienced that- it shows sadly.

Question

**Do you think nurses could provide more informal education for medical student's whist on the ward?**

Medical student

There quite busy aren't they! I think at an early stage as a medical student. A more official helpfulness could be done but at the later stages for me on this placement has been good being taken as an extension to the medical team and having information passed on is a good way of doing it. A little more help at the beginning how to find things and how the ward works and organisation.

Question

### **Examples of nurses' informal information**

Medical Student

The nurses helped me Because every ward is organised differently given details where information is stored and stuff like that's In ward 20 for example they keep all the drug kardexs` in one big binder which is different from anywhere I have worked before and they were trying a couple of different things with the bedside notes – the red notes which is mainly medical stuff everyone wrote in there what they've done the bedside notes was the observations and other patient relevant information then you had the Kardex -there was 3 different places to look for information and it was good to know especially when I was starting out in that ward where different information which was useful kept. Obviously, the notes which would be like medical handover and all that stuff and the observation bedside chart with the fluid balance and the drugs in all the different places. Knowing where that spread works out was useful initially. I think being pointed in the right direction of the store cupboard and what was needed. A couple of times nurses have helped me look for stuff also a couple of cupboards are locked, and I don't have the key and sometimes the drawers get a bit disordered and they help you look for it.

If you are shown how to use a piece of equipment e.g. blood monitor does the information by the nurses go in or is it done so quick, you think I haven't learnt all of the information given.

A lot of the information given or shown by the nurses its more of a refresher than a totally new skill. Seeing it done at pace is quite useful at how it works. I think if it is potentially a new skill there could be potentially done to fast but at later stages in placement tends to be a refresher at a later stage there tends to be not too much new practical stuff.

Question

### **Do nurses talk to medical students in a certain way that helps their learning?**

Medical student

Most of the time I can't detect a difference of how they speak to me or the F1 -this is good. As the question is - could be - a F1 -This is the situation Can you manage a ward sort of thing? There is nothing in the later end of medical school between how they talk to you or the rest of the team. Which is good! No warmer or friendlier than

anyone else -They have always been friendly to me. If there are any jokes everyone would chip in. There is no difference that I can detect which is good I haven't kept away from anyone due to any negativity. What would be annoying is to be told off in front of patients. But if the charge nurse or sister asks to do something- it has to be done! But I would be no different from any other staff.

Question

**What has worked well to help you learn on the ward?**

Medical Student

I tend to go to a nurse that I may have worked with the day before or that I have remembered their name. All the nurses that I have worked with have communicated well and knowledgeable. Also, if the nurse is free-If a nurse is busy I wouldn't obviously butt in. If its someone that I have introduced myself before or remembered their name-or if its someone I knew would be a preference.

Question

**Can you give evidence of learning?**

Medical student

All wards are set up subtly differently how things are stored. It is a matter of learning how the ward you are working on -works. In terms of using equipment I feel more confident in that. Also, confident more with interacting with the nursing team and yes medical procedures I feel more straight forward now.

Question

**Has the Informal learning encountered on the ward helped you with any of the following issues?**

Socialisation, Relationships, knowledge/and skills development.

Medical Student

Yes, being accepted as part of the team. At the end of my first week there was a ward - I was busy but within the first 2 days we were all going out on the Saturday -Do you want to come? – No but thank you for inviting me. That was nice! Didn't feel like a spare part. The best part of being more useful is not feeling like a spare part. Because you stand around not knowing what to do. I think that's more a feature in the junior years of the medical school. I'm a medical student and I'm standing here to learn. whereas on that placement I'm X and I'm here as a final year medical student I'm here for 5 weeks and I'm going to be useful. I'm their F1 in training.

Question

**Was there any aims or objectives you had to fulfil daily?**

Medical Student

Not on a day to day basis. It was the Consultant Z that did the sign up in my log book  
medical student X has turned up to his assistantship and did .....

No day to day objectives it was the experience as a whole rather than daily objectives  
that was wanted.

## Appendix 12: Poster presented at conferences

**Developing an understanding of informal learning interactions between nurses and final year medical students in the workplace within a medium sized NHS general hospital in the North East of England**  
**Jon Geddes**  
**Dr Alison Steven, Dr Jane Stewart, Dr Belinda Bateman ( Supervisors) Faculty of Health and Life sciences,**

**Introduction and background**  
 There seems to be little recognition that non-formal teaching of medical students in the clinical environment is an accepted function of what nurses do on a day to day basis. Buford et al (2014) support this stating that medical students spend much of their time with nurses, but that there is little research that has considered non-formal learning during that formative contact. They also state that nurses are responsible for much of the medical students orientation into their new role and there is often a pragmatic hierarchy where medical students are happy to defer to the greater experience of nursing staff. Wicks (2008) states that nurses know that the medical students need their help and support and that most students appreciate the value of developing good relationships with the nurses. However, there seems to be little formal recognition within the professions and the literature that non-formal learning by medical students in the clinical environment is influenced by nurses (Imhour et al (2014) p 175) state that the "nursing contributions to medical education in the clinical environment is under researched and poorly understood". This is the foundation on which this research is based.

**Methodology and methods**

**Ethnography**

Fieldwork  
Observations  
N=18 (24 hours)  
shadowing  
medical students  
in the ward  
environment

Semi-structured  
interviews with  
Medical students  
(n=6) and nurses  
(n=6) on the  
wards used in the  
study

Ad hoc  
conversations  
recorded in field  
notes that took  
place in the ward  
and other social  
areas

**Study Aim, objectives and research question**  
 To develop an understanding of the informal and non-formal learning of final year medical students in the workplace during interactions with nurses and the educational mechanisms/activities at play during these interactions. It will try to develop an understanding of the educational mechanisms and activities used in these interactions as well as exploring the perceived value of these interactions for both the educators and the learners.

**Objectives:**

- To develop an understanding of what informal and non-formal potential learning opportunities occur for final year medical students in a hospital ward of a local general hospital.
- To identify what nurses do that can be considered "educational" mechanisms/activities either by direct or subtle means which may influence the informal and non-formal learning of final year medical students.
- To explore the perceived value of these non-formal and informal learning interactions and the perceived learning that takes place from the perspective of both the educator(nurses) and the final year medical students (learners).

**Study Research question:**  
 What are the educational mechanisms/ activities at play during interactions between nurses and final year medical students that influence the informal and non-formal learning of final year medical students in the workplace and what is the perceived value these interactions for both the educator and the learner?

**Data Analysis:** Field notes of observations and transcripts of interviews processed, analysed, contextualised and categorised. An iterative process drawing on the principles of Content and Thematic analysis.

**Initial results and Findings**  
 As the study is ongoing below are initial results and findings but it must be stressed that these will be built upon and changeable as the study and data analysis evolves. Observations highlighted that there are a number and range of different occasions where informal learning by medical students takes place by some interaction with a nurse. The nature of the interactions between students and nurses can involve verbal and non verbal cues to action such as demonstrating a procedure, indicating where a piece of equipment is located and how it is used, the administrative processes and procedures to follow on the ward. Interactions could be quite simple (e.g. making sure a student wears an apron when required) to being quite complex (e.g. clinical procedures such as how to cannulate a patient). All medical students involved in the study indicated that informal learning had been positive in terms of socialisation into the ward as a workplace environment and in relation to their professional growth, relationships (with nurses and other professionals on the ward), knowledge (e.g. administrative procedures and processes to follow and skills development, e.g. how to use equipment) carry out clinical procedures). Medical students acknowledge the importance of the nurse as educators in their informal learning as part of their overall training however it was felt that this does not become apparent until time is spent on the ward. It was felt that it would be helpful to have been told about this informal learning prior to their time in practice. The nurses generally felt that they were key educators of medical students but that generally this was not a recognised role by peers and that there was no acknowledgement of this within their own training.

## REFERENCES

- Aase, I., Aase, K., and Dieckmann, P. (2013). Teaching IPT in medical and nursing education in Norway: A content analysis. *Journal of Interprofessional Care*, 27: 238-245.
- Aase, I., Hansen, B. S., and Aase, K. (2014). Norwegian nursing and medical students' perception of inter-professional teamwork: a qualitative study. *BMC Medical Education*, 14, 170. doi:10.1186/1472-6920-14-170
- Abdallah, B, Irani. J, Sailian. SD, Gebran .VG, Rizk U. (2014) Nursing faculty teaching a module in clinical skills to medical students: a Lebanese experience. *Adv Med Educ Pract.* 5:427-32.
- Ackerly, B., and True, J. (2010). *Doing feminist research in political and social science*. New York, NY: Palgrave Macmillan.
- Adult Learners' Informal Learning Experiences in Formal Education Setting (2018)  
Available at:  
[https://www.researchgate.net/publication/271634867Adult\\_Learners'\\_Informal Learning Experiences in Formal Education Setting](https://www.researchgate.net/publication/271634867Adult_Learners'_Informal_Learning_Experiences_in_Formal_Education_Setting) (Accessed 05.0618).
- Agar, M.H. (1986). *Speaking of Ethnography*. Newbury Park, CA: Sage
- Allport, G. W. (1954). *The nature of prejudice*. Cambridge/Reading, MA: Addison Wesley.
- Alvesson, M. and Sköldbberg, K. (2000) *Reflexive Methodology: New Vistas for Qualitative Research* London: Sage
- Alvsvåg, H. (2008) The nurse's learning through the patient's encounter with death. *Klinisk Sygepleje*, 22, 5–14.
- American Nursing Association Annual Report (2012) Available at  
<https://www.nursingworld.org/~48db48/globalassets/docs/ana/2012-ana-annualreport.pdf> (Accessed 6.5.18)
- Andrew, N., Tolson' D., and Ferguson, D. (2008). Building on Wenger: communities of practice in nursing. *Nurse Education Today*, 28, 246–252.
- Andrews, T. (2012) What is social constructionism? *The Grounded Theory Review*, 11(1) 39- 46.
- Archer, E, van Heerden B, (2017) Undergraduate medical students' attitudes towards patient-centeredness: a longitudinal study, *Medical Education*, 6, (3), 47, doi: <https://doi.org/10.15694/mep.2017.000161>
- Ashton, D.N. (2004). The impact of organisational structure and practices on learning in the workplace. *International Journal of Training Development* 2;8: 43–53.
- Association of Faculties of Medicine of Canada, A collective vision for postgraduate medical education in Canada ( 2010) Available at  
[https://afmc.ca/pdf/fmec/FMEC\\_PG\\_CollectiveVision\\_EN.pdf](https://afmc.ca/pdf/fmec/FMEC_PG_CollectiveVision_EN.pdf) (Accessed on 10.10.18)

- Atkinson, P. Pugsle, L. (2005) Making sense of ethnography and medical education. *Medical Education*. 39:228–234.
- Aull Davies, C. (2008). *Reflexive Ethnography*. London: Routledge.
- Baldwin, M. (2006) Working Together, Learning Together: Co-operative Inquiry in the Development of Complex Practice by Teams of Social Workers, In: Reason, P. and Bradbury, H. (eds.) *Handbook of Action Research*, London: Sage, pp. 221-227.
- Bandura, A. (1977) *Social learning theory*. Prentice Hall. NJ.
- Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *British Medical Journal*, 322(7294), 1115-1117.
- Barnett, K. (2012). Student interns' socially constructed work realities: narrowing the work expectation-reality gap. *Business Communication Quarterly*, 73(3), 271-290.
- Barr, H, Koppel, I., Reeves, S., Hammick, M. and Freeth, D. (2005) *Effective Inter-professional Education: Argument, Assumption and Evidence*. London Blackwell Publishing.
- Barrett, C. and Erin, C. (2003). Cognitive learning theory – Available at <http://suedstudent.syr.edu/~ebarrett/ide621/cognitive.htm> (Accessed 7.8.18)
- Barron, Andrew B.; Heberts, Eileen A.; Cleland, Thomas A.; Fitzpatrick, Courtney L.; Hauber, Mark E.; and Stevens, Jeffrey R., (2015). 'Embracing multiple definitions of learning' Eileen Heberts Publications.59.
- Baxter, P., and Jack, S. (2008). 'Qualitative case study methodology: Study design and implementation for novice researchers' *The Qualitative Report*, 13(4), 544-559.
- Beauchamp TL, Childress JF (1989). *Principles of biomedical ethics*. 3rd Ed. New York, Oxford: Oxford University Press,
- Becker, H.S. and Geer, B. (1984). 'Participant observation: The analysis of qualitative field data.' In R.G. Burgess (Ed.), *Field research: A sourcebook and field manual* (pp.239-250). London: Allen and Unwin.
- Bennett, E. (2012). 'A Four-Part Model of Informal Learning: Extending Schugurensky's Conceptual Model,' *Adult Education Research Conference*
- Berg, B. (2001) *Qualitative Research Methods for the Social Sciences*. 4th edition Needham Heights, MA: Allyn and Bacon.
- Berg, S A. and Cheung S. Y. (2008) 'Factors that influence informal learning in the workplace', *Journal of Workplace Learning*, Vol. 20 Issue: 4, pp.229-244
- Billett, S. (2001). Learning through work: workplace affordances and individual engagement. *Journal of Workplace Learning*. 13(5), 209-214.
- Billett, S. (2002a). Critiquing workplace learning discourses: Participation and continuity at work.' *Studies in the Education of Adults*, 34(1), 56-67.
- Billett, S. (2002b). Workplace pedagogic practices: Co-participation and learning. *British Journal of Educational Studies*, 50(4), 457-481.

- Billett, S. (2003). Workplace mentors: demands and benefits. *Journal of Workplace Learning*, 15(6), 312-324.
- Billett, S. (2004). Workplace participatory practices: conceptualising workplaces as learning environments. *Journal of Workplace Learning*, 16(6), 312-324.
- Billett, S. (2008). Learning throughout working life: a relational interdependence between personal and social agency. *British Journal of Educational Studies*, 56(1), 39-58.
- Billett, S. (2011). Subjectivity, self and personal agency in Learning through and for work. In M. Malloch, L. Cairns, K. Evans, and B. N. O'Connor (Eds.), *The Sage Handbook of Workplace Learning* (pp. 60-72): London: Sage Publications
- Billett, S. (2016). Learning through health care work: premises, contributions and practices. *Medical Education*, 50(1), 124-131.
- Bjork, I., Toein M and Soenson A (2013) 'Exploring informal learning among hospital nurses'. *Journal of Workplace Learning* Vol. 25 No. 7, 2013 pp. 426-440
- Bjornavold, J. (2000) Making Learning Visible. Luxembourg, Cedefop.
- Blaikie, N. (2000) *Designing social research: the logic of anticipation*, Polity Press, Cambridge.
- Blaikie, N. (2007) *Approaches to social enquiry*. Polity Press Cambridge
- Bleakley, A. (2006) 'Broadening conceptions of learning in medical education: the message from team working'. *Medical Education*, 40 (2):150-157.
- Bleakley, A. (2002), 'Pre-registration house officers and ward-based learning: a 'new apprenticeship' model'. *Medical Education*, 36: 9-15. doi:10.1046/j.1365-2923.2002.01128.
- Bleakley, A. (2006). 'Broadening conceptions of learning in medical education: the message from team working'. *Medical Education*, 40(2), 150-157.
- Bleakley, A., and Bligh, J. (2008). 'Students learning from patients: Let's get real in medical education.' *Advances in Health Sciences Education*, 13(1), 89-107.
- Bleakley, A., Bligh, J., and Browne, J. (2011a). 'Producing Doctors. In *Medical Education for the Future* (pp. 63-79). Dordrecht: Springer. 74
- Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. Englewood Cliffs, N.J: Prentice-Hall.
- Bogdan, R., and Biklen, S. K. (1982). *Qualitative research for education: an introduction to theory and methods*. Boston, Allyn and Bacon
- Boglea, D., Dronb, M., Eggermontc, J. and van Hentend, J.W. (2011). Doctoral degrees beyond 2010: training talented researchers for society, *Procedia Social and Behavioural Sciences*, 13 35-49.
- Bolton, G. (2010). *Reflective practice*. 3<sup>rd</sup> Edition London: SAGE Publications Ltd.

Boor, K; Teunissen, PW, Scherpbier, A. J, et al(2008) Residents perceptions of the ideal clinical teacher-a qualitative study, *European Journal of Obstetrics & Gynecology and Reproductive Biology* 140(2):152-157.

Booth, A., Papaioannou, D. Sutton, A (2012) *Systematic approaches for a successful literature review*. London: Sage.

Booth, A., Carroll, C., Papaioannou, D., Sutton, A., and Wong, R. (2009). Applying findings from a systematic review of workplace-based e-learning: implications for health information professionals. *Health Information & Libraries Journal*, 26(1), 4-21.

Bostrom, R.N, (2004,) *Empiricisms, Paradigms, and Data, Communication Monographs*, Vol. 71, No. 3, pp. 343-351.

Boud, D and and Garrick, J (1999) *Understanding learning at work* Routledge London, New York.

Boud, D. and Walker,D.(1998) Promoting reflection in professional courses: The challenge of context, *Studies in Higher Education*, 23:2, 191-206.

Boud, D. and Solomon, N. (2003) 'Work Based Learning A New Higher Education-the Society for Research into higher education'. Open University Press. Buckingham.

Bowling, A. (2002) *Research methods in health*, Open University Press, Buckingham.

Bradley, F., Steven, A. and Ashcroft. D.M, (2011) Learning about patient safety: recognising the importance of the hidden curriculum in pharmacy education. *American Journal of Pharmaceutical Education* 2011; 75 (7) Article 143.

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.

Brewer, J. D. (1990). 'Sensitivity as a problem in field research.' *The American Behavioural Scientist*, 33(5), 578-593.

Brewer, J. D. (1994). 'The ethnographic critique of ethnography: sectarianism in the RUC'. *Sociology*, 28(1), 231-244. doi:10.1177/0038038594028001014

Brewer, J.D. (2000) *Ethnography (Understanding Social Research)* Open University Press London.

Bridges, D. R., Davidson, R. A., Odegard, P. S., Maki, I. V., and Tomkowiak, J. (2011). 'Interprofessional collaboration: three best practice models of interprofessional education'. *Medical education online*,16, 10.3402/meo.v16i0.6035. doi:10.3402/meo.v16i0.6035

Bryman, A. (1988) *Quantity and Quality in Social Research*, London, Routledge

Burford, B.; Morrow, G. Morrison, J.; Baldauf, B.; Spencer,J; Johnson. N.; Rothwell, C. Peile, E.; Davies, C. Allen.M; Illing, J. (2013) 'Newly qualified doctors' perceptions of informal learning from nurses: implications for inter-professional education and practice', *Journal of Interprofessional Care*, Vol. 27, No. 5, 09.2013, p. 394-400.

Burgess, R.G. (1984b). In the field: An introduction to field research. London; Allen and Unwin.

Burns, I, and Paterson I (2005) Clinical practice and placement support: Supporting learning in practice. *Nurse Education in Practice*; 5: 1, 3-9.

Cairns, L., and Malloch, M. (2010). Theories of Work, Place and Learning: New Directions. In M. Malloch, L. Cairns, K. Evans, and B. N. O'Connor (Eds.), *The Sage Handbook of Workplace Learning* (pp. 3-16). London: Sage Publications.

Carpenter, C. and Suto, M. (2008) *Qualitative Research for Occupational and Physical Therapists*. Blackwell, London.

Cassell, J (1992). Ethical principles for conducting fieldwork. *American Anthropologist*, 82(1),28-41.

Cerasoli, C. P., Alliger, G. M., Donsbach, J. S., Mathieu, J. E., Tannenbaum, S. I. and Orvis, K.A. (2017). 'Antecedents and Outcomes of Informal Learning' Behaviours: a Meta-Analysis. *Journal of Business and Psychology*, 1-28.

Chan, DC and Auster, E. (2003). Factors contributing to the professional development of reference librarians. *Library and Information Science Research*, 25:265–286.

Chan, S. (2013). Learning through apprenticeship: belonging to a workplace, becoming, being. *Vocations and Learning*, 6(3), 367-383.

Chari V, Lacoste-Julien S, Laptev I, Sivic J (2015) On pairwise costs for network flow multi-object tracking. In: Proceedings of Conference on Computer Vision and Pattern Recognition (CVPR), doi: 10.9754/journal.wmc.2013.003926.

Charmaz, K. (2003). Grounded theory: Objectivist and constructivist methods. In N. K. Denzin, and Y. S. Lincoln (Eds.), *Strategies for qualitative inquiry* (2nd ed., pp. 249-291). Thousand Oaks, CA: Sage.

Charon, JM (1989). *Symbolic Interactionism: An introduction, an interpretation, an integration*, 5th edn., Prentice Hall, New Jersey.

Chen, H. C., Sheu, L., O'Sullivan, P., Cate, O., and Teherani, A. (2014). Legitimate workplace roles and activities for early learners. *Medical Education*, 48(2), 136-145.

Chenitz, W.C., and Swanson, J. M. (1986). *From Practice to Grounded Theory: Qualitative Research in Nursing* Menlo Park, CA: Addison-Wesley. *Nursing Science Quarterly*, 2(1), 53–54.

Chiovitti, R.F, and Piran, N, (2003) Rigour and grounded theory research. *Journal of Advanced Nursing* 44(4):427-435.

Clancy, C. M., Glied, S. A., and Lurie, N. (2012). From research to health policy impact. *Health services research*, 47(1 Pt 2), 337-43.

Clark, C. (2005), The structure of educational research. *British Educational Research Journal*, 31: 289-308.

- Clarke, N. (2004). HRD and the challenges of assessing learning in the workplace. *International Journal of Training and Development*, 8(2), 140-156.
- Cobb, J (2018) Definition of learning Available at <https://www.missiontolearn.com/definition-of-learning/> (Accessed 18.8.18)
- Coffield, F.(ed) (2000) *The Necessity of Informal Learning*. Bristol, Policy Press in association with the ESRC Learning Society Programme
- Colardyn, D. (2002) From formal education and training to lifelong learning. In *Lifelong learning which ways forward?* 2nd edition, (ed) D Colardyn Lemma publishers
- Colardyn, D.and Bjornavold, J. (2004) Validation of Formal, Non-Formal and Informal learning: policy and practices in EU Member states. In *European Journal of Education*
- Colley, H, Hodkinson P and Malcolm J (2002) Non-formal learning: mapping the conceptual terrain. A Consultation Report, Leeds: University of Leeds Lifelong Learning
- Colley, H., Hodkinson P and Malcom J (2003a) Informality and formality in learning, a report for the Learning and Skills Research Centre, Leeds:
- Colley, H. Hodkinson. P and Malcolm. J. (2003b) Policy and practices in EU member States 02) Non-formal learning: mapping the conceptual terrain. A Consultation Report, Leeds: University of Leeds Lifelong Learning Institute.
- Collins, H. (2010) "Creative Research: The Theory and Practice of Research for the Creative Industries" AVA Publications, p.38
- Collins, S. (2005), Explanations in consultations: the combined effectiveness of doctors' and nurses' communication with patients. *Medical Education*, 39: 785-796. doi:10.1111/j.1365-2929.2005. 02222.x
- Conlon,T.J. (2004) 'A review of informal learning literature, theory and implications for practice in developing global professional competence', *Journal of European Industrial Training*, Vol. 28 Issue: 2/3/4, pp.283-295
- Connelly, C. E., Zweig, D., Webster, J. and Trougakos, J. P. (2012), Knowledge hiding in organizations. *J. Organizational. Behaviour.*, 33: 64-88.
- Coombs, P. H. and Ahmed, M. (1974) *Attacking Rural Poverty: How non-formal education can help*, Baltimore: John Hopkins University Press.
- Coombs, P. H. with Prosser, C. and Ahmed, M. (1973) *New Paths to Learning for Rural Children and Youth*, New York
- Corbin, J. and Strauss. A (2008) *Basics of qualitative research; techniques and procedures for developing grounded theory*. (3rd ed), Los Angeles. Sage.
- Cotter, D., Turner M.J. McAuliffe F.M. and Higgins.M.F, (2016) , Medical students learning experiences of the labour ward: a qualitative research study, *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 206, (204).

- Crabtree, B.F. and Miller W. L. (1992.) A template approach to text analysis: Developing and using codebooks. *Doing Qualitative Research*. Sage. Newbury Park,
- Creswell, J (2007) *Qualitative Inquiry and research and design. Choosing among 5 approaches*, Sage (3rd Ed). Los Angeles
- Creswell, J. and Clark,V.L.P( 2011) *Designing and Conducting Mixed Methods Research* SAGE Los Angeles
- Crossley,J. Humphris,G and Jolly,B. (2002) Assessing health Professionals. *Medical Education*, 36 (9),800-4
- Crotty, M. (1998) *The Foundations of social Research*. Sage,London.
- Crouse, P. Doyle. W.and Young, J. D. (2011). Workplace learning strategies, barriers, facilitators and outcomes: A qualitative study among human resource management practitioners. *Human Resource Development International*, 14(1), 39-55
- Crouse, P., Doyle, W., and Young, J. D. (2011). Workplace learning strategies, barriers, facilitators and outcomes: A qualitative study among human resource management practitioners. *Human Resource Development International*, 14(1), 39-55.
- Cruz, E.V, Higginbottom G (2013) The use of focused ethnography in nursing research. *Nurse Researcher*. 20, 4, 36-43.
- Cuinen, S., Heymans, P.J., Meeus, N. Wouwel, J.V., Dorst, Y., Verwimp, S. (2012). Informal learning guide. European Association for Practitioner Research on Improving Learning. 3.
- Cutcliffe, J.R. and McKenna, H.P. (1999) Establishing the credibility of qualitative research findings: the plot thickens. *Journal of Advanced Nursing* 30, 374–380
- Deci, E. L., and Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation: Vol. 38, Perspectives on motivation* (pp. 237-288). Lincoln: University of Nebraska Press.
- Deketelaere, A., Kelchtermans, G., Struyf, E. and Leyn P. (2006) Disentangling clinical learning experiences: an exploratory study on the dynamic tensions in internship. *Medical Education*.;40(9):908–915.
- Delany, C, (editor.) and Molloy, E (editor.) (2009), *Clinical education in the health professions*, Churchill Livingstone/Elsevier, Chatswood, NSW
- Denscombe, M. (1998) *The Good Research Guide*. Buckingham. Open University Press
- Denzin, N. K and Lincoln Y. S. (2008) *Handbook of Qualitative Research Publications*, Sage London
- DeWalt, KM., DeWalt BR (2011) *Participant Observation: A Guide for Fieldworkers* Altimara Press. London.

- Dixon, J., Larison, K. and Zabari, M. (2006). Skilled communication: Making it real. *Advanced Critical Care*, 17(4), 376-382
- Doornbos, A. J. Simons, P.R.J. and Denessen, E (2008) Relations Between Characteristics of Workplace Practices and Types of Informal Work-Related Learning: A Survey Study Among Dutch Police, *Human Resource Development Quarterly*, 19(2), pp. 129-151.
- Dornan, T, Boshuizen, H, King, N, and Scherpbier A. (2007). Experience-based learning: a model linking the processes and outcomes of medical students' workplace learning. *Medical Education.*; 41(1):84–91
- Dornan, T, Mann, K, Scherpbier, A. , and Spencer, J. (2013) *Medical Education/Theory and Practice* Livingstone Edinburgh
- Dornan, T. (2012). Workplace learning. *Perspectives on Medical Education*, 1(1), 15-23.
- Dornan, T, Boshuizen, H, King, N. and Scherpbier, A. ( 2007) Experience-based learning: a model linking the processes and outcomes of medical students' workplace learning *Medical Education*: 41: 84–91
- Dowling, M. (2004) Hermeneutics: an exploration. *Nurse Researcher*, 11(4), 30-39.
- Dowling, M. (2006). Approaches to reflexivity in qualitative research. *Nurse Researcher*, 13(3), 7-21
- Dowling, S., and Barrett, S. (1991). *Doctors in the making: The experience of the pre-registration year*. Bristol: Department of Epidemiology and Public Health Medicine, Centre for Social Management for Advanced Urban Studies, University of Bristol
- Doyle, M. (2001) 'Education' in Richardson L. D. and Wolfe, M. (eds) *Principles and Practice of Informal Education*, London: Routledge.
- Drennan, D. (1992), *Transforming Company Culture*, McGraw-Hill, Maidenhead, UK.
- Dyrbye LN, Thomas MR and Eacker A, (2007) Race, Ethnicity, and Medical Student Well-being in the United States. *Arch Intern Med.*;167(19):2103–2109.
- Eaton, S. E. (2010). *Formal, non-formal and informal learning: The case of literacy, essential skills and language learning in Canada*. Calgary: Eaton International Consulting Inc.
- Eich-Kroh A, Kaufmann A, Winkler-Stuck K, Werwick K, Spura A, Robra BP. (2016) First Contact: interprofessional education based on medical students' experiences from their nursing internship. *GMS Journal of Medical Education*;33(2): Doc20.
- Eisenhardt, K. M. (1989) Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Ellinger AD, Cseh M (2007) Contextual factors influencing the facilitation of others' learning through everyday work experiences *Journal of Workplace Learning*

- Elliott, J. G. and Bempechat, J. (2002), The culture and contexts of achievement motivation. *New Directions for Child and Adolescent Development*, 2002: 7-26.
- Elo, S., and Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107-115.
- Engestrom Y, Miettinen R. Introduction. In: Engestrom Y, Miettinen R, Punamaki RL, (Editors). (1999). *Perspectives on Activity Theory*. Cambridge: Cambridge University Press.
- Enos M.S, Kehrhahn M.T, and Bell A (2003) Informal learning and the transfer of learning: How managers develop proficiency (14), 4 p3 69-387
- Eraut M. (2010) Knowledge, Working Practices, and Learning. In: Billett S. (eds) *Learning Through Practice. Professional and Practice-based Learning*, vol 1. Springer, Dordrecht
- Eraut, M. (2000). Non-formal learning and tacit knowledge in professional work. *British Journal of Educational Psychology*, 70(1), 113-136.
- Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education*, 26(2), 247-273.
- Eraut, M. (2007), "Learning from other people in the workplace", *Oxford Review of Education*, Vol. 33 No. 4, pp. 403-422.
- Eraut, M. (2011) 'Informal learning in the workplace: evidence on the real value of work-based learning (WBL)', *Development and Learning in Organizations: An International Journal*, Vol. 25 Issue: 5, pp.8-12
- Espeland, V. and Indrehus, O. (2003), Evaluation of students' satisfaction with nursing education in Norway. *Journal of Advanced Nursing*, 42: 226-236.
- Etikan I, Musa SA, Alkassim RS (2016) Comparison of convenience sampling and purposive sampling. *American Journal of theoretical and applied statistics* 1-4.
- European Commission (2001) *Communiqué Making a European Area of Lifelong Learning a Reality* (Brussels).
- Fenwick, T. (2008), *Workplace learning: Emerging trends and new perspectives*. *New Directions for Adult and Continuing Education*, 17-26.
- Fetterman, DM. (1998). *Ethnography: Step by Step*. Applied Social Research Methods Series, Volume 17. Thousand Oaks: Sage Publications.
- Flicek CL (2012). Communication: a dynamic between nurses and physicians *Med Surg Nurs*. Nov-Dec;21(6):385-7.
- Foley G (1999) *Learning in Social Action: a contribution to understanding informal education* London: Zed Books
- Fordham, P. E. (1993) 'Informal, non-formal and formal education programmes' in *YMCA George Williams College ICE301 Lifelong Learning Unit 2*, London: YMCA George Williams College.

- Fraser,H.( 2004) Doing narrative research:analysing personal stories line by line.*Qualitative Social Work*,3( 2) 179-201.
- Freeth, D., Hammick, M., Koppel, I., Reeves, S., and Barr, H. (2002). *Occasional paper No. 2*:
- Freeth,D.(2001) Sustaining interprofessional collaboration *Journal of inter professional care* 15 (1) : 37-46
- Frenk, J, Lincoln, C, Zulfiqar, A. B, Cohen, J,m. Crisp, N, Evans,T. and Fineberg,H. (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *The Lancet* 376(9756): 1923-1958.
- Fuller, A., and Unwin, L. (2011). Workplace learning and the organization. *The Sage Handbook of Workplace Learning*, (pp. 46-59). London: Sage Publications.
- Fuller, A., Hodkinson, H., Hodkinson, P., and Unwin, L. (2005). Learning as peripheral participation in communities of practice: a reassessment of key concepts in workplace learning. *British Educational Research Journal*, 31(1), 49-68.
- G Goodson, L., and Vassar, M. (2011). An overview of ethnography in healthcare and medical education research. *Journal of Educational Evaluation for Health Professions*, 8, 4. <http://doi.org/10.3352/jeehp.18.2.2017>
- Garvin,D. Edmondson,A. and Gino,F. (2008) Is Yours a Learning Organization? *Harvard business review* 86(3):109-16, 134
- General Medical Council (2009) *Tomorrow's Doctor*. London:
- General Medical Council (2011) *Standards , Guidance and curricula* Available at <https://www.gmc-uk.org/education/standards-guidance-and-curricula#guidance> (Accessed 10.10.18)
- General Medical Council (2018) *Outcomes for Graduates* Available at [https://www.gmc-uk.org/-/media/documents/dc11326-outcomes-for-graduates-2018\\_pdf-75040796.pdf](https://www.gmc-uk.org/-/media/documents/dc11326-outcomes-for-graduates-2018_pdf-75040796.pdf) (Accessed. 8.9.17)
- George, V. M., and Schocksnider, J. (2014). Leaders: Are you ready for change? The clinical nurse as care coordinator in the new health care system. *Nursing Administration Quarterly*, 38 (1), 78 – 85.
- Gergen, J (2009) *An invitation to Social construction* Sage London
- Gfrerer, L. (2014) *Empowerment and Engagement through Informal Learning: Exploring the Relationship Between Learning Opportunities and the Work Environment of Nurses*. UST Research online Minnesota.
- Gilmour, J, Huntington, A, Bogossian, F, Leadbitter, B, Turner,C ( 2014) Medical education and informal teaching by nurses and midwives *International Journal of Medical Education*;5:173-177.

- Glaser, B. G., and Strauss, A. L. (1967). *The discovery of grounded theory: strategies for qualitative research*. London: Weidenfeld and Nicolson.
- Guba, G., and Lincoln, S. (1989). *Fourth Generation Evaluation*. London: SAGE Publications
- Goodson, L. and Vassar M (2011) An overview of ethnography in healthcare and medical education research *Journal of Educational Evaluation for Health Professionals*; 8: 4..
- Goulding, C. (2004) Grounded theory, ethnography and phenomenology A comparative analysis of three qualitative strategies for marketing research. *European Journal of Marketing* Vol. 39 No. 3/4, 2005 pp. 294-308 Emerald Group Publishing Limited.
- Grant, B. and Giddings, L. (2002) 'Making sense of methodologies: a paradigm framework for the novice researcher', *Contemporary Nurse*, 13:1, 10-28
- Griffin, E. (1997). *A First Look at Communication Theory*. New York: The McGraw-Hill Companies.
- Guba, E. G. and Lincoln, Y. S. (1989) *Fourth generation evaluation*, Sage, Newbury Park, CA.
- Guba, E. G., and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin and Y. S. Lincoln (Eds.), *Handbook of Qualitative Research*, (pp. 105-117). Thousand Oaks: Sage Publications.
- Guile, D., and Griffiths, T. (2001). Learning through work experience. *Journal of Education and Work*, 14(1), 113-131.
- Gupta, A, and Ferguson, J, (eds.), (1997) *Culture, Power, Place: Explorations in Critical Anthropology*. Duke University Press
- Hafferty, F. W. (2011). Decoding the learning environment of medical education: a hidden curriculum perspective for faculty development. *Academic Medicine*, 86(4), 440-444.
- Hager, P., and Halliday, J. (2009). *Recovering informal learning: Wisdom judgement and community*. Amsterdam: Springer.
- Hager, P., Brown, T., and Bleakley, A. (2006). You are who I say you are: the rhetorical construction of identity in the operating theatre. *Journal of Workplace Learning*, 18(7/8), 414-425.
- Hager, P. (2011). Theories of workplace learning. In M. Malloch, L. Cairns, K. Evans, and B. N. O'connor (Eds.), *The Sage Handbook of Workplace Learning* (pp. 17-31). London: Sage Publications
- Hägg-Martinell, A., Hult, H., Henriksson, P., and Kiessling, A. (2014). Students perceive healthcare as a valuable learning environment when accepted as a part of the workplace community. *Education for Health*, 27(1), 15-23
- Hägg-Martinell, A., Hult, H., Henriksson, P., and Kissling, A. (2016). Community of practice and student interaction at an acute medical ward: An ethnographic study. *Medical Teacher*, 38(8), 793-800.

- Halliday-Wynes, S, Beddie F (2009) 'Informal Learning. At a Glance' National Centre for Vocational Education Research
- Hammersley, M. (1992) What's wrong with ethnography? Methodological explorations. London: Routledge,
- Hammersley, M. and Atkinson, P. (1995) Ethnography: principles in practice, Routledge, London.
- Hammersley M and Atkinson P (2007) Ethnography: Principles in Practice. Third edition. Routledge, London
- Hand, H. (2006) Promoting effective teaching and learning in the clinical setting. *Nursing Standard*. 20(39) 55-63.
- Hann, M., and Caputo, S. M. (2012). Learning in the workplace: a literature review. New Brunswick: Department of Post-Secondary Education, Training and Labour.
- Hansen, T.B, Jacobsenn, F (2008); Medical students' periods at inter-profession at training wards. (44) 3515-3517.
- Hesse-Biber, S. N. (2007). Handbook of feminist research: Theory and praxis. Thousand Oaks, CA: Sage Publications Inc.
- Hean, S., and Dickinson, C. (2005). The contact hypothesis: An exploration of its further potential in interprofessional education. *Journal of Interprofessional Care*, 19(5), 480 –491
- Helmich, E., and Dornan, T. (2012). Do you really want to be a doctor? The highs and lows of identity development. *Medical Education*, 46(2), 132-134
- Hemmerman, L. (2010). 'Researching the Hard to Reach and the Hard to Keep: Notes from the field on Longitudinal Sample Maintenance', in Shirani, Fiona and Weller, Susie. (eds.). *Conducting Qualitative Longitudinal Research: Fieldwork Experiences*. Timescapes Working Paper Series no.2.
- Henderson, E., Berlin, A., Freeman, G., and Fuller, J. (2002). Twelve tips for promoting significant event analysis to enhance reflection in undergraduate medical students. *Medical Teacher*, 24(2), 121-124.
- Hew, K. F., and Cheung, W. S. (2014). Students' and instructors' use of massive open online courses (MOOCs): motivations and challenges. *Educational Research Review*, 12(1), 45-58.
- Higgs, J. (2001). Charting standpoints in qualitative research. In Hilary Byrne-Armstrong, Joy Higgs and Debbie Horsfall (Eds.), *Critical moments in qualitative research* (pp.44-67). Oxford: Butterworth-Heinemann.
- Hodkinson, P., Colley, H, and Malcolm, J (2003) the interrelationships between informal and formal learning *journal of workplace learning* 15 (7/8) 313-318.

- Hoffman, K.G., and Donaldson, J.F. (2004) Contextual tensions of the clinical environment and their influence on teaching and learning. *Med Educ*;38 (4):448–54.
- Hoffman, B. (2005) *Informal Learning*. ASTD Press, Alexandria, Virginia
- Hutchison, J., Johnston L H. and Breckon, D.J (2010) Using QSR-NVivo to facilitate the development of a grounded theory project: an account of a worked example, *International Journal of Social Research Methodology*, 13:4, 283-302
- Hymes, D. (1972). Models of the interaction of language and social life. In J.J.Gumperz and D.Hymes (Eds), *Directions in sociolinguistics*. New York: Holt, Rinehart and Winston
- Illing, J. (2010). Thinking about research: frameworks, ethics and scholarship. In T. Swanwick (Ed.), *Understanding Medical Education: Evidence, Theory and Practice* (pp. 283-300). West Sussex: Wiley-Blackwell.
- Imamwerdi, B.W. (2013) The Effects of Early Clinical Exposure on Medical Laboratory Technology Students: Its effect on Internship Period and their professional Carrier. *WebmedCentral medical education*;4(1): WMC003926
- Isba, R and Boor, K. (2011), Creating a learning environment. in T Dornan, K Mann, A Scherpbier and J Spencer (eds), *Medical Education: Theory and Practice*. Churchill Livingstone, pp. 99-114.
- Jarvis, P. (2010). *Adult education and lifelong learning: Theory and Practice* (4th ed.). New York, NY: Routledge.
- Jeong, S., Han, S. J., Lee, J., Sunalai, S., and Yoon, S. W. (2018). Integrative Literature Review on Informal Learning: Antecedents, Conceptualizations, and Future Directions. *Human Resource Development Review*, 17(2), 128–152.
- Johnson, M. and Webb, C.(1995a) Rediscovering unpopular patients: the concept of social judgement. *Journal of Advanced Nursing*, 21, 466-475.
- Joo, B. and Ready, K.J. (2012) 'Career satisfaction: The influences of proactive personality, performance goal orientation, organizational learning culture, and leader-member exchange quality', *Career Development International*, Vol. 17 Issue: 3, pp.276-295,
- Kaplan, B., and Maxwell, J. A. (1994). 'Qualitative Research Methods for Evaluating Computer Information Systems'. In J. G. Anderson, C. E. Aydin, and S. J. Jay (Eds.), *Evaluation Health Care Information Systems: Methods and Application*. California: Sage Publications.
- Kelliher, F (2005) 'Interpretivism and the pursuit of research legitimisation: an integrated approach to single case design' *Electronic Journal of Business Research Methods* Volume (3) 2 p123-132
- Kllajoukle, (2016) How can nurses help medical students? Available at [https://www.reddit.com/r/medicalschooll/comments/4e60yr/how\\_can\\_nurses\\_help\\_medical\\_students/](https://www.reddit.com/r/medicalschooll/comments/4e60yr/how_can_nurses_help_medical_students/) (Accessed 10.10.18)

- Kilminster, S. M. and Jolly, B. C. (2000), Effective supervision in clinical practice settings: a literature review. *Medical Education*, 34: 827-840.
- Kim, S. and McLean, G. (2014) The impact national culture on informal learning in the workplace *Adult Education Quarterly* 64 ( 1) 39-59
- Kolb, D. A. (1984). *Experiential learning: experience as the source of learning and development*. Englewood Cliffs: Prentice-Hall.
- Korte, R.F. (2009) How newcomers learn the social norms of an organization: A case study of the socialisation of newly hired engineers. *Human Resource Development Quarterly* 20(3): 285–306.
- Kumar, R. (2014) *Research Methodology: A Step-by-Step Guide for Beginners*. 4th Edition, SAGE Publications Ltd., London.
- Kusurkar, R. A., Ten Cate, T. J., Vos, C. M., Westers, P., and Croiset, G. (2012). How motivation affects academic performance: a structural equation modelling analysis. *Advances in health sciences education: theory and practice*, 18(1), 57-69.
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Kynd T, E., Dochy, F., and Nijs, H. (2009) 'Learning conditions for non-formal and informal workplace learning', *Journal of Workplace Learning*, Vol. 21 Issue: 5, pp.369-383,
- Lambert, C., Jomeen, J., and McSherry, W. (2010). Reflexivity: A review of the literature in the context of midwifery research. *British Journal of Midwifery*, 18(5), 321-326.9
- Lave, J and Wenger, E. (1991) *Situated learning: Legitimate Peripheral Participation* Cambridge Press. New York.
- Lave, J, (1989) The acquisition of culture and practice of understanding, in J. Stigler, R. Shweder, and G. Herdt (eds), *The Chicago symposia on human development*. Cambridge: Cambridge University press
- Laverick, W. (2010) *Accessing inside: ethical dilemmas and pragmatic compromises*. In J. Scott-Jones and S. Watt (Eds.), *Ethnography in social science practice* (pp. 73-88). London: Routledge.
- Le Clus, M. A. (2011). Informal learning in the workplace: A review of the literature. *Australian Journal of Adult Learning*, 51(2), 355-373.
- LeCompte, M. D., and Goetz, J. P. (1982). Problems of reliability and validity in ethnographic research. *Review of Educational Research*, 52(1), 31-60.
- LeCompte, M. D., and Schensul, J. J. (1999). *Designing and conducting ethnographic research (Ethnographer's toolkit, Vol. 1)*. Walnut Creek, CA: AltaMira.
- LeeFlicek C. (2012) • Communication: A Dynamic Between Nurses and Physicians *Medsburg Nursing* November-December Vol. (21).6

- Leung, W.C. (2002) Why is evidence from ethnographic and discourse research needed in medical education: the case of problem-based learning. *Med Teach*;24:169–172.
- Lewington, K. (2012) Changes to medical education over the past 20 years *BMJ* 344: e4246
- Light, B and McGrath, K (2010), 'Ethics and Social Networking Sites: a Disclosure Analysis of Facebook', *Information Technology and People*, 23(4), pp.290-311.
- Liljedahl, M., Boman, L. E., Björck, E., and Laksov, K. B. (2015). Participation in a clinical learning environment. *The Clinical Teacher*, 12(4), 284-285.
- Lin, A. C. (1998), Bridging Positivist and Interpretivist Approaches to Qualitative Methods. *Policy Studies Journal*, 26: 162-180.
- Lincoln, Y. S. and Guba, E. G. (2003) The discipline and practice of qualitative research. In *The landscape of qualitative research: Theories and issues* (Eds, Lincoln, Y. S. and Guba, E. G.) Sage Publications, London.
- Lincoln, Y. S., Lynham, S. A., and Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. In N. K. Denzin and Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (pp. 97-128). Thousand Oaks: Sage Publications.
- Lingard, L., and Kennedy, T. J. (2010). Qualitative Research Methods in Medical Education. In T. Swanwick (Ed.), *Understanding Medical Education: Evidence, Theory and Practice* (pp. 323-335). West Sussex: Wiley-Blackwell.
- Livingstone, D.W. (1999). Exploring the Icebergs of Adult Learning: Findings of the First Canadian Survey of Informal Learning Practices. *Canadian Journal for the Study of Adult Education*. 13,2: 49-72.
- Livingstone, D. W. (2001). Adults' informal learning: Definitions, findings, gaps and future research. NALL Working Paper, 21. Toronto.
- Livingstone, D. W., and Scholtz, A. (2006). Work and lifelong learning in Canada: Basic findings of the 2004 WALL Survey. Toronto: WALL.
- Livingstone, D. W. (2008). Mapping the field of lifelong (formal and informal) learning and (paid and unpaid) work. In D. W. Livingstone, K. Mirchandani, and P. H. Sawchuk (Eds.), *The future of lifelong learning and work: Critical perspectives*. Rotterdam: Sense Publishers.
- Livingstone, D. W., Mirchandani, K., and Sawchuk, P. H. (2008). *The future of lifelong learning and work: Critical perspectives*. Rotterdam: Sense Publishers.
- Lofland, J. (1971). *Analysing social settings: A guide to qualitative observation and analysis*. Belmont, CA: Wadsworth.
- Löfmark, A. and Wikblad, K. (2001), Facilitating and obstructing factors for development of learning in clinical practice: a student perspective. *Journal of Advanced Nursing*, 34: 43-50. doi:10.1046/j.1365-2648.2001.3411739. x.

- Lohman, M.C. (2000) Environmental inhibitors to informal learning in the workplace: a case study of public-school teachers. *Adult Education Quarterly*; 50:83–101.
- Lohman, M.C. (2005). A survey of factors influencing the engagement of two professional groups in informal workplace learning activities. *Human Resource Development Quarterly*, 16(4), 501-527.
- Lohman, M. C. (2009). A survey of factors influencing the engagement of information technology professionals in informal learning activities information technology. *Learning, and Performance Journal*, 25(1), 43-53.
- Lublin, J., and Gething, L. (1992) 'RNs as teachers of junior doctors.' *Aust J Adv Nurs.*;10(2):3-9.
- Lucas, M. and Moreira, A. (2011) 'Using social web tools for knowledge construction', *Int. J. Technology Enhanced Learning*, Vol. 3, No. 2, pp.151–161.
- Lynch, M. (2000). Against Reflexivity as an Academic Virtue and Source of Privileged Knowledge. *Theory, Culture and Society*, 17(3), 26–54.
- Hammick, M., Freeth, D., Koppel, I., Reeves, S. and Barr H. (2007) A best evidence systematic review of interprofessional education: BEME Guide no. 9, *Medical Teacher*, 29:8, 735-751, DOI: 10.1080/01421590701682576
- Machi, L.A. and McEvoy, B.T. (2012) *The Literature review. Six steps to success.* (2nd edn) Thousand Oaks CA: Corwin.
- Madden, R. (2010). *Being Ethnographic: A guide to the Theory and Practice of Ethnography.* London: Sage
- Malcolm, J., Hodkinson, P. and Colley. H. (2003) "The interrelationships between informal and formal learning", *Journal of Workplace Learning*, Vol. 15 Issue: 7/8, pp.313-318,
- Malinowski, B. (1992) *Argonauts of the western pacific: an account of native enterprise and adventure in the archipelagos of Melanesian New Guinea*, Routledge, London
- Malloch, M., Cairns, L., Evans, K., and O'Connor, B. N. (2011). *The SAGE Handbook of Workplace Learning.* London: Sage Publications.
- Mamede, S., and Schmidt, H. G. (2004) 'The structure of reflective practice in medicine' *Med Education* 38, (12) p 1302-1308
- Mann, K.V. (1999) Motivation in medical education: how theory can inform our practice. *Acad Med.*;74(3):237–239.
- Mann, K. V. (2011). Theoretical perspectives in medical education: past experience and future possibilities. *Medical Education*, 45(1), 60-68.
- Mann, K.V., Holmes, D.B., Hayes, V.M. Burge, F.I, and Viscount, P.W. (2001) Community family medicine teachers' perceptions of their teaching role. *Medical Education*, 35(3), 278-85
- Manson, J. (2002) *Qualitative Research.* Sage London

- Manuti, A., Pastore, S., Scardigno, A., Giancaspro, M. L., and Morciano, D. (2015). Formal and informal learning in the workplace: A research review. *International Journal of Training and Development*, 19(1), 1-17.
- Marshall, C. and Rossman, G. B. (1989). *Designing qualitative research*. Newbury Park, CA: Sage.
- Marsick, V. J., and Watkins, K. (1990). *Informal and incidental learning in the workplace*. London: Routledge.
- Marsick, V. J. and Volpe, M., (1999). The nature of and need for informal learning. *Advances in developing human resources: Informal learning on the job*, Academy of Human Resources Development, Netherland, 1-9.
- Marsick, V. J., and Watkins, K. E. (2001). Informal and incidental learning. *New directions for adult and continuing education*, 2001(89), 25-34.
- Marsick, V. (2006) Informal strategic learning in the workplace, in Streumer, J.N. (Ed.), *Work-related learning in the workplace*, Springer, Dordrecht, pp.49-51.
- Marsick, V., Watkins, K., Callahan, M. W., and Volpe, M. (2006). Reviewing theory and research on informal and incidental learning. In paper presented at academy of human resource development international conference, Columbus.
- Marsick, V. J., Watkins, K. E., Callahan, W. M., and Volpe, M. (2009). Informal and incidental learning in the workplace. In M.C. Smith and N. DeFrates-Densch (Eds.), *Handbook of research on adult learning and development* (pp. 570–600).
- Marsick, V. J., Nicolaidis, A. and Watkins, K. E. (2014). Adult learning theory and application in HRD. In Chalofsky, N., Rocco, T. and Morris, L. (Eds.). *The Handbook of HRD: Theory and Application* (p. 40-63). San Francisco, CA: Jossey-Bass.
- Marsick, V., Watkins, K. (2015). *Informal and Incidental Learning in the Workplace* (Routledge Revivals). London: Routledge.
- Masethe, H.D., Masethe, S.,and Adeyemi O. (2017) , Scoping Review of Learning Theories in the 21st Century. *Proceedings of the World Congress on Engineering and Computer Science 2017 Vol I WCECS 2017*, October 25-27, San Francisco, USA.
- Mason, J. (2002). *Qualitative Researching*. (Second ed.) Sage.
- Matthews, P. (2009) *Informal Learning at Work: How to Boost Performance in Tough Times* Kindle Edition Amazon Media.
- Mattox, J.R, (2012) "Measuring the effectiveness of informal learning methodologies", *Development and Learning in Organizations*, An International Journal, Vol. 26 Issue: 4.
- McCaffrey, R., Hayes, R., Stuart, W., Asenath, C., Farrell, C., MillerReyes, S.,and Donaldson, A. (2011). An educational program to promote positive communication and collaboration between nurses and medical staff. *Journal for Nurses in Staff Development*, 27(3), 121-127.

- McGettigan, P and McKendree, J (2015) Interprofessional training for final year healthcare students: a mixed methods evaluation of the impact on ward staff and students of a two-week placement and of factors affecting sustainability BMC Medical Education Volume 15, Number 1, Page 1
- McGhee, G., Marland, G. R., and Atkinson, J. (2007). Grounded theory research: Literature reviewing and reflexivity. *Journal of Advanced Nursing*, 60, 334–342.
- McGivney, V. and Murray, F. (1991) *Adult Education in Development. Methods and approaches from changing societies*, Leicester: NIACE.
- McGivney, V. (1999). *Informal learning in the community: trigger for change*, Leicester: National Institute for Adult Continuing Education. *Work-related Learning in the Workplace*, Springer, Dordrecht, pp. 49-51.
- McGivney, V. (2002). *Informal Learning in the community. A trigger for change and development*. Lancaster: NIACE.
- McManus, I.C (2003) Medical school differences: beneficial diversity or harmful deviations? *Qual Saf Health Care*. 12: 324-325.
- Meirink, J. A., Meijer, P. C., Verloop, N., and Bergen, T. C. M. (2009). Understanding Teacher Learning in Secondary Education: The Relations of Teacher Activities to Changed Beliefs about Teaching and Learning. *Teaching and Teacher Education*, 25, 89-100.
- Melincavage, S. M. (2011). Student nurses' experiences of anxiety in the clinical setting. *Nurse Education Today*, 31(8), 785-789.
- Merriam, S B., Caffarella, L and Baumgartner, M.(2011)*Learning in Adulthood: A Comprehensive Guide* Academy of Management Learning and Education
- Miles, M. B., and Huberman, A. M. (1994). *Qualitative Data Analysis an Expanded Sourcebook*. Thousand Oaks, CA Sage Publications
- Misch, D.A. (2002); Andragogy and medical education: are medical students internally motivated to learn? *Advanced Health Science Education Theory Practice* 7:153–60.
- Misko, J (2008) *Combining formal, non-formal and informal learning for workforce skill development*, NCVET, Adelaide.
- Morley, D. (2016). Applying Wenger's communities of practice theory to placement learning. *Nurse Education Today*, 39, 161-162.
- Morris, C., and Blaney, D. (2010). *Work-based Learning*. In T. Swanwick (Ed.), *Understanding Medical Education: Evidence, Theory and Practice* (pp. 69-82). West Sussex: Wiley-Blackwell.
- Morris, C. (2012) *from classroom to clinic: an activity theory perspective*. In Higham, J and Steer P (2004) *Gender gap in undergraduate experience and performance*.
- Morse, J. M. and Field, P. A. (1996) *Nursing research: the application of qualitative approaches*, Chapman and Hall, London

- Morse, J.M, and Richards, L. (2002). Read me first for a user's guide to qualitative research. London: Sage Publications.
- Morse, J.M. (2007) Does health research warrant the modification of qualitative methods? *Qualitative Health Research*. 17, 7, 863-865.
- Morse, J.M.and Mosher, G.A. (2011). Measurement and analysis of the relationship between employee perceptions and safety and quality decision-making in the country grain elevator. Unpublished doctoral dissertation, Iowa State University, Ames.
- Nadolski, R. J., K., H. G., van den, H. J., Hoefakker, R. E., Slotmaker, A., Kurvers, H. J., and Storm, J. (2008). EMERGO: A methodology and toolkit for developing serious games in higher education. *Simulation and Gaming*, 39(3), 338–352.
- Neal, B. and Hainlen L (2012) *Designing for learning*. ASTD Press.
- Newton, AC, and Guy, D.C, (2009) The effects of uneven, patchy cultivar mixtures on disease control and yield in winter barley. *Field Crops Research* 110, 225-228.
- NHS 2918 hospital infoweb . Available at : <https://www.nhs.uk/Services/hospitals/Overview/DefaultView.aspx?id=1750> ( Accessed 19.10.18)
- Nilsson, G., Josephson, A., Kiessling, A., Bexelius, T. S., and Ponzer, S. (2009). New medical education programme at Karolinska Institute. The profession in focus and the research process as a pedagogical basis. *Läkartidningen*, 106(44), 2847-2852.
- Miller,N. and Brimicombe,A. (2004) Mapping research journeys across complex terrain with heavy baggage, *Studies in Continuing Education*, 26:3, 405-417, DOI: 10.1080/0158037042000265962
- Noe, R. A., Tews, M. J., and Marand, A. D. (2013). Individual differences and informal learning in the workplace. *Journal of Vocational Behaviour*, 83(3), 327-335.
- Noe, R., Clarke, A., and Klein, H. (2014). Learning in the twenty-first-century workplace. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 245-275.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1),14-37
- Nonaka, I. and Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- Nonaka, I. and Toyama, R. (2003) *The Knowledge-Creating Theory Revisited: Knowledge Creation as a Synthesizing Process*. *Knowledge Management Research & Practice*, 1, 2-10.
- Northampton University (2018) Overview of the literature review process. Available at <https://mypad.northampton.ac.uk/llspodiatry/overview-of-the-literature-search-process/> Accessed( 28.9.18)

- Nyein, Aung M., Wannakrairot P. Somboonwong J Jaronvanichkul, V. (2015) Assessment of preclinical students' academic motivation before and after a three-day academic affair program. *International Journal of General Medicine* 8(Issue 1):373 DOI: 10.2147/IJGM.S93649
- Ormrod, J.E. (1999) *Human Learning* (3rd Edition), Upper Saddle River, NJ: Merrill Prentice Hall.
- Ornstein, AC, Lasley, TJ. (2003) *Strategies for effective teaching*. 4th ed. Boston, USA: McGraw-Hill.
- Orsini C, Evans P, Binnie V, Ledezma P, Fuentes F. (2016) Encouraging intrinsic motivation in the clinical setting: teachers' perspectives from the self-determination theory. *European Journal Dental Education*: 20: 102–111.
- Orsini-Jones, M; Conde Gafarom, B. and Altamimi, S. (2017) Integrating a MOOC into the Postgraduate ELT Curriculum: Reflecting on Students' Beliefs with a MOOC Blend Beyond the language classroom: *Researching MOOCs and other innovations*, 71-83. DOI:10.14705/rpnet. 2017.mocc2016.672
- Oxford Dictionary (2018) Available at <https://en.oxforddictionaries.com/definition/motivation> (Accessed 26.9.18)
- Pange, J. and Makris, P. (2000). *Informatics for Preschool Teachers* Eds of University of Ioannina, Greece
- Pange, J., Lekka, A. and Toki, E. (2010) Different learning theories applied to diverse learning subjects A pilot study. *Procedia Social and Behavioral Sciences* 9 (2010) p 800–804
- Parahoo, K. (2006). *Nursing research principles, processes and issues* (2nd ed.). Hampshire, UK: Palgrave Macmillan
- Parry, O, Thomson, C. and Fowkes, G. (1999) 'Life Course Data Collection: Qualitative Interviewing Using the Life Grid', *Sociological Research Online* 4(2) Available at <http://www.socresonline.org.uk/socresonline/4/2/parry.html> ( Accessed 17.4.17)
- Parsell, G. and Bligh, J: (1999) The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Med Educ.*, 33 (2): 95-100.
- Pelto, P, and Pelto, G, (1978) *Anthropological research, The Structure of Inquiry* 2nd ed. Cambridge University press
- Perrot, L.J., Deloney, L.A, Hastings, J.K, Savell, S. and Savidge, M. (2001). Measuring student motivation in health professions' colleges. *Advances in Health Sciences Education. Theory and Practice*; 6:193–203.
- Pintrich, P. R., Smith, D.A., Garcia, T. and McKeachie, W.J. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ)*. Ann Arbor, MI: University of Michigan

- Poell, R.F., Chivers, G.E., Van Der Krogt, F.J. and Wildemeersch, D.A. (2000). Learning-network theory: Organizing the dynamic relationships between learning and work. *Management Learning*, 31(1), pp. 25-49.
- Polit, D, and Tatano Beck, C. (2008) *Nursing Research: Generating and Assessing Evidence for Nursing Practice*. Eighth edition. Lippincott Williams & Wilkins, Philadelphia PA.
- Popay, J., Rogers, A., and Williams, G. (1998). Rationale and Standards for the Systematic Review of Qualitative Literature in Health Services Research. *Qualitative Health Research*, 8(3), 341–351. <https://doi.org/10.1177/104973239800800305>
- Pope, C. (2005) Conducting ethnography in medical settings. *Med Educ.*; 39:1180–1187.
- Prozesky, D.R (2000) Teaching and learning. *Community Eye Health*. 13(34):30-1.
- Robinson, V., and Hale, S. (1989). *The Geography of Vietnamese Secondary Migration in the UK*. Research Paper in Ethnic Relations. University of Warwick: Centre for Research in Ethnic Relations.
- Rashmi, K, Croiset, G. and Olle ten, C .(2013) Implications of gender differences in motivation among medical students, *Medical Teacher*, 35:2, 173-174, DOI: 10.3109/0142159X.2012.737056
- Reddit (2018) How can nurses help medical students? Available at [https://www.reddit.com/r/medschool/comments/4e60yr/how\\_can\\_nurses\\_help\\_medical\\_students/](https://www.reddit.com/r/medschool/comments/4e60yr/how_can_nurses_help_medical_students/) (Accessed 10.10.18)
- Rees, C.E, Crampton,P., Kent,F., Brown,T., Hood,K., Leech,M., Newton,J., Storr,M and, Williams, B. (2018) ;Understanding students’ and clinicians’ experiences of informal interprofessional workplace learning :an Australian qualitative study *BMJ Open* 8:e021238. doi:10.1136/bmjopen-2017-021238.
- Reeves, S (2008). ‘Qualitative research methodologies: ethnography Available at *BMJ* 2008; 337 doi: <https://doi.org/10.1136/bmj.a1020> Cite this as: *BMJ* 2008;337: a1020 (Accessed 10.10.18.)
- Reeves, S,. Goldman. J,and Oandasani I. ( 2007) Key factors in planning and implementing interprofessional education in health care settings *J Allied Health*, 36 pp. 231-235
- Rees, C. E., and Monrouxe, L. V. (2010). Theory in medical education research: how do we get there? *Medical Education*, 44(4), 334-339. 79
- Reeves S, Lewin S, Espin S,and Zwarenstein M: (2010).*Interprofessional Teamwork for Health and Social Care*. UK: Wiley- Blackwell;
- Reeves, S., Perrier, L., Goldman, J., Freeth, D., and Zwarenstein, M. (2013). Interprofessional education: effects on professional practice and healthcare outcomes (update). *Cochrane Database Syst Rev*, 3(3).

- Reeves, S., Albert, M., Kuper, A., and Hodges, B. D. (2008). Qualitative Research: Why Use Theories in Qualitative Research? *BMJ*, 337(949), 631-634.
- Reeves, S., Kuper, A., and Hodges, B. D. (2008). Qualitative research methodologies: ethnography. *BMJ*, 337(1020), 512514.
- Reeves, S., Peller, J., Goldman, J., and Kitto, S. (2013). Ethnography in qualitative educational research: AMEE Guide No. 80. *Medical Teacher*, 35(8), e1365-e1379
- Reeves, S., Barr, H., Boet, S., Kitto, S. et al (2016) BEME systematic review of the effects of interprofessional education.
- Reynolds.J.(2017) How should culture be studied? Available at <https://universitydiary.wordpress.com/2013/04/05/how-should-culture-be-studied/> (Accessed 6.11.17)
- Rice, P. L., and Ezzy, D. (1999). *Qualitative Research Methods: A Health Focus*. South Melbourne (Australia): Oxford University Press.
- Richardson, L. D. and Wolfe, M. (eds) (2001) *Principles and Practice of Informal Education: learning through life* Routledge Falmer
- Roberts, J. (2006). Limits to communities of practice. *Journal of Management Studies*, 43(3), 623-639.
- Robinson F. P, Gorman G, Slimmer L. W, and Yudkowsky R. (2010) Perceptions of effective and ineffective nurse–physician communication in hospitals. *Nursing forum*. Wiley Online Library.
- Robson.C.(2002) *Real World Research: A Resource for Social: Robson, Wiley & Sons* Chichester
- Rogers, A. (2014) The base of the iceberg. Informal learning and its impact on formal and non-formal learning. Opladen ; Berlin ; Toronto : Budrich, 95.
- Rogers, C., and Freiberg, H. J. (1994). *Freedom to learn* (3rd Ed.). New York: Macmillan.
- Ryan, R. M., and Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78
- Samuels, J. G., and Woodward, R. S. (2015). Opportunities to improve pain management outcomes in total knee replacements: patient-centered care across the continuum. *Orthopaedic Nursing* 34(1), 4 – 9 .
- Sandelowski, M. (2000). Focus on research methods-whatever happened to qualitative description? *Research in Nursing and Health*, 23(4), 334-340.
- Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing & Health*, 33(1), 77-84.

- Sargeant, J., Curran, V., Allen, M., Jarvis-Selinger, S. and Ho, K. (2006), Facilitating interpersonal interaction and learning online: Linking theory and practice. *J. Continuing Education in the Health Professions*, 26: 128-136.
- Savage, J. (2000) Ethnography and health care. *British Medical Journal*. 321, 7273, 1400-1402.
- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109-119.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books. (Reprinted in 1995)
- Schugurensky, D. (2000). The forms of informal learning. Towards a conceptualization of the field. Working Paper 19-2000. Presented at the New Approaches for Lifelong Learning (NALL) Fourth Annual Conference, October 6-8. <http://hdl.handle.net/1807/2733> (Accessed 11.4.19)
- Schwandt, T.A. (2007) *The Sage Dictionary of Qualitative Inquiry*. Third edition. Sage Publications, Thousand Oaks CA.
- Schwartz, M.S., and Schwartz, C.G. (1955). Problems in participant observation. *American Journal of Sociology*, 60, 343-353.
- Scott, D. (2005), Critical Realism and Empirical Research Methods in Education. *Journal of Philosophy of Education*, 39: 633-646
- Seabrook, M. A. (2004). Clinical students' initial reports of the educational climate in a single medical school. *Medical Education*, 38(6), 659-669.
- Seale, C., Gobo, G., Gubrium, J. F, and Silverman, D. (Eds.), (2004) *Qualitative Research Practice*. London Sage Publications.
- Sheehan, D, Wilkinson, T.J., and Billett, S. (2005) Interns' participation and learning in clinical environments in a New Zealand hospital. *Academic Medicine*.;80(3):302–308
- Silverman, D (2006) *Interpreting Qualitative Data*. Sage Publications, London.
- Slotnick, H (1999) How doctors learn: Physicians' self-directed learning episodes. *Academic Medicine* 74: 1106–1117
- Smith, A., Oczkowski, E. and Selby Smith, C. (2008). *To have and to hold: Retaining and utilising skilled people*, Adelaide: NCVET.
- Smith, M. (1988) *Developing Youth Work. Informal education, mutual aid and popular practice*, Milton Keynes: Open University Press.
- Smith, M. K. (1999), 'Informal learning', the encyclopaedia of informal education. Available at <http://www.infed.org/biblio/inf-lrn.htm>. (Accessed 27.3.2010).
- Smith, M. K. (2002) 'Malcolm Knowles, informal adult education, self-direction and andragogy', the encyclopaedia of informal education. <http://www.infed.org/thinkers/et-knowl.htm>. (Accessed 27.3.2010)

- Spaan.N., Dekker, A.J, van der Velden A.W. and de Groot ,E., (2016), Informal and formal learning of general practitioners , *Journal of Workplace Learning*, Vol. 28 Iss 6 pp. 378 – 391
- Stake, R.E. (1994). Case Studies, in N.K. Denzin and Y. Lincoln (eds). *Handbook of Qualitative Research*. California: Sage
- Stefaniak, J. (2017). The Role of coaching within the context of instructional design. *Techtrends: Linking Research& Practice to Improve Learning*, 61(1), 26-31.
- Stenbacka, C. (2001) Qualitative Research Requires Quality Concepts of Its Own. *Management Decision*, 39, 551-555.
- Steven, K., Wenger, E., Boshuizen, H., Scherpbier, A., and Dornan, T. (2014). How Clerkship Students Learn from Real Patients in Practice Settings. *Academic Medicine*, 89(3), 469-476.
- Stewart, M., Brown, J.B., Donner, A., McWhinney, I.R., Oates, J, Weston, W.W, and Jordan,J. (2000) The impact of patient-centred care on outcomes. *Journal Family Practitioner* 49(9)805–807
- Stigler, J.W., Gonzales, P., Kawanaka, T., Knoll, S. and Serrano, A. (1999). The TIMSS Videotape Classroom Study: Methods and Findings from an Exploratory Research Project on Eighth-Grade Mathematics Instruction in Germany, Japan, and the United States. U.S.
- Stok-Koch, L., Bolhuis, S., and Koopmans, R. (2007) 'Identifying Factors that Influence Workplace Learning in Postgraduate Medical Education' *Education for Health: 20 (1)* p: 8-8
- Strand, P., Sjöborg, K., Stalmeijer, R., Wichmann-Hansen, G., Jakobsson, U., and Edgren G. (2013;) Development and psychometric evaluation of the Undergraduate Clinical Education Environment Measure (UCEEM) *Med Teach*. 35:1014–26
- Strand, P., Edgren, G., Borna, P., Lindgren, S., Wichmann-Hansen, G., and Stalmeijer, R. E. (2015). Conceptions of how a learning or teaching curriculum, workplace culture and agency of individuals shape medical student learning and supervisory practices in the clinical workplace. *Advances in Health Sciences Education*, 20(2), 531-557.
- Strauss, A. and Corbin, J. (1998) *Basics of qualitative research: techniques and procedures for developing grounded theory*. London Sage.
- Strimel, G., Reed, P., Dooley, G., Bolling, J., Phillips, M and Cantu, D.V. (2014) Integrating and monitoring informal learning in education and training. *Techniques*, Vol. 89 (3), 48-54
- Swanwick, T. (2005) Informal learning in Postgraduate medical education from cognitivism to culturism. *Medical education* 39;859-65
- Swanwick, T. (2014) *Understanding medical education, evidence ,theory and practice 2ndEd*. Blackwell

- Tervaskanto-Mäentausta, T (2018) Interprofessional education during undergraduate medical and health care studies Oulu: University of Oulu,
- Teunissen, P. (2008). Unravelling learning by doing. A study of workplace learning in postgraduate medical education. (Doctoral thesis), VU Medical University, Amsterdam.
- Teunissen, P. W. (2015). Experience, trajectories, and reifications: an emerging framework of practice-based learning in healthcare workplaces. *Advances in Health Sciences Education*, 20(4), 843-856.
- Teunissen, P. W. (2016). Trust your struggle. *Perspectives on Medical Education*, 5(2), 69-70.
- Teunissen, P., Scheele, F., Scherpbier, A., Van Der Vleuten, C., Boor, K., Van Luijk, S., and Diemen-Steenvoorde, V. (2007). How residents learn: qualitative evidence for the pivotal role of clinical activities. *Medical Education*, 41(8), 763-770.
- The Guardian Newspaper (2017) NHS Cyber-attack Available at <https://www.theguardian.com/society/2017/may/19/nhs-cyber-attack-ransomware-disruption-breach> (Accessed 3.2.18)
- Thistlethwaite, J (2012): Interprofessional education: A review of context, learning and the research agenda. *Medical Education*, 46:58–70
- Tjepkema, S., ter Horst, H. M., Mulder, M., and Scheerens, J. (2000). The role of HRD within organisations in creating opportunities for lifelong learning: Concepts and practices in seven European countries—Area II: Future challenges for HRD professionals in Europe. Enschede, Netherlands: European Commission
- Tracy, S. J. (2010). Qualitative quality: eight “Big-Tent” criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837-851.
- Trafford, V. and Leshem, S. (2008) *Stepping Stones to Achieving your Doctorate*, Maidenhead. Open University Press.
- Tschannen, D., Keenan, G., Aebersold, M., Kocan, M., Lundy, F., and Averhart, V. (2011). Implications of nurse-physician relationships: Report of a successful intervention. *Nursing Economics*, 29(3), 127-135.
- Tynjälä, P. (2008). Perspectives into learning at the workplace. *Educational Research Review*, 3(2), 130-154.
- Tynjälä, P. (2013). Toward a 3-P Model of Workplace Learning: A Literature Review. *Vocations and Learning*, 6(1), 11-36.
- Vallis J, Hesketh, A. and Macpherson S. (2004) Pre-registration house officer training: a role for nurses in the new Foundation Programme? *Med Educ.* 2004;8(7):708-716.
- Van der Geest S, Finkler, K. (2004) Hospital Ethnography Introduction: *Social Science and Medicine* 59:1995-2001.
- Van der Heijden, B., Boon, J., van der Klink, M., and Meijs, E. (2009). Employability enhancement through formal and informal learning: An empirical study among Dutch

non-academic university staff members. *International journal of training and development*, 13(1), 19-37.

Van der Zwet, J., Hanssen, V., Zwietering, P., Muijtjens, A., Van der Vleuten, C., Metsemakers, J., and Scherpbier, A. (2010). Workplace learning in general practice: supervision, patient mix and independence emerge from the black box once again. *Medical Teacher*, 32(7), e294-e299.

Van der Zwet, J., Zwietering, P., Teunissen, P., Van Der Vleuten, C., and Scherpbier, A. (2011). Workplace learning from a socio-cultural perspective: creating developmental space during the general practice clerkship. *Advances in Health Sciences Education*, 16(3), 359-373.

Van der Zwet, J., Dornan, T., Teunissen, P. W., de Jonge, L. P., and Scherpbier, A. J. (2014). Making sense of how physician preceptors interact with medical students: discourses of dialogue, good medical practice, and relationship trajectories. *Advances in Health Sciences Education*, 19(1), 85-98.

Van Maanen, J. and E. H. Schein (1979). "Toward of Theory of Organizational Socialisation." *Research in Organizational Behaviour*, 1: 209-264.

Van Maanen, J. (2011). *Tales of the Field: On Writing Ethnography*. Chicago: The University of Chicago Press.

Van Noy, M.; James, H. and Bedley, C. (2016), 'Reconceptualising Learning: A Review of the Literature on Informal Learning', Technical report, ACT Foundation. Rutgers Education and Employment Research Centre.

Van Woerkom, M, Nijhof, WJ and Nieuwenhuis, L (2002), 'Critical reflective working behaviour: a survey research' *Journal of European industrial training*, vol 26, no. 8, pp. 375-383.

Varpio L, Bidlake E, Casimiro L, et al. (2014); Resident experiences of informal education: How often, from whom, about what and how. *Medical Education*. 48:1220–1234.

Varpio, L., Martimianakis, M. A. T., and Mylopoulos, M. (2015). Qualitative research methodologies: embracing methodological borrowing, shifting and importing. In J. Cleland and S. J. Durning (Eds.), *Researching Medical Education* (pp.245-256). West Sussex: Wiley-Blackwell.

Vygotsky, L. S:(1962) *Thought and language*, Cambridge, MA, MIT Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Hall, W. A .and Callery, P (2001) Enhancing the rigor of grounded theory: Incorporating reflexivity and relationally *Qualitative health research*, 11 (2), 257-272.

Walsh. K. (2013) *Oxford textbook of medical education*. Oxford: Oxford University.

Walsh, H., Jolly Inouye, A., and Goldman, E. (2017). *Improving Communication Through Resident-Nurse Shadowing*. *Hospital Paediatrics*.

- Walsham, G. (1995) *European Journal Information Systems* 4: 74. Available at <https://doi.org/10.1057/ejis.1995.9> (Accessed 2.9.18)
- Wang, S. and Noe, R.A. (2010) Knowledge Sharing: A Review and Directions for Future Research. *Human Resource Management Review*, 20, 115-131.
- Watson, T. J. (2011), *Ethnography, Reality, and Truth: The Vital Need for Studies of 'How Things Work' in Organizations and Management*. *Journal of Management Studies*, 48: 202-217. doi:10.1111/j.1467-6486.2010.00979.
- Weber, R. P. (1990). *Basic Content Analysis*, 2nd ed. Newbury Park, CA.
- Weibell, C J., *Principles of Learning: A Conceptual Framework for Domain-Specific Theories of Learning*. All Theses and Dissertations. 2759.
- Wenger, E. (1998). *Communities of practice: learning, meaning, and identity*. Cambridge: Cambridge University Press.
- Wenger E. (2000) Communities of practice and social learning systems. *Organization*; 7:225-46.
- Wenger, E., and Snyder, W. (2000). *Communities of practice: The organizational frontier*. *Harvard Business Review*, 78(1), 139-146.
- Werquin, P. (2010) *Recognising Non-Formal and Informal Learning outcomes, policies and practices*. OECD.
- West, M, and Markiwicz, L. (2004) *Building Team-Based Working*. Cornwall: The British Society and Blackwell Publishing Ltd.
- Wicks, D. (1998) *Doctors and Nurses at Work: Rethinking Professional Boundaries* Buckingham. Open University.
- Williams, G.C, Deci, E.L. (1998) The importance of supporting autonomy in medical education. *Annals of Internal Medicine* 129: 303–308.
- Williams, G.C., Saizow, R.B.,and Ryan, R.M. (1999); The importance of self-determination theory for medical education. *Academic Medicine*. 74(9):992–995.
- Williamson, K. (2006) *Research in Constructivist Frameworks Using Ethnographic Techniques* *Library Trends*, vol. 55 no. 1, pp. 83-101. Project MUSE, doi:10.1353/lib.2006.0054.
- Wilson, J. (2010) “*Essentials of Business Research: A Guide to Doing Your Research Project*” SAGE Publications.
- Windsor, A. (1987) *Nursing Students' Perceptions of Clinical Experience* *Journal of Nursing Education*. 1987;26(4):150-154 <https://doi.org/10.3928/0148-4834-19870401-06>.
- Wenger, E., Mc Dermott, R. and Snyder, W. M. (2002) *'Cultivating Communities of Practice Boston MA.'* Harvard Business School Press.

- Williams A, Mackintosh J, Bateman B, Holland S, Rushworth A, Brooks A, Geddes J. The development of a designated dental pathway for looked after children. *British Dental Journal*, 2014; 216: 3.
- Wolcott, H., (2001) *The Art of Fieldwork*: Walnut Creek, California, Alta Mira Press.
- Wolf, Z.R (2007) *Ethnography: the method*. In Munhall, P.L.(Ed) *Nursing Research – A Qualitative Perspective*. Fourth Edition. Jones and Bartlett, Sudbury MA.
- World Health Organisation (2004) *A practical guide for health researchers*. WHO Regional Publications, Eastern Mediterranean Series 30.
- World Health Organization. (2010) *Framework for Action on IPE & Collaborative Practice*. Switzerland: S& B Graphic Design.
- World Health Organisation (2011) *Patient Safety Curriculum Guide: Multiprofessional Edition*. WHO Press Geneva.
- World Health Organisation (2018) *Health Systems Available at <https://www.who.int/healthsystems/en/>*. (Accessed 12.10.18)
- World Medical Association (2002). *World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects*. *Journal of Postgraduate Medicine*, 48(3), 206.
- Yee, W. C. and Andrews, J. (2006) "Professional researcher or a 'good guest'? Ethical dilemmas involved in researching children and families in the home setting. *Educational Review*. 58 (4). pp. 397-413.
- Zanotti, R., Sartor, G., and Canova, C. (2015) Effectiveness of interprofessional education by on-field training for medical students, with a pre-post design. *BMC Medical Education*, 15:121. doi: 10.1186/s12909-015-0409-z
- Zhang, J, Peteron, R, Ozolins, I. (2011) Student approaches for learning in medicine: what does it tell us about the informal curriculum? *BMC Medical Education*, 11 (1): 87.