MY LEARNING JOURNEY: Exploring the Reflections of Medical Students during the Pre-Clinical Phase of the Doctor of Medicine Course

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Doctor of Pharmacy

This thesis is presented in partial fulfilment of the requirements for the Master of Health Professions Education (Thesis and Coursework), the Faculty of Health and Medical Sciences of the University of Western Australia

2018
Declaration

Having completed coursework and research towards the degree of Master by research, I hereby submit my thesis for examination. I certify that this thesis is my own work and to the best of my knowledge, all sources have been acknowledged. This thesis is completed during the course of enrolment in the degree of Master of Health Professions Education (Thesis and Coursework) at the University of Western Australia and has not been submitted previously to this or any other institution.

Prabha Rukmalee Wijesinghe
22 July, 2018
Abstract

Introduction: Research on investigating the reflective skills of medical students has been mostly restricted to undergraduate medical students. However, the participants in this study are enrolled in a postgraduate medical course at the University of Western Australia and little is known about their experiences or ability to reflect.

Objective: To explore the level and focus of written reflections submitted by medical students in the pre-clinical years of the Doctor of Medicine course guided by the following research questions:

1. How do medical students reflect in terms of depth using a reflective framework?
2. What do medical students focus on when writing reflectively about their learning experiences?

Method: Following a comprehensive literature review, a qualitative study was undertaken to analyse the written reflections in terms of the level of reflection as well as the content of the learning experiences described in these reflections. A reflective framework was used to determine the level of reflection and a thematic analysis was conducted to analyse the written experience, generate categories and create themes.

Findings and Discussion: Study findings were generated from 207 reflections submitted by fifty students. The finding that 57% (118 or 207) of reflections were written at a Level 5 or 6 of the reflective framework affirms that guided reflective writing as an initial experience was a creditable skill the students accomplished. Those who wrote on average more than 450 words reflected at Levels 5 and 6. Four resultant themes were identified from student learning experiences: awareness of self, readiness for practice, interacting with patients and encountering the health system. At the end of their pre-clinical training, the identity status of students giving rise to professional practitioners is presented as a new model of professional identity formation.

Conclusion: This study illustrates the reflective abilities of medical students and provides a view of the dynamic nature of professional identity being generated from within medical students’ experiences. Implications for educators are discussed. Progression of this work to conduct ongoing evaluations of the curriculum, pedagogies and learning experiences of students are recommended.
Table of Contents

Declaration........................................................................................................................................... iii
Abstract.................................................................................................................................................... v
Table of Contents .................................................................................................................................... vii
List of Figures.......................................................................................................................................... xi
List of Tables........................................................................................................................................... xi
List of Key Terms..................................................................................................................................... xiii
Acknowledgements ............................................................................................................................... xv
Presentation at Conferences.................................................................................................................. xvii

Chapter 1 Introduction ......................................................................................................................... 1
1.1 Background ...................................................................................................................................... 1
1.2 Reflection in Medicine ...................................................................................................................... 1
1.3 The Educational Context ................................................................................................................ 2
1.4 The Conceptual Framework ........................................................................................................... 6
1.5 Significance of the Study ................................................................................................................ 9
1.6 Research Questions ........................................................................................................................ 9
1.7 The Structure of the Thesis ............................................................................................................ 10
1.8 Summary .......................................................................................................................................... 11

Chapter 2 Review of Literature ............................................................................................................. 13
2.1 Introduction ...................................................................................................................................... 13
2.2 Literature Review Search Strategy .............................................................................................. 13
2.3 Defining the Concept of Reflection .............................................................................................. 14
2.4 Approaches to Study Design ....................................................................................................... 15
2.4.1 Single Modality Approaches to Study Design ...................................................................... 15
2.4.2 Multi Modality Approaches to Study Design ...................................................................... 16
2.5 Frameworks to Facilitate the Depth of Reflection ..................................................................... 19
2.6 Formative or Summative Assessment of Reflection .................................................................. 22
2.7 Process of Data Analysis ............................................................................................................. 22
2.8 The Breadth of the Learning Experience .................................................................................... 26
2.9 General Limitations of Literature ............................................................................................... 29
2.10 Summary ...................................................................................................................................... 30

Chapter 3 Research Design and Methodology ..................................................................................... 33
3.1 Introduction ..................................................................................................................................... 33
3.2 Qualitative Research .................................................................................................................... 33
3.3 The Researcher and the Context of Research ........................................34
3.4 Population and Sampling ........................................................................35
3.5 Current Study Design .............................................................................36
3.6 Reflective Framework ..............................................................................37
3.7 Data and Data Collection Procedure .......................................................38
3.8 Data Analysis .........................................................................................39
3.8.1 Level of Reflection Analysis .................................................................39
3.8.2 Word Count Analysis ..........................................................................40
3.8.3 Coding and Thematic Analysis .............................................................40
3.9 Rigour .....................................................................................................44
3.10 Ethics Considerations ............................................................................45
3.11 Summary ...............................................................................................46

Chapter 4 Results .........................................................................................47
4.1 Introduction ............................................................................................47
4.2 Level of Reflection ..................................................................................47
4.3 Word Count ...........................................................................................52
4.4 Themes ....................................................................................................53
  4.4.1 Theme: Awareness of Self .................................................................55
  4.4.2 Theme: Readiness for Practice .........................................................63
  4.4.3 Theme: Interacting with Patients ......................................................67
  4.4.4 Theme: Encountering the Health System .........................................72
4.5 Summary ...............................................................................................75

Chapter 5 Discussion and Recommendations .............................................77
5.1 Introduction ............................................................................................77
5.2 Level of Reflection ..................................................................................77
5.3 Word Count ...........................................................................................80
5.4 Student Experiences ..............................................................................80
  5.4.1 Awareness of Self ............................................................................81
  5.4.2 Readiness for Practice ....................................................................85
  5.4.3 Interacting with Patients ................................................................88
  5.4.4 Encountering the Health System ....................................................93
5.5 Summary ...............................................................................................97

Chapter 6 Conclusion ....................................................................................99
6.1 Introduction ............................................................................................99
6.2 Discussion in Relation to Major Themes ...............................................99
  6.2.1 A New Model of Professional Identity Formation .............................100
List of Figures

Figure 1: The Doctor of Medicine course structure ................................................................. 3
Figure 2: The PLACES curriculum ............................................................................................ 3
Figure 3: A screenshot of the "My Learning Journey" page of the free-writing blog ................................................................. 4
Figure 4: Gibbs Reflective Cycle .............................................................................................. 8
Figure 5: The structured reflective framework used in the study ............................................ 38
Figure 6: Relationship of research questions to data and data analysis methods ................. 39
Figure 7: Step-by-step illustration to determine the ‘Final’ level of reflection .................. 40
Figure 8: Comparison diagram of initial codes ...................................................................... 43
Figure 9: Reflections coded at each ‘Level’ ............................................................................. 49
Figure 10: Relationship between the average word count and the level of reflection .......... 53
Figure 11: A new model of professional identity formation entwined by self-awareness of practice experiences ................................................................. 101

List of Tables

Table 1: Models of the reflective process ................................................................................ 7
Table 2: An example of assignment of ‘Final’ level of reflection ......................................... 39
Table 3: Issues encountered at each level of reflection ......................................................... 47
Table 4: Core themes and corresponding sub-themes ......................................................... 54
## List of Key Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>ePortfolio</td>
<td>A collection of evidence assembled and managed by a user electronically, usually on the web</td>
</tr>
<tr>
<td>Facilitator</td>
<td>A person responsible for leading a group or a group discussion</td>
</tr>
<tr>
<td>Mentor</td>
<td>One who acts as an adviser to a younger colleague</td>
</tr>
<tr>
<td>Near-peer</td>
<td>An individual who has recently experienced what someone else one to two levels junior will soon be experiencing</td>
</tr>
<tr>
<td>Placement</td>
<td>A learning experience in hospital and General Practice settings</td>
</tr>
<tr>
<td>Preceptor</td>
<td>A practicing doctor who gives instruction, training or supervision to a medical student or a junior doctor</td>
</tr>
<tr>
<td>Pre-Clinical Phase</td>
<td>First three semesters of the four-year Doctor of Medicine course</td>
</tr>
<tr>
<td>Reflection</td>
<td>The process of giving consideration to make sense of own and others experiences</td>
</tr>
<tr>
<td>Tutor</td>
<td>One who teaches a single student or a group to help students catch-up in a subject</td>
</tr>
</tbody>
</table>
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Presentation at Conferences

The candidate presented the following during her candidature:

Chapter 1  Introduction

“By three methods we may learn wisdom: First, by reflection, which is the noblest; Second, by imitation, which is the easiest; and Third by experience, which is the bitterest.”

(Quote attributed to Confucius)

1.1  Background

The ability to reflect is an integral part of medical education. The intended purpose is to critically look at one’s own reasoning and decision making so that future actions can be informed by this understanding. The ability to self-evaluate one’s own professional practice amongst several other qualities is a requirement to practice as a professional. Reflective skills are important attributes for accurate diagnoses and may lead to minimising mistakes when doctors are faced with unfamiliar and complex cases. At the same time, reflective skills require development. Broadly, this entails the students recalling an event, followed by analysing and evaluating the experience. The aim in general is to help students to think critically and systematically, and progress from lower levels of reflective ability to higher levels.

Many medical schools incorporate ‘reflection’ into the curriculum and student assessments. However, the understanding and experience of students of reflection in medical education has been described as incomplete, with curriculum deficits and individual student needs. Therefore, this research was brought about by the desire to understand the reflective skills of medical students enrolled in a Doctor of Medicine (MD) course. This first chapter will cover briefly the educational setting of medical students at The University of Western Australia (UWA), and the use of reflection both within and outside the classroom. The author will also discuss the conceptual framework in developing the reflective ability and existing models of structured reflection. The research questions will then be posed, along with the significance of the study, and followed by the structure of the thesis.

1.2  Reflection in Medicine

The Concept of Reflection in Medical Education:

The concept of reflection arose from the pivotal works of Dewey, who suggested that a complete act of thought involves a double movement of reflection. This comprises of an inductive phase and a deductive phase, where observed or recollected data are connected
with one another and with additional facts to create an all inclusive meaning. \(^4\) In the context of medical education, and from its Latin etymology, the word ‘reflection’ is considered as a course of action in which thoughts are ‘bent back’ to be construed and examined by a learner. \(^5\) Moon\(^6\) describes it as “a form of mental processing with a purpose and/or anticipated outcome that is applied to relatively complex or unstructured ideas for which there is not an obvious solution.”

A wide variety of different approaches to integrate reflective activities including the requirement of an academic course in reflection have been implemented. \(^5\) Despite reflection being considered a significant component in medical education, there is a lack of a consensual definition or an explicit understanding of reflection. \(^7\)

**Why is Reflection Important in Medical Education?**

The Code of Conduct by the Medical Board of Australia expresses professionalism, a standard of behaviour that warrants the trust and respect of the community, should include ethical conduct, and qualities of self-awareness and self-reflection. Medical doctors are expected to reflect regularly on whether they are practising effectively, their professional relationships with patients and colleagues, and their own health and wellbeing. \(^8\) Similarly, the Australian Medical Council standards for assessment of primary medical programs lists professionalism and leadership as a requirement that students must demonstrate as an entry-level practitioner. These include being able to self-evaluate one’s own professional practice, adhere to principles of ethical practice, and being able to demonstrate the awareness of several other qualities required to practice as a professional. \(^1\) Furthermore, there is evidence that the educational impact of reflection in medical education increases professional development and professional identity formation. \(^5\)

### 1.3 The Educational Context

In Australia, medical schools offer two types of medical degrees; a five or six year undergraduate bachelor degree or with a prior professional qualification, entry into a doctor of medicine program. \(^9\) To be considered for admission to the four-year UWA Doctor of Medicine program, an applicant must have a prior bachelor’s degree in any discipline. The overall aim of the course is to produce graduates committed to the well-being of the patient, community and society, as accountable, capable and caring doctors.

The teaching consists of classroom work and experiential placements. In the classroom setting, students attend lectures, participate in group discussions, skills workshops,
laboratories, seminars and have an introduction to research-based activities. In addition, they may volunteer their time for community activities.

From the beginning of their Foundations phase (Fig. 1) in semester one, students participate in day-long clinical placements in the major hospital specialities which include emergency medicine, psychiatry as well as general practices. Students are paired with a clinician and the learning focuses on patient care skills and knowledge. They may observe or participate in patient interviews, clinical procedures or be exposed to cultural, professional or ethical aspects of medical practice.

![Figure 1: The Doctor of Medicine course structure](image)

Enrolled students are required to demonstrate achievement of outcomes from the six PLACES (Professional, Leader, Advocate, Clinician, Educator and Scholar) themes (Fig. 2).

![Figure 2: The PLACES curriculum](image)
An e-Portfolio of Learning Activities:

At UWA, student assessment includes a longitudinal portfolio maintained over the 4 years along with other modes of interim assessments such as structured clinical observations, multiple choice questions and objective structured practical examinations. The portfolio is maintained electronically and the design was intended to be simple in an effort to increase utility and minimise student frustration with navigation. It is a collection of students’ work that demonstrates their professional development process occurring over time. As evidence of learning, students may include case reports, written assignments and video or audio of events among others. By identifying their learning needs and producing evidence demonstrating how learning is applied, students can critically reflect on their academic progress and the development of life-long skills required as a doctor. The formal e-portfolio is presented for review yearly.

The e-Portfolio content comprises of a number of activities under the PLACES themes that are mandatory or flexible. “My Learning Journey” (Fig. 3) under the ‘Educator’ theme, is one of the flexible free-writing activities where students have the option to choose significant learning events of their preference and reflect upon them as they experience them.

Figure 3: A screenshot of the "My Learning Journey" page of the free-writing blog
Phases of the Reflective Process:

To be able to judge whether students’ journal entries show meaningful reflection one needs to have an understanding of various phases of the reflective process, also known as the ‘level’ or ‘depth’ of reflection. In this vertical dimension of the reflective process, surface levels are considered to be more descriptive and less analytical than deeper or higher levels of analysis and synthesis.\textsuperscript{10}

Approaches to Capture the Reflective Process:

Much of the literature on reflection addresses educational approaches to capture the extent of students’ awareness and understanding of the reflective process. For example, Kanthan and Senger\textsuperscript{11} analysed self-reflection documents on personal learning styles and discovered that introduction to self-reflective assignments in early undergraduate medical education may facilitate proficiency in mastering this skill. Interestingly, Carr and Carmody\textsuperscript{12} found only a few students demonstrated the ability to write reflectively at the highest level of reflection unless there was a facilitative discussion with a tutor. This is supported by Mortari\textsuperscript{13} who stated that the natural tendency of the mind is to be unreflective and for the reflective ability to sprout spontaneously it needs to be enhanced by education.

In medical schools, a variety of educational approaches have been applied to foster the reflective process; from text-based assessment of reflective essays to small-group discussions and the use of digitalised platforms or electronic portfolios.\textsuperscript{5,14} Regardless of the approach to capture the process, the spark to this ‘awareness of self’ is typically a clinical experience in the form of an activity, event or a critical incident.\textsuperscript{5,10} When faced with such a situation, the act of telling a story and reflecting helps students translate what they have experienced to future patient care. Sobral\textsuperscript{15} measured the reflection-in-learning of medical students and reported that a greater effort in reflection is associated with a meaningful learning experience.

At UWA, reflective events may include reflections on self, critical incidents, case reports, observations, or discussions during their pre-clinical phase comprising of three semesters. This phase includes large classroom participation, small group discussions, simulated clinical teaching as well as day-long clinical placements. Students may focus on their own actions or actions of others during the process of reflection.

In this study, a structured reflective framework (illustrated in Chapter 3.4) was introduced to the medical students during a reflective writing workshop at orientation. Additionally, it was provided as a guide in the electronic template of the portfolio. The objectives of reflection
were made clear to the students and the learning goals for the reflective exercise was defined. A maximum of six written reflective items could be submitted based on the students’ experiences during the first three semesters. There was no mandatory word count requirement.

1.4 The Conceptual Framework

This section outlines the theory supporting this research including several models of reflection in practice, and the Gibbs Reflective Cycle, which was influential in the development of the reflective framework used in this study.

Learning Theory in Developing Reflective Competence:

Recognising Piaget’s theories of cognitive development and constructivism is important to understand the philosophical educational principle that is associated with reflective learning. In simple terms, one of Piaget’s many ‘theories of intelligence’ states that intellectual ability of a learner is gradually constructed as a result of pressures of an environmental stimulus or an experience. In the context of the present study, the learner, a medical student is attempting to engage in a personal ‘learning journey’ by reacting and reflecting upon a clinical experience encountered by them and thereby cultivating their self-awareness ability. The student takes the constructivist approach by adopting a stepwise model to build-up a logical narrative to develop this important reflective skill.

Models of Reflective Practice:

Since as early as 1910, there have been many models of structured reflection in practice. Although they appear to have distinct differences, the aim in general is to follow a stepwise manner to help students progress from lower levels of reflective ability to higher, deeper or critical levels. Table 1 illustrates how these authors have conceptualised the reflective process when developing the reflective competency of a learner.
Table 1: Models of the reflective process

<table>
<thead>
<tr>
<th>Author</th>
<th>Process of Reflective Practice</th>
</tr>
</thead>
</table>
| **Dewey (1910)**  | 1. A felt difficulty  
  2. Its location and definition  
  3. Suggestion of a possible solution  
  4. Reasoning of the impacts of the suggestion  
  5. Acceptance or rejection |
| **Schön (1983)**  | 1. Knowing-in-action (tacit knowledge)  
  2. Stimulation due to a surprise  
  3. Reflecting-in-action (noticing while doing)  
  4. Repetitive experiences  
  5. Make new sense of experiences  
  6. Reflection-on-action (prepare for future experiences) |
| **Boud (1985)**   | 1. Experience  
  2. Reflective processes (attending to feelings and evaluation of experience)  
  3. Outcome |
| **Mezirow (1990)**| 1. Ex post facto reflection (looking back at prior learning)  
  2. Content of problem  
  3. Process or procedures followed  
  4. Critical reflection |

**Gibbs Reflective Cycle:**

In the recent times, researchers simply state that the self-reflection process starts at any stage of an experience and is followed by metacognitive activities of reviewing, analysing and adapting new behaviours. In this study, the scaffolding to develop reflective skills was based on the Gibbs Reflective Cycle (Fig. 4). Gibbs introduced reflection as a cyclical process. It starts with an experience where the student tries to understand a particular situation to better prepare for future encounters.
Gibbs reflective cycle\textsuperscript{21} is useful in coaching students to identify key experiences or incidents and through the analysis of these experiences to draw conclusions about what to do next. The purpose is to move logically from one-step to the next to achieve a higher level of reflection. This is considered as being a more analytical, deeper reflection with critical synthesis. Achieving this deep reflection is important as it produces a new understanding and the potential to act differently in a similar situation in the future.\textsuperscript{10}

Gibbs\textsuperscript{21} says students often have trouble moving cleanly from one stage to the next even with the help of structured frameworks. Moreover, higher levels of reflection in writing are known to be difficult to achieve and are less frequently demonstrated,\textsuperscript{10} as students often jump from superficial descriptions of the incident to premature action plans without sufficient analysis.\textsuperscript{21} Similarly, if the experience has been powerful and feelings are not analysed adequately, students tend to return to these steps at a later stage when they should be considering future action plans.\textsuperscript{21} A six-step reflective framework similar to the Gibbs Reflective Cycle, which was developed by the UWA and used in this study, is illustrated in the methodology chapter (Chapter 3).
1.5 Significance of the Study

Numerous models of reflection and a multitude of opinions about the importance of reflective practice in medical education exist. Similarly, the published literature also focuses on many studies that implement and foster reflective practice in medical schools. At the UWA, an e-portfolio is used to document student reflective experiences, however, it is not known if students enrolled in the pre-clinical years of the MD course are reflecting appropriately at a deeper level.

Further, classroom activities and placement experiences in medical education are designed and developed to make students better physicians. Therefore, being aware of their interactions with patients and colleagues are essential for professional development. More importantly, staff support and encouragement is valuable for students to take increasing responsibility for their own health and well-being. Therefore, anything that can be done to improve student experience will ultimately improve student satisfaction and patient care.

Additionally, there is growing evidence that reflective practice affects all disciplines and learners from students to interns as well as practising professionals, improving clinical practice across health specialities in continuous professional development and life-long learning. Literature also shows that critical reflection develops safer patient care and improve quality of healthcare across all medical specialities.

By exploring how students reflect and being cognisant of their experiences, this study will benefit medical educators in improving the medical curriculum. In addition, a better understanding of the self-reflective practice would help students themselves be more reflective practitioners, which in turn will benefit their patients.

1.6 Research Questions

The overall aim of this research project is to describe the learning experiences of medical students in their pre-clinical years by exploring their written reflections. However, at present, there is a lack of information about the reflective ability of postgraduate medical students enrolled in the UWA MD program, which raises questions about the usefulness of “My Learning Journey” free-writing blog. Therefore, ‘how’ the approaches taken by the participants in their reflective writing contributed to the quality of the reflections, was an area of interest. The depth of reflection demonstrated by participants reflecting longitudinally in their pre-clinical phase is a key focus of the outcomes and for implementing future changes in the e-Portfolio.
Moreover, there was an expectation that the reflective framework provided would encourage a rich description of specific student experiences. Exploring ‘what’ was written about the experience and ‘what’ contextual background was chosen to reflect upon, is significant in understanding the breadth of educational experiences and needs of medical students. This information will aid educationalists and policy makers in improving student learning experiences when planning and designing the curriculum.

Ideally, research questions frame precisely what questions will be answered, are researchable, what evidence will be gathered and identify clearly how the questions will be addressed. The intention of this investigation was to explore the reflections of medical students during the pre-clinical phase of their Doctor of Medicine course, hence was guided by the following research questions:

1. How do medical students reflect in terms of depth using a reflective framework?

2. What do medical students focus on when writing reflectively about their learning experiences?

### 1.7 The Structure of the Thesis

The overall structure of the thesis takes the form of six chapters, including the introductory chapter, which began with an overview to the use of reflection in medical education and an account of how reflective practice is introduced to medical students for the development of their professional qualities. Justification for and research questions were presented at the end of this chapter.

The second chapter begins with the author reviewing the literature to identify available models of reflection and study designs that assess the reflective ability of medical students. The chapter also focuses on the perspectives of medical students in order to understand their educational experiences. This review sets the scene for important aspects to consider when attempting to address the two research questions.

The third chapter is concerned with the methodology used for this study. In this chapter, the research process is outlined including the study design, reflective framework used, approach to the methods employed, the context of the researcher within this body of work, data collection and analysis, and principles of ethical considerations.
The fourth chapter presents the findings of the research, focusing on four key themes that were identified. Student narratives and data about their levels of reflective ability are also presented.

In the fifth chapter, the findings are discussed in relation to the research questions and compared with the evidence of published research. Recommendations for curricular improvements are proposed.

The last chapter concludes with a discussion in relation to major themes and a new model of professional identity formation. Final remarks are then made along with limitations of this study and implications for research and practice.

1.8 Summary

Developing reflective skills is essential in medical education as doctors are expected to reflect regularly when practising medicine. Several educational methods have been applied to capture the reflective process; an electronic portfolio being one. During the pre-clinical years, medical students at the UWA MD course reflect narratively in their portfolio about their experiences in the classroom setting or at experiential placements. A structured, stepwise framework discussed more in detail in Chapter 3, facilitates reflective narratives. However, it is not known if medical students are reflecting appropriately at a sufficiently deep level, and what experiences or issues the students are faced with. There is a need to explore student reflective narratives to help ensure student experiences are maximised and the medical curriculum is enhanced for future students. The following chapter investigates the published literature on the topic of reflective practices of medical students and their experiences in more detail.
Chapter 2  Review of Literature

2.1  Introduction

This chapter contains a review of the published literature informing this study. The objective of this review was to appraise the available literature related to reflective abilities of medical students and their learning experiences during the medical course. Emphasis is placed on identifying available models or frameworks of reflection, study designs to assess the reflective ability of medical students and understanding students’ perceptions of their learning experiences.

The goal of this literature review is to (1) determine if a particular model (framework) or a method is useful in assessing the depth of the reflective ability of medical students and (2) understand the breadth of their learning experiences that lead to reflection. Additionally, research around the reflective practice of medical students is reviewed and studies are consolidated to summarise the major trends. This chapter ends with important issues, useful methods and techniques noted in the literature when considering exploring reflective practice of medical students.

2.2  Literature Review Search Strategy

This review of the literature provides a foundation for both the theoretical and the practical aspects of the current study. The exploration is positioned in the setting of medical students in a pre-clinical phase of a MD program. As such, it was decided to only focus on literature related to medical students.

To begin with, the review attempts to identify how reflection is defined in the published literature and the design of studies to assess the reflective ability of medical students. Next, the use of particular frameworks to facilitate the depth of the reflective skill of medical students, assessment of reflection and data analysis methods will be examined. Thereafter, how the breadth of the student experiences contributed to support the learning and professional development of medical students will be investigated. Finally, contradictions and limitations to the comparison of these studies will be addressed.

An electronic search was performed using the online database of Medline. Keyword searching was conducted using MeSH headings, Boolean operators, and the terms, ‘medical student’ and ‘reflect*’ in the Title. Targeted citation searching using Google Scholar and
Web of Science was also conducted by accessing reference lists from key articles. The search was limited to peer-reviewed, published material in English, and where full text was available, between the years 2000 and 2016 to maintain currency of practice. Abstracts were read and articles pertaining to facilitating, teaching or assessing reflection in undergraduate or postgraduate medical courses were handpicked for inclusion. The process of literature searching was conducted from the research proposal phase. In total, 13 articles were included for this review. These articles are summarised and presented in Appendix A. With the aim of establishing a broad overview of reflective approaches relevant to medical students, this work provides a selection and not a complete comprehensive collection of medical education literature.

2.3 Defining the Concept of Reflection

John Dewey’s definition of reflection was cited in one study describing it as a thought provoked by the awareness that the learner’s self-knowledge is incomplete. In another, the authors defined reflection as implications of an experience or action and viewed reflection as a concept of ‘mindful practice.’ They suggested reflection be a topic when students are introduced to clinical work. Similarly, Wen et al suggested reflection involves re-thinking of an experience and this can occur in-action, on-action and for-action. Carr and Carmody related reflection to purposeful thinking to provide new ideas, insights and understanding. Others, termed the notion ‘self-reflection’ which has the potential to expand the mind of learners however, no clear definition was given. Kanthan and Senger too attempted to identify ‘self-reflection’ however, agreed that the concept of reflection described similar processes under different terms. Finding a unanimous definition of reflection in medical education literature appear to be a daunting task.

It is observed that the majority of studies did not define or describe reflection or the concept of reflection. Authors also discussed of a lack of agreement over what constitutes reflection. Because of a lack of a common understanding of the definition of reflection, a recent analysis attempted to develop a ‘meta-definition’ of reflection by introducing a five-component model to improve the applications of reflection. These components include; engaging the self, interactions, thoughts and actions, the underlying conceptual frame, and a view to change. However, this descriptive model is thought to be useful in teaching and learning the concept of reflection and not the process of reflection.
2.4 Approaches to Study Design

This section will identify available tools for studying and facilitating the reflective ability of medical students. These include for example, interviews, group discussions, student observations and documentary evidence such as written narratives and portfolios. The featured articles are separated into studies that focused on one particular tool (single modality design) or those that utilised a variety of tools (multi-modality designs). Strengths of using a single tool or a variety of tools or resources and likely disadvantages are discussed.

2.4.1 Single Modality Approaches to Study Design

Structured interview:

Postgraduate medical students selected by their class presidents participated in a half-hour structured interview to reflect on their community service volunteer experiences. A field-tested, eighteen-question interview form with no follow-up questions was devised to elicit information about student opinions of the admissions process and the medical curriculum. Interviews were conducted by the members of the study team who were deans or directors of admissions, medical education, research or curriculum development in five medical schools. Interviews were audiotaped and transcribed verbatim. In this study, a prepared script with no deviations was used for the interview to reduce variability but this may have limited a rich narrative. Likewise, there may have been issues related to bias in class presidents identifying a purposive sample of participants leading to participant discomfort in participation. Besides, this study would contribute to less bias and prejudice if non-authoritative individuals conducted the interviews.

Structured journaling:

Thirty medical students in pre-clinical and clinical years participated for up to three semesters journaling 1-2 pages every other week for an honorarium of $100 per semester. Students responded to structured questions on ageing related content; (1) of geriatrics in the curriculum, (2) experiences of encounters with older people and (3) perceptions of their clinician mentors. This was the only study that compensated participants. However, there was no information available on the decision taken regarding the value of payment or where the funding was acquired, but authors acknowledged ‘a foundation’ for support. Payment for study participation concerns coercion and undue influence where the incentive is sufficient to induce prospective participants who may not otherwise enrol in a study. Further, an
attractive incentive may cause participants to ignore personal values or preferences in order to participate.  

A typed one-page 500-word reflective document was a mandatory assignment introduced in a pathology course to assess students’ awareness of “self-reflection.” The students were provided with a reflective questionnaire template. There had been an in-class discussion of the assignment but there is no information if students were introduced to the reflective journaling process.

**Unstructured narrative essay:**

An interesting study to gain a deeper understanding of the ‘hidden curriculum’ required students to write a two-page narrative essay during a year-long course. The ‘hidden curriculum’ was defined and the students were prompted to start the narrative with an observed experience. The study was repeated for the next two years and they found the same themes being repeated and resonating with other studies. However, the authors did not discuss the study impact on student learning or improvement in patient care.

### 2.4.2 Multi-Modality Approaches to Study Design

**Facilitated small group discussion followed by a short written reflection:**

A workshop conducted utilized case-based discussions on student observed prior incidences. Physicians, nurses, pharmacists, and case managers facilitated the small group discussions. Thereafter, students were asked to reflect by writing on the back of an index card brief reflections of how the incident may have been improved, followed by a quantitative evaluation of the workshop and engagement of faculty. Here, authors were only interested in finding out student observations and what issues students focused on, and not the aspect of quality of the reflection.

**Structured learning diary followed by a focus group meeting:**

To examine the effectiveness of reflective writing, student perceptions of the value of reflective writing and its effect on their learning style was explored in a five-month study. Third year medical students attended introductory seminars to learn reflective writing and then kept a learning diary. A critical incident writing template was used to prompt the learner to record an event, their understanding of the event and identification of learning needs. To enhance the learning by discussion, fortnightly group meetings run by tutors were arranged. However, after two months these tutorial groups reduced from ten to four.
Another study was designed to investigate how medical students experience uncertainty. This study also utilized reflective learning diaries consisting of 1-4 page reflective writings 4-5 times during the first half of the course and writing on specific themes during the second half of the course. In this study too, students were required to participate in group discussions to discuss themes in the diaries and provide self and teacher feedback.

Other than a high drop-out rate, the main issue with having a combination of methods such as a learning diary and group discussions is the inability to demonstrate which method contributed to the learning. Nevertheless, evidence suggests that writing enhances knowledge transformation when meaningful instructional scaffolding is applied. Researchers say facilitative feedback promote reflective capacity and reflective portfolio work helps to develop complex clinical skills, foster positive attitudes, is a powerful tool to facilitate the maturation process and develop tolerance to uncertainty during the first clinical year.

**Structured portfolio followed by group activity:**

A 28-page structured portfolio containing each teaching session of a course was used to see if it can serve as a teaching and learning tool. The portfolio, designed as a logbook was used to enter all clinical procedures students have performed, and for them to assess their own development before and after the course for thirteen skills (course objectives) listed as important by teachers. In addition to the portfolio, tutors facilitated group sessions, which included patients. The authors analysed the amount of written text in the portfolios and concluded that long essay-type writing include more elaboration and therefore may allow students to process a topic more deeply. Although the reflective ability of students was not measured in this study, it demonstrated the functions of a learning portfolio. Portfolios may elicit important qualitative information about the learning process than interviews or group sessions and would have helped tutors recognise individual needs of students.

**Electronic log followed by a knowledge test:**

Electronic, hand-held or web-based digital patient logs in an ambulatory care rotation was used to facilitate reflective learning by requiring students to enter their goals for future study or learning needs related to patient encounters. In addition, a knowledge test was administered to determine if deeper reflection was associated with higher knowledge. The electronic patient log was developed at the institution, and the template for data entry was designed, altered and evaluated by students prior to the study. While electronic health records are commonly used at present, potential drawbacks to using digital platforms are implementation costs, workflow training and issues with adoption of the system.
Written exercise followed by a facilitated interaction and a final written reflection:

A 90-minute geriatrics learning experience involving standardized patients to foster effective communication, included four components: Initial reflective writing (a prior memorable experience with an elder), an introduction to geriatric medicine, facilitated interview with an elder in a group setting (75 minutes), and a final reflective writing (how the interaction with the elder changed the prior experience). A speedy exercise to mainly assess communication and attitudes towards older adults is an advantage of this study. Likewise, allowing to submit the final written reflection later may permit students adequate time to reflect deeper. However, long-term benefits of this study is not known.

In a study to identify levels of critical reflection achieved, students were asked to write a 300-word reflective case of interest in an analytical manner, then discuss the case one-to-one with a tutor at mid-semester to facilitate the reflective process and thereafter, hand in a 700-1000 word final reflection. This study was conducted as some students found prior reflective exercises challenging and it was discovered that students were reflecting on same types of experiences. It is not known if the tutors were trained in facilitating the process of reflective practice, or if the students valued tutor assistance.

Videotaped interactions followed by a verbal, group feedback session:

A study using standardised patients examined ways medical students learn about disability. Fifteen-minute student interactions were videotaped, and a feedback session was conducted with faculty and the patient to encourage the reflective process. Feedback sessions were transcribed verbatim. Similar to the study fostering effective communication with geriatric patients, this study examined how students experience compassionate care. A structured, verbal, group feedback session was taken as a self-reflection process but the depth and the breadth was not measured. Authors mentioned high student participation rates and generalizability of the study across the United States. Videotaping may be less intrusive than a note-taking researcher and participants may value the video footage for future reference, but this method may be costly and subject to technological failures.

Written narrative followed by an audio-recorded, researcher-observed, group debrief session:

Students were required to observe psychosocial issues during a patient interview and thereafter write a reflective narrative. A subsequent 2-hour group debrief session comprising of tutor and peer feedback were audio recorded. In addition to the tutor, one of the study team members also observed the debrief session. Following the session, students
were surveyed about benefits of reflection as a group. As with video recorders, tape recorders do malfunction or break down. Note taking by the study team member observing may have been a back-up method but the exact responsibility of the observer or limitations of observations were not evident in the study. It is well known that staff and participants behave in atypical fashions when directly observed thus, the use of an audio recorder alone may have been less intrusive.

2.5 Frameworks to Facilitate the Depth of Reflection

This section focuses on studies that used models to reflect-upon and those that used frameworks to assess the reflective ability of medical students. These include for example, a newly developed set of questions, a simple reflective cue to begin reflection or an established framework such as the Gibbs\textsuperscript{21} reflective cycle. Emphasis will be placed on finding out if studies utilise the same framework to write the reflection as well as to assess the depth of students’ reflective ability.

Structured questions:

In a structured portfolio, specific questions were asked to facilitate reflection: what did I learn? What remained puzzling? Yet, the content analysis done did not use a specific framework to assess and instead categorised student writings. The main purpose of this exercise was to demonstrate whether the learning portfolio could be used as a learning tool to identify individual needs in clinical training and not to assess the level of reflective ability.

Specific instructions were given to students on how to write a reflective learning diary based on a structured set of questions: What did you learn or experience? What has been difficult in this learning experience? What problems did you encounter with personnel? In a separate assignment they were also given a choice of themes to reflect upon, such as qualities and responsibility of being a good doctor, hospital culture, doctor-patient relationship and experiences related to making mistakes. As in the previous study, the aim of this study was to investigate how medical students experience uncertainty and not to assess the the depth of their reflective ability.

A similar study to assess students’ awareness of ‘self-reflection,’ researchers provided a suggestive template of questions, which probed; What have I learnt? Do I know what kind of learner I am? How does this experience fit into my larger personal goals and achievement of being a doctor? These appear to be guiding questions to frame one’s thought and although sequentially numbered, does not seem follow a particular step-wise model. Authors developed a grading rubric for the assessment of reflective awareness but this was not
provided to the students prior to the assignment. Had it been available to the students, there may have been an increased student awareness of ‘self-reflection.’ Reflective awareness ranged from ‘poor understanding of reflection’ to ‘greater understanding.’

The Constructivist Learning Theory model was used in a study to foster positive attitudes towards elderly by self-reflecting own biases of prior experiences. There was however, no information given on how reflection was introduced to the students. Facilitators asked questions from a list of questions to stimulate conversation between patients and students and thereafter requested students to write an essay on ‘added new reflection on their past experiences.’ However, students’ self-reflection was assessed mainly to see how they articulate in writing or how their perceptions were changed, and not to measure their level or the breadth of reflective ability.

To address service commitments of medical school applicants, one study asked somewhat reflective structured interview questions such as; describe a community service experience, what have you learnt from this? what insights have you gained and how will it apply to your practice as a physician? The study was designed to look at the experiences of community service and no attempt was taken to measure their reflective ability.

By embedding a reflective cue in a web-based patient log, students were asked to enter their learning needs related to patient encounters in the form of information they wished they had before the patient encounter, and what they learnt and what they will research in the future. Their writings were not used for assessment or grading but primarily to develop mindful practice habits during clinical work. Authors of this study did acknowledge that there was a tendency to write brief comments and this may have resulted in a low likelihood of a deep reflection.

**A single prompt:**

A feedback session designed to encourage reflection following patient interviews, started with a standardised patient asking the student a single reflective prompt; “How did it go for you?” In this study, reflection was introduced to recognize attitudes about patient disabilities and no analysis was done to assess the reflective ability of students.

Researchers attempting to assess the degree of patient-centeredness in the ‘hidden curriculum’ of a medical school asked students to begin their reflections with a personal anecdote or a story that involves some aspect of the hidden curriculum as the starting off point for the reflection. A definition and examples of the hidden curriculum were given.
A critical incident framework:

A critical incident four-step framework prompted students to describe an event, reflect on identifying and addressing their learning needs, and document how they would subsequently use that new knowledge.\textsuperscript{42} Students were encouraged to make the four parts of each journal entry distinct. Participants voluntarily attended two seminars for an introduction to reflective learning exercises and were provided with tutor support. Despite the prompt to use four headings, researchers reported that they found the reflective format had varied widely and some were found to be highly reflective accounts of ‘feelings.’ Unfortunately, the depth of reflections was not assessed. It is shown that guided reflection by a mentor or facilitating self-reflection by using prompting questions are likely to be helpful in developing more profound and deeper reflections.\textsuperscript{5}

Gibbs reflective framework:

Only a single study\textsuperscript{34} employed an established structured reflective framework developed by Gibbs\textsuperscript{21} comprising of six components: description, feelings, evaluation, analysis, conclusion and an action plan, to analyse a transcribed group dialogue. In this study, the authors defined own terms to assess the ‘depth’ of reflection (for example, the presence of ‘analysis’, ‘exploration’ or ‘reflection’ of problems identified). Its aim was to find out how feedback facilitates reflection, and if medical students think broader and deeper about their practice after receiving feedback. The analysis resulted in eight types of feedback between students (for example, 50.7% ‘deeply discussed psychosocial issues’) and six types of feedback from tutor (for example, 25.2% ‘shared new knowledge’). However, it is not known whether tutor or peer feedback contributed to the advanced level of reflection.

Assignment to develop a framework:

Interestingly, one study asked students to write a reflective case summary and discuss in an analytical manner on how they plan to improve their practice.\textsuperscript{12} In this study, there was no prompt given to reflect upon, but the intention of the authors was to develop a 4-level reflective framework by analysing the ‘depth’ of student reflections demonstrated by: listing, describing, applying and integrating.

Overall, several studies made an attempt to apply prompting questions to begin a reflection\textsuperscript{11,33,35-37,39-41} and one study\textsuperscript{42} applied a step-wise framework to reflect upon. In another,\textsuperscript{12} the authors developed a four-level reflective framework by analysing the ‘depth’ of student narratives. It was noted, no reflective model or a prompt was used in one study which asked students to recall an event and produce a reflection.\textsuperscript{28} Only a single study\textsuperscript{34}
employed an established reflective framework but it was observed that this same framework was not used to assess the ‘depth’ of students’ reflective ability.

2.6 Formative or Summative Assessment of Reflection

In a study where the objective was to develop habits of reflection on clinical work, students were required to review their log with their preceptor at midpoint of the rotation. Similarly, in several studies facilitating reflective experiences, compulsory patient interactions were followed by non-evaluative but guided reflective feedback sessions with faculty, patients or peer observers. Relatedly, in another study, a mandatory one-page reflection at mid-term and end-of-term was not graded, but assessed as a pass/fail course. One study required all students to submit a word-limited formative reflective summary at mid-point and a final summary that contributed to 5% of their summative grade. Of those students who participated in a voluntary reflective workshop, 78% used a narrative as one of their summative activities.

It is said that assessment has a motivational influence when combined with feedback (formative assessment) as opposed to being judged for competence (summative assessment). However, it is documented that busy tutors tend to rely more on non-reflective thought processes when giving feedback. Similarly, it is recommended that if voluntary reflective exercises are to be made a course requirement, a formative assessment will benefit the students and to succeed in reflective exercises, it should be made clear at the outset whether the assessment is to be formative or summative. However, this was not made clear in one study reviewed, and in several others, the outcome was not related to summative or formative assessment of reflection. Reflective activities contributed to the summative grade in only two studies.

2.7 Process of Data Analysis

The following section will focus on the processes of data analysis in the reviewed studies, and critique the literature on the data sources, approaches to data analysis and ascertaining rigour.

A qualitative ‘editing analysis’ was conducted by the researchers extracting most representative themes until saturation was reached. An editing analysis attempts to identify units in the text forming categories, and differs from an immersion analysis where the researcher organises the data and develop important aspects, or a template analysis where text is organised according to a pre-existing template. In this study, in an attempt to
validate the results presented, two researchers independently analysed the complete data set and a third arbitrated persistent disputes. A student participant accomplished member checking for triangulation of themes.

Interviews were carried out by selecting random group members to understand prior learning, context and reasons for non-participation in a reflective exercise. Audio recordings were transcribed and a coding frame was developed. A reflective diary kept by the students were also analysed thematically using the coding frame to obtain emerging themes. Two researchers worked independently to code and then met to discuss and refine emerging categories. A third researcher examined a sample of this process. Tutors were interviewed for triangulation of the emergent themes. In a similar study, transcribed responses of interview questions were coded and categorised by two independent researchers and differences were then reconciled. However, there was no specific principles mentioned that were followed to organise the presentation of findings or the process of data analysis.

An interdisciplinary team developed a coding scheme after a semester long pilot study, then individually coded each 1 to 2-page written journal over 2 years. This study appears to use a template analysis where the text was coded according to pre-existing categories to provide new categorical descriptions. The authors mentioned a detailed ‘audit trail’ was used to document the group’s decisions over the entire process. NVivo® qualitative software was used to organise coded material. One to two pages of reflective writing were likely a rich source of data and authors commented that a comprehensive team coding process maximised rigour.

A specially designed rubric was used to assess “5-levels-of-reflection-awareness” with level 1 representing the poorest understanding and level 5 representing the greatest understanding. Dominant themes from student reflections were also categorised into seven categories and then merged with the 5-level rubric to quantify and assign numerical percentages for a comparison. Each researcher independently analysed data and any disagreements were discussed to reach a mutual consensus. The rubric appears to be rather comprehensive but difficult to evaluate objectively, and likely time-consuming to assess.

An iterative thematic analysis embedded in grounded theory was used by three independent researchers for initial coding and then a constant comparative method to group the identified concepts within themes. Multiple cycles of coding and discussions had taken place and all data within narratives were categorised. A coding manual was created to define each theme and the process was repeated to refine the manual. To ensure trustworthiness, a fourth researcher was invited to code each narrative for a coding agreement of >95% and the
themes were presented to seven study participants for a ‘member check.’ Although such triangulation is ideal and strengthens a study, it can also be expensive, affect the time-frame of the study and may cause political and stakeholder constraints. In a similar process to achieve inter-rater reliability, independent raters reviewed reflective writings to identify context areas and common themes relating to memorable experiences with elderly, and then created a rater abstraction form. After a 90% agreement of a combined analysis of a portion of essays, the remaining essays were analysed independently.

A thematic analysis of reflective log entries was conducted by naming categories according to the cognitive task involved; for example, a student listing a new term or recording an observation, amongst others. The number of entries of such tasks were also counted and quantified. This is an example of how the ‘depth’ of reflection was measured quantitatively by correlating categories of hypothesized levels of reflective thinking based on student statements. This study also used different data sources to essentially demonstrate that triangulation is to ‘test’ for consistency and not for the purpose of yielding the same result, as different types of data are sensitive to different real-world nuances.

A content analysis of a portfolio was performed to look at the ‘quality’ of student comments by qualitatively categorising data and conducting a quantitative frequency calculation of each category. Based on the number of words used, a grading rubric was created to see if students wrote ‘little, average or much’ to reflect upon. The amount of written text was also compared in relation to the success in the final exam. Descriptive variables such as the numbers of clinical procedures and self-assessment of own progress were quantified and compared with the final exam score.

A similar content analysis was applied to identify and code characteristics and feedback given in a reflective dialogue group and thereafter quantify that information. A preliminary coding list was developed based on a single group. An additional researcher was consulted when disagreements arose. The preliminary list was used to code the second group and so on until the full taxonomy of feedback was achieved. Thereafter, frequencies of coded feedback were calculated as category frequencies. A chi-square test was used to analyse the frequency and differences of feedback types (group versus tutor) along with the depth and breadth of reflection. Although the data analysis component seems to be tedious, the process of analysis was well explained in this study.

A thematic content analysis of the writings in student portfolios were systematically examined, coded and categorised independently by all authors in a study to ensure reliability. Any differing concepts were discussed to reach a consensus. Quantitatively,
they looked at the intensity and the number of times the various themes were mentioned in student writing over time to measure their development and maturation process, but how this analysis was done is not clearly defined in the article.

In another study, a thematic analysis was undertaken to document recurring themes in students’ written reflections. Themes relating to learning experiences and the level of reflection were developed but there was no discussion on the process of analysis. The researcher was blinded to student identity at the time of analysis. There is no information on data triangulation. Frequency statistics were used to see the commonalities of themes between two cohorts of students but statistical significance was not available. The researchers stated that the quantitative comparison allowed them to compare the types of clinical experiences the two groups of students experienced, at the same time acknowledging that students may have reflected on more than one theme.

Videotaped group feedback sessions were transcribed verbatim and learning areas were identified by researchers through a consensus process. This was done by randomly watching selected videotapes and thereafter independently identifying learning areas in a set of transcripts. Occurrences of learning areas were quantified, counted and coded into themes. Two coders used the constant comparative method to categorize occurrences independently and then examine together until >92% consensus. To minimise force fitting of data, these coders re-analysed data after developing categories. Authors report that there were logistical challenges with recording a large number of students and despite being; a video, non-verbal communication (tone and rapport) was not captured. This was an opportunity missed as this study was conducted to examine ways medical students learn about disability. For example, in this study, non-verbal communication may include how students get the attention of a disabled patient such as waving their hands in the air. Additionally, in this group setting, participants fidgeting or expressing affection may also reveal things about relationship-centred care.

All studies reviewed except two, explained the process of qualitative analysis and the principles followed to organise the presentation of findings. However, it is noted that these studies used varied terms such as content, editing or thematic analysis to describe the processes. Although they are used interchangeably with no hard-and-fast distinction amongst them or precise agreed-on terms, researchers have attempted to describe unique characteristics and differences between them.

Several studies listed above employed a variety of analytical combinations, including both quantitative and qualitative approaches. A range of data sources from written
narratives to audio and video recordings were used.\textsuperscript{28,34-39,41,42} Data validation ranged from multiple member checks to investigator triangulation.\textsuperscript{11,28,35,37,38,41,42,45} One study\textsuperscript{41} did not explain how the data was organised or fully described what happened to the raw data to arrive at the results.

\section*{2.8 The Breadth of the Learning Experience}

This section of the literature review is to understand the nature of medical student learning experiences and how these experiences contributed to support the learning and professional development of medical students. It will focus on the breadth of the reflective practice of students by investigating the thematic concepts contributed by the identified papers.

Students rated a reflective exercise asking to recall a hospital discharge that might have been handled better.\textsuperscript{28} Good communication and the collaboration of multidisciplinary teams were valued by students. The students also brought up several issues such as accommodation, non-adherence and navigating the health system, which was not discussed during the discharge process. Authors identified these areas for curricular improvement. Although it is not known if the knowledge obtained by this reflective exercise was retained after this particular exercise, other reflective activities have been associated with enhanced case solving ability,\textsuperscript{52} diagnostic ability\textsuperscript{53} and more humanistic physicians.\textsuperscript{54}

Students from five medical schools participated in interviews to offer their opinion of their community service activities.\textsuperscript{37} The analysis indicated that they were influenced to participate in volunteer activities by family and friends at an early age, were committed, and assumed a leadership role but expressed a lack of time for community activities. Despite institutions involved preferring medical school applicants with a community service history, participants in this study did not think voluntary activities should be required in medical school. Participants also challenged staff to be role models and participate in volunteer activities themselves. Findings of this study would benefit admissions officers and educators planning curricular activities.

The results of a reflective journaling exercise suggest that contact with geriatric population with a high burden of illness was suitable as a mentoring program and the longitudinal patient care experience was satisfying for the participants.\textsuperscript{38} Authors concluded that the reflective process provides insights into the student clinical experience, how they respond to mentors and develop competently. In addition, it was used as an evaluation method to provide mid-course corrective changes of the mentorship program. However, the researchers
did not measure the ongoing impact of students’ experiences with their mentors, nor the impact of mentoring on the mentors themselves.

Medical students completed a narrative assignment designed to identify the ‘hidden curriculum’ in a medical school.39 They narrated on power-hierarchy issues, patient dehumanization, ‘hidden assessment’ of their performance, suppression of emotional responses, their struggles with the course, their accountability as a trainee, ‘faking’ the personal/professional balance and the power of human connection. The results of the study were used to reform the medical curriculum.

Those students who participated voluntarily in a reflective exercise perceived reflective learning helped them to raise awareness of their learning styles, integrate what they have learnt from multiple sources and want to continue using it.42 However, some mentioned that it was not the reflective writing but a small group discussion made them aware of their own gaps. Non-participants of the reflective exercise cited lack of time, curricular incompatibilities and having to base their reflection on facts rather than concepts.

Another study demonstrated that students found the learning portfolio useful to advance ones’ own learning and to give feedback to teachers.40 The analysis also reported negative findings; writing about experiences were laborious and time-consuming, lack of anonymity in giving feedback, lack of opportunity to participate and practice clinical skills, difficulty in answering the question ‘what did I learn?’ and the written exam containing less important issues than those discussed during the seminars. Authors argued that portfolios help staff recognize individual student learning needs and therefore serve as a teaching and learning tool.

Reflective learning diaries found several themes related to uncertainty as a medical student: insecurity of professional skills, credibility, facing with inaccuracies, confusion, fear of making mistakes, coping with responsibility, tolerating oneself as incomplete and reassuring themselves.41

By creating an electronic ‘learning needs’ log during an ambulatory care rotation, authors attempted to identify the scope reflective practice.33 The category ‘diagnostic thinking’ (student comments on clinical reasoning, differential diagnosis, question asking and noted associations), was found not to correlate with ‘factual knowledge’ (student enters drug or diagnosis) suggesting a range of reflective thinking. Authors suggest this method would be useful to track habits of ‘mindful practice.’
A written reflective assignment and a survey tool was used to help change negative attitudes towards elderly and improve care for geriatric patients. Authors found negative views were changed to positive in 7% of students and remained positive in 20% of students. However, in the written reflective exercise, 72% wrote only about their experience and student attitudes were not discernible in the writings. The objective of this study was to address student competency in communications, which was however measured by evaluating student attitude towards elderly and their articulation in writing.

By pre-identifying learning areas, one study attempted to assess reflection and relationship-centred communication of a large group of students. Findings included integrating disability with the chief complaint, addressing patient daily life, implementing a treatment plan, interaction tensions, approaching a disability, communication, and interviewing strategies among many others.

Students were found to have several attributes of awareness of “self-reflection” by identifying: significant events from the course, skills acquired, personal abilities, learning style, connections between course and past life experiences, oneself (emotions, values, beliefs) and future applications of reflection.

Students participating in a women’s health experiential rotation most often reflected about their knowledge, ability to communicate with patients and cultural influences. When authors compared two cohorts of students, there were differences in the frequency of themes identified in the areas of personal/professional development, attitudes/judgments, patients’ lifestyle factors and the role of student. Several students in both cohorts reflected about the educational experience of the unit itself. It is interesting to note that students in two cohorts identifying varying experiences despite teaching, learning and assessment methods being the same during this period. This may be due to the rapidly changing social and cultural diversity or transformation of student views, and is an important finding for medical educators to consider when evaluating placement experiences.

In a paper attempting to find out student observed psychosocial issues at a paediatric rotation, the authors evaluated the ‘breadth’ of reflection by looking for the presence of the following themes: medical communication, medical system, role and function of family, student competence, ethical dilemmas and diverse patient perspectives. Their quantitative analysis of student reflections found 66% of the reflections were related to ‘depth’ and only 34% of the reflections were related to ‘breadth.’
2.9 General Limitations of Literature

Overall, there were a number of constraints associated with the studies that assessed reflections of medical students. Issues in these studies varied widely and it was difficult to compare such problems consistently and equivalently across all studies.

**Generalisability:**

Authors reported that their results of studies were not generalizable across other groups of medical students\(^{37,41}\) because they were conducted either in a single institution, had an ethnically diverse population comprising of 47% of Asian students\(^{38}\) or were limited to students biased by exposure to a specific culture\(^{39}\). Equally, in contrast to basic research, applied qualitative research is typically limited to a specific time, place and a context as the purpose of such research is to understand the nature of a problem in a specific environment and to intervene effectively\(^ {45}\).

**Study Sample:**

Lack of a comparison group\(^ {37}\), small sample size\(^{36,39,41,42}\) and self-selected sample\(^ {42}\) were understandable limitations of the sample selection criteria considering the qualitative nature of the studies. However, several other inconsistencies related to sampling were identified. A purposive study sample selected by peers resisted participation\(^ {37}\), initial voluntary participants dropped off citing time pressures\(^ {42}\) but some others willingly participated long-term for an honorarium\(^ {38}\). Worthy of note, voluntary study participants dropped out for the same reason (time pressures) as those who did not want to participate\(^ {42}\).

**Study Duration:**

Except for a single study that comprised of a 30-minute interview\(^ {37}\), the data collection period for the majority of studies ranged from 2-semesters to one year\(^{28,33-35,38-40,42}\). Three studies lasted 2 years\(^ {11,12,41}\) and one extended the study duration to enrol an adequate sample\(^ {35}\). However, no studies made an attempt to measure benefits of the reflective learning experiences persisting over time. As mentioned in one study\(^ {42}\), longitudinal findings will demonstrate if students use reflection in learning and if it has any effect on their performance, career choice or patient care.

**Reflective Assignment and Student Perceptions:**

After attending an introductory lecture as to what reflective learning was about, participants felt the assignment was not helpful to get through the current curriculum\(^ {42}\) highly prone to
subjectivity and was a waste of time. Whereas, in other studies participants found reflective portfolios useful, contributed to their learning, felt the assignment was worthwhile, purposeful and beneficial. Some participants had a positive attitude of the contextual setting due to a personal interest.

**Reflective Assignment and Student Performance:**

Interestingly, studies found that more text in the portfolio is associated with high scores in the final exam but the number of reflective entries or deeper reflection was not found to correlate with examination performance. One study demonstrated no difference in exam results in those who participated versus those who opted out of the study. If given a choice, students will choose not to use reflective logs that are not graded and if graded, may focus only on how to fill out the portfolio correctly, censor what they write or write to satisfy the expectations of teachers when they are aware their teachers will be reading their reflections. In addition, medical students are more likely to reflect positively on their clinical mentors.

In all studies, student reflections were based on self-reports which the researchers say are unable to authenticate or corroborate with evidence. Whereas, students criticise that assignments are graded very subjectively and ask why researchers expect factual records of clinical experiences and not conceptual reflective scenarios. Only one study used a reflection tool along with written reflections to measure student attitudes.

**Significance of the Reflective Assignment:**

Several reflective exercises focussed on participant experiences resulted in curricular reform, policy development and cultural transformation whereas, other studies assessed the quality of reflection as a means of student professional development.

**2.10 Summary**

The construct of reflection was broad in the literature reviewed, suggesting that medical educators must clearly define the purpose of reflection, the intended outcome for the student and the process necessary to achieve these aims for students. Approaches to study designs to explore reflective ability of medical students varied and literature reviewed failed to demonstrate that one method was superior to another. While the majority of studies employed multi-modality study designs, there were substantial drawbacks and complications noted by the authors. Despite the fact that this review failed to find studies using a clearly
defined framework to facilitate reflection, as well as to assess the depth of students’ reflective ability, there was however, an attempt made in several studies to adopt at least a reflective cue to initiate the reflective process.

It was also noted that there was no agreed upon process of assessing reflection. Measuring the ‘depth’ of reflection was found to be difficult to standardise and to assess objectively. A way of reliably assessing reflection is needed, as well as a framework for measuring the level of reflective ability. Reflective experiences were measured qualitatively and quantitatively, and some employed mixed methods for trustworthiness. Data sources ranged from documentary evidence to audio and video recordings, and studies adequately explained the process of data analysis. The breadth of student learning experiences differed based on the context of the learning exposure. Studies identified various thematic concepts for curricular reform, policy development and student professional development.

Whilst it was generally accepted that the ability to reflect was an important attribute for medical students, the very nature of reflective practice makes its quantification challenging. Assessment of reflective experiences is well established in the medical curriculum however, the engagement of a deeper level of reflection did not occur in many studies. This literature review identified certain gaps in the existing literature in relation to reflection frameworks, study methodology and the data analysis. It demonstrated that awareness of the above factors is important when developing educational research in understanding the reflective process and experiences of medical students. Such a research project designed to explore reflections of medical students in their pre-clinical years of a medical course is presented in the following chapter.
Chapter 3  
Research Design and Methodology

3.1  
Introduction

In the previous chapter, the findings from a review of the published literature provided the background and the context to the research study. The current chapter contains an explanation of the research design and the methodology used in this study. It begins with a discussion of the rationale for the use of a qualitative thematic analysis in the design of this study. The author then describes the approach to the method, context of the research and the researcher, and a description of the population sampling characteristics. This is followed by the reflective framework used to analyse the written reflections and a detailed account of the procedure undertaken, along with a description of the method of analysis. Finally, the rigour of the study and ethical considerations are discussed.

3.2  
Qualitative Research

Qualitative research focuses on the way people make sense of their experiences by exploring their behaviours, thoughts and feelings, and trying to understand, describe and interpret experiences as perceived by those individuals or groups. This qualitative research project aims to describe the learning experiences of medical students in their pre-clinical years and understand their experiences by seeking answers to questions about ‘what’ or ‘how’ of their learning experience. The phenomenological approach concentrates on the interpretation of participants’ experiences which the researcher has little control of, and understanding the reality by “examining” or “exploring” the questions asked.

The most commonly used qualitative research methods include in-depth interviews, focus groups, participant observation, and using documentary evidence. The term ‘documents’ refer to any artefact such as photographs, video recordings, diaries and medical records among many others. These forms of documentary evidence bring to light that it is not always necessary to collect new primary data to respond to educational research questions. These are written tales of student experiences or even imagination, and may often be expressions of illness or suffering of a patient, professional interactions or their own identity.

The choice of the research method should align with the overall research strategy and the methodology should flow from the questions being asked. In this study, research questions being asked are of an exploratory nature, which are best answered through stories the students tell of their lives. These narrative stories in the form of reflections are used as data...
for this study. The reflections are submitted in writing and organised in an order that is intended to be meaningful for medical educators. Written reflections as a means of data is appropriate for this study because the information sought can best be gained through rich descriptions that the students write of their experiences.

Analyses of narrative reflective writings have come to the fore over the last decade or so, despite suggestions that reflective writings in health and medicine is not exactly what many actually experience in life. Another problematic issue in reflective writing is that of ‘truth’ in the stories which may often be retrospective and rely on memory. People may select memories they wish to remember or forget what really happened. However, it is argued that “even ostensible ‘untruths’ might become significant” and how the story is told is important in the data analysis. That is to say, the research findings should not merely re-tell their personal experience to help them have their voice heard, but also be subjected to detailed scholarly analysis and evaluation.

3.3 The Researcher and the Context of Research

Researchers pick a particular topic of interest for a reason. In choosing a topic, it is important to be passionate in the area of focus because this helps maintain motivation. The researcher of the current study, interested in pursuing a master’s degree in health professions education started with precepting pre-clinical pharmacy students rotating through her hospital. These students maintain a ‘learning log’ to document their experiences during their hospital rotations; nevertheless, students or their preceptors are unaware of its outcome once they are submitted to the educational institution. A similar ‘portfolio’ was a requirement for medical students enrolled in the MD program at UWA where the researcher was enrolled as a candidate for the master’s degree. Her interest was sparked again to inquire about the assessment of this portfolio, which led to undertaking this work. The researcher’s 16 years of clinical experience and familiarity with the student learning environment, the clinical setting, cultural differences, and the interactions between professionals, patients, caregivers and students, helped in understanding the contextual background. Additionally, the researcher immersed herself to become familiar with the medical students’ world by reading other similar work. Knowing the setting ‘intimately’ is essential to understand student experiences, question own conventions and establish investigator credibility.

In qualitative research, the context includes the environment or the setting where the study takes place as well as the culture of the study participants. The participants are connected to a social environment and have personal belief systems that represent a particular worldview. A qualitative researcher often works ‘with’ their participants, which
inevitably will influence each other’s views and the collection of data and its analysis.\textsuperscript{55,64} However, in this study the researcher was blinded to the participants’ identity and had no direct contact with the participants. In this case, it was advantageous to maintain this “distance” between the researcher and participants\textsuperscript{55} as the participants’ openness to share detailed reflections would have been limited. Further, allowing the participants to reflect-on-action\textsuperscript{17(p49-56)} and submit ungraded reflective writings gives students time for production of thoughtful written reflections.

As qualitative researchers work with data and focus on telling how they see it, the importance of recognising the researcher’s part in their own data-making role is known as reflexivity. It alerts you to the fact that you yourself are a part of what you are studying and therefore should reflect constantly how the data is made and the part you play in them.\textsuperscript{45,66} To demonstrate the reflexive role\textsuperscript{31} of the researcher in this research, the researcher maintained an ethical, non-judgemental viewpoint when reviewing documents. This was achieved by demonstrating methodological openness, removing bias, prior assumptions and own experiences as a student and a professional, exploring subjectivity, and being constantly aware of the social setting, its values and the research itself. However, others have debated that suspending prior beliefs and assumptions in order to properly examine what is present, also known as ‘bracketing’ or epoché, may be challenging because of incorporation of researchers’ own interpretations in the data analysis.\textsuperscript{55,67}

3.4 Population and Sampling

The target population for this study was students enrolled in the 2015 intake of The University of Western Australia Doctor of Medicine programme. This university was chosen as the site of the study as the researcher herself is enrolled as a Master of Health Professions Education student, and was interested in understanding the educational experiences and the reflective abilities of medical students. Of the enrolled 232 medical students, 166 (71.6\%) students were eligible to participate in the study as they have submitted at least one reflective item to ‘My Learning Journey’ during the first three semesters. For the duration of this time, students were not aware of this study. This is of importance, as the researcher did not want students to be influenced and submit reflective experiences that would be unduly biased.

A purposive random sample of 50 (30\% of 166 eligible participants) students contributed 207 written reflections for inclusion in this study. The main purpose of a random sample is credibility and not statistical or descriptive generalisations.\textsuperscript{45} Although there are no rules for a specific sample size in qualitative inquiry,\textsuperscript{45} for available time and resources, the sample size in this study was determined by data saturation.\textsuperscript{68,69} Further, it was assumed that this
would eliminate judgement within a purposeful sample because the sample was picked randomly and without regard to the study outcome. Moreover, this sampling strategy does not require the researcher to undertake any preliminary or exploratory pilot studies. Additionally, it allows the researcher to make generalized statements about the experiences of all the participants unlike those from ‘homogenous’ ‘convenience’ or ‘typical case’ samples.70

The main challenge of a purposive random sample is the analysis being skewed and it not being representative of the larger population.69 On the other hand, a representative dataset may become too large for analysis in an iterative and timely manner.55,68 Accordingly, to aim for a middle ground ensuring that the analysis contains a rich, thick description of the data set, the current sample size was decided upon.

3.5 Current Study Design

Study design refers to the logic of the study, and will include the type of study proposed and the intended methods of producing data. Planning requires the consideration of research questions,31 what embodies each question and choosing a method appropriate to the research topic and the analytic framework.56 More importantly, keeping the research simple and having a straightforward fit between the topic, method and framework is more appreciated than a broad, complex methodology.56 Identifying previous research can and does serve as a foundation for a design.68

An earlier study by Carr and Carmody12 at the same institution looked at the written reflections of undergraduate medical students and explored the levels of critical reflection achieved. The students were to discuss a case of interest, an event or an interaction and document how they plan to improve their own practice in the future. Of the eligible population of 187 students, 149 submitted a reflective case summary and this comprehensive sample was analysed. The written reflection required a word-count limit and contributed to their summative assessment. However, there was no structured reflective framework provided to students in this study and instead the students discussed the reflective process with a tutor. Further, the authors analysed the levels of the ‘depth’ of critical reflection by developing a 4-level reflective framework (listing, describing, applying and integrating). With this in mind, it was important to design the current study such that the same reflective framework provided to the students was used to assess their level of ability to reflect. Additionally, it was decided to avoid assessment and limiting the word-count, envisioning that students will conform their narrative to fit the template, which may restrict their ability to freely express and produce a rich and diverse reflection. Likewise, instead of a
comprehensive sample, a decision was taken to strive for a sample that allows for maximum richness of data while remaining manageable for analysis. To explore the focus of the students’ reflections, a thematic analysis similar to the analysis of the above study, was undertaken.

Kanthan and Senger\(^{11}\) aimed to determine the awareness and understanding of the reflective process of the first year medical students. Students practised with a reflective questionnaire template and then submitted a 500-word narrative. Eligible students in two consecutive years submitted 410 documents, which were analysed in its entirety by two researchers. Authors developed their own rubric with pre-determined themes to categorise student narrative reflections and gave a percent numerical value for each reflection. This exercise increased student reflective awareness with enhanced reflective abilities but authors cited several limitations such as the task being daunting, difficult, time-consuming, subjective to grade and challenging to standardise. Considering this, the current study was designed to be simpler by providing guidelines to utilise a reflective framework, a spreadsheet grid for assigning the level of reflection, and avoiding an analysis based on pre-determined themes.

Muir’s\(^{3}\) research highlighted the need for a much greater emphasis on reflection to develop essential characteristics for professional competence. The researcher recommended in order to cultivate the concept of reflection, there is a need to provide resources such as formal training using a reflective model or framework. Considering this, a reflective framework was employed in the current study and a formal training workshop was conducted during the orientation week for the current cohort of medical students enrolled in the MD course.

The purpose of the current study was twofold: (1) to examine how medical students reflect when writing about their learning experiences and (2) to look at what they focus on when writing reflectively about their learning experiences. To examine the first question, students’ writings were analysed using the levels achieved in the reflective framework given. This framework is explained in detail in the following section. To explore the focus of their reflection and to see what contextual background was chosen to reflect upon, each experience was thematically analysed as discussed in section 3.6.

### 3.6 Reflective Framework

In medical education, where most of the reflection is ‘on action’ and one which occurs after an event or an experience, a written structured framework allows learners to reflect deeper.\(^{47}\) A framework also allows breaking down a story and analysing its elements. In this study, a
structured reflective framework was used for students to reflect upon, guide the data collection and for analysis. This framework comprises of six stages (Fig. 5).

**Figure 5: The structured reflective framework used in the study**

At the beginning of the semester an introductory training session was conducted (by someone other than the researcher) for the students to learn the prompting questions of the framework and guide the student in a stepwise manner on how to reflect. This was followed by a practical exercise “The Art of the ED.” Students may choose to reflect about their learning or clinical experiences and may submit a maximum of six written reflections in their e-portfolio. Submission of reflections were not compulsory and there was no limitation of a word count. For the purpose of this study, it was assumed that all students possess the necessary English language writing skills needed as they have had at least four years of undergraduate university experience.

### 3.7 Data and Data Collection Procedure

The data in this study were written reflective narratives that tell stories of individual learning experiences of medical students. The research supervisor downloaded consented students’ written reflections from the e-Portfolio platform to a password protected file on a secure
server. All participants were de-identified and given a pseudonym to mask any identifiable data and to ensure confidentiality before giving access to the researcher. De-identified written reflections were password protected and stored in a secure server for data analysis.

3.8 Data Analysis

Once the researcher collated all the data, coding was undertaken in an iterative and inductive manner. Figure 6 illustrates the relationship of the questions to the data and data analysis methods discussed below.

![Figure 6: Relationship of research questions to data and data analysis methods](image)

3.8.1 Level of Reflection Analysis

To explore the first research question, the researcher designed a systematic classification form to document researcher observations and justification for the final level of reflection assigned to each reflection. In addition to assigning the final level, the word count was also recorded to determine if the word count correlate with a higher level of reflection. An example of the systematic classification form assigning the final level of reflection and the word count is presented in Table 2. The process for determining the final level of reflection is displayed in Figure 7.

Table 2: An example of assignment of ‘Final’ level of reflection

<table>
<thead>
<tr>
<th>Participant Pseudonym</th>
<th>Level of Reflection Achieved (following the structured framework)</th>
<th>Final Level Assigned</th>
<th>Word Count</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 7: Step-by-step illustration to determine the ‘Final’ level of reflection

3.8.2 Word Count Analysis

Each reflection was also analysed based on the amount of words. Since there was no requirement of a prescribed amount of text per reflection, it was worthwhile to find out if the number of words written, correlated with a higher level of reflection. This was determined by calculating and analysing the average number of words of reflections corresponding to each level of the reflective framework.

For example:

Average number of words of reflections that scored a Level 6 = Total number of words of reflections that scored a Level 6 / the number of reflections that scored a Level 6.

3.8.3 Coding and Thematic Analysis

A thematic analysis is a type of data analysis method often used in qualitative studies to analyse and present patterns (themes) that relate to the data. It is considered the most appropriate method for any study that seeks to understand more widely and discover the underlying issues using interpretations. It involves the active role of a researcher to select
pieces of narratives and ‘give voice’ to their participants by identifying emerging themes. Several studies exploring medical students’ experiences and perspectives have used a thematic analysis to extract themes.

Themes capture the crux of the data in response to the research question and the codes generated. There is no necessity to display a proportional evidence of data (for example, a certain percentage of a code) for the researcher to consider the pattern as a theme. After all, the importance of the themes generated do not depend on quantifiable measures or the prevalence of data but rather a rich and accurate description of the content of the entire data set that was analysed.

A thematic analysis of student written reflections has many advantages. First, it allows flexibility to capture and summarize a wide range of themes from your data and offers a holistic description of the entire pool of data. Second, the researcher is able to compare similar and unique themes across a data set and more importantly produce unanticipated views of students. Besides, a thematic analysis is known to be useful in generating information for policymaking and communication with a scholarly audience. Lastly, the researcher being a novice in qualitative research, the thematic analysis was a relatively quick method to learn.

One of the disadvantages of a thematic analysis is producing too many themes and the researcher's inability to decide which themes to focus on. Boyatzis lists three threats to using a thematic analysis: (a) inability to reject the researchers’ projection or ideology, (b) inappropriate sampling and (c) subjective ‘mood’ of the researcher. Braun and Clarke cautioned several pitfalls to avoid during a thematic analysis: (a) force-fitting data into themes and misrepresentation in other themes, (b) inadequate analysis of themes against each other and back to the original data set and (c) insufficient time allocation to complete all phases of the thematic analysis inclusively and comprehensively.

Although time-consuming, the researcher immersed herself by repeated readings of the collected reflections to become familiar with the depth and the breadth of the data collected. This allowed to see what is interesting in the data, take notes and to obtain preliminary ideas of emerging codes. Then followed the generation of initial codes. This was done systematically; giving equal attention to each reflection to identify codes that are commonplace in every reflection (for example the level of reflection achieved) and those that may be unique or peculiar (terms such as ‘indigenous’ or ‘psychiatry’). NVivo® qualitative
analysis software was used to code by selecting and highlighting extracts of the text, and then by tagging with the code given, being mindful that the context of the text is not lost.

To analyse the second research question and to see what contextual background and experience was chosen to reflect upon, a Thematic Analysis followed the process suggested by Braun and Clarke.50

1. It was made certain to code for as many potential themes or patterns. If individual extracts of text fitted into many different themes they were coded as they fit, keeping in mind that they may be uncoded or re-worked into other themes as the thematic analysis evolves. At this stage, it was important to not only retain data that focus on common dominant areas but also those that deviate from the main story.

2. When all the data were coded and a list of codes obtained, these codes were collated initially under three broad categories identifying those that related to self (the student), task (the experience) and others. To help with this, a visual representation of a comparison diagram (Fig. 8) was drawn. This allowed in organising to link codes to see relationships between codes and to form an early stage thematic plan. Some initial codes went on to form sub-categories, potential categories, themes and some were linked to the other codes. However, as coding is an ongoing iterative process, the researcher was mindful not to discard any codes until a more detailed review was undertaken.
3. The next phase involved in refining categories by looking at supporting data to link them together, or identifying data to separate them and to develop early emerging themes. Consideration was given to the validity of the entire data set by reviewing if the comparison diagram accurately reflected the stories and meanings evident in the data. To achieve this, the researcher re-read the entire data set to identify any additional codes that has been missed in earlier stages. By doing this it was evident that data saturation was reached and the refinements did not add any new codes. At this juncture the researcher had a fairly good idea of the potential final themes and how they fit together.

4. To define and refine the essence depicted by each theme, the researcher looked at the collated data extracts captured for each theme and organised those into a uniform pattern with an accompanying student narrative to identify what text is of interest. During this process sub-themes were identified to demonstrate the hierarchy within a complex theme. The importance of this exercise was to describe the content within the theme in a few sentences and to decide on the final names for the themes.

5. The final theme names were kept concise to give the reader a sense of what the theme is about. The intended outcome of this inductive process was to reduce
overlap and redundancy among the themes and end with a few (recommended to keep to less than eight) important themes.  

3.9 Rigour

Rigour is the researchers attempt to use a stringent research design to ensure that the research setting is preserved, selective findings are avoided and all aspects of the participant experience is addressed. There are a number of techniques for ensuring rigour in qualitative research:

(a) Theoretical rigour by choosing appropriate methods to solve the research problem so that the research strategy is consistent with the research goals. This was discussed in Section 3.5: Method Approach. Honest reporting by clarifying researcher biases, assumptions, past experiences that likely shaped the approach to the study is discussed in Section 3.6: The Researcher and the Context of Research.

(b) Methodological rigour is achieved by clear documentation of methods and analysis which was discussed in detail in Section 3.2: Qualitative Research, and Section 3.9: Data Analysis. Further, the entire data set was searched for identification of codes. The codes were examined for negative and positive instances rather than only selecting illustrative quotations supporting the interpretation.

(c) Interpretative rigour to address reliability is done by examination and interpretation of data (for example, inter-rater reliability). To address inter-coder reproducibility and more so to refine interpretations and the levels achieved in the reflective framework, the researcher and a second coder independently coded the first five participants’ reflections. The secondary coder, a medical school faculty content expert, has a PhD in medical education and is an institutional researcher with twenty years of experience. The greatest benefit of double coding is the capacity to furnish alternative interpretations and not as much the degree of agreement or accuracy. Being cognizant of this, the researcher assured thoroughness by conscientiously interrogating the data, systematically analysing the commonalities and contradictions reflected in the data, and providing a detailed account of how the analysis was done.

(d) Triangulation of data sources, methods, researchers and theories addresses the issue of internal validity by using more than one source or method as corroborative evidence. Nevertheless, data collected using different methods come in different forms and is a challenge for direct comparison making triangulation difficult to perform. Therefore it is argued that a reflexive and a comprehensive analysis of data is more realistic to test.
validity,\textsuperscript{65,78} as was done in this study. Participant validation, the most critical technique to establish credibility,\textsuperscript{67} which involves ‘member checking’ has also been questioned as to its appropriateness by several commentators.\textsuperscript{31,65,78} Firstly, the analysis may expose contradictory and conflicting views within participants and secondly, there seem to be no reason that participants should analyse their own data in the same way as the researcher.\textsuperscript{31}

For these reasons, the researcher strived to maximize rigour by developing a reflexive awareness, which has already been discussed in Section 3.6: The Researcher and the Context of Research. Credibility of research findings is achieved by showing how well the themes cover the data,\textsuperscript{79} which in this study was established by expert agreement sought from the researcher’s supervisor. Because of shared characteristics among health disciplines, transferability of this work to other settings or groups of students\textsuperscript{67,79} is possible. Transferability also known as ‘fittingness’\textsuperscript{80} is addressed by providing a rich, thick description of the context, participant characteristics, data collection and the process of analysis.\textsuperscript{79}

(e) Ethical aspects to establish rigour is described in Section 3.11: Ethical Considerations

\subsection*{3.10 Ethics Considerations}

Ethical approval was granted by the Human Research Ethics Committee of the University of Western Australia (Reference: RA/4/1/9143). Study information was disseminated to students via an emailed Participant Information Form which allowed participants to ask questions and discuss the information or their decision to participate with the research supervisor if they wished. The email included the context of the study and methods undertaken to ensure informed consent and confidentiality and contained a link to an online consent form. Data were not collected until after all students had submitted reflections at the end of the pre-clinical phase.

No serious risk to participants was anticipated. The research itself had no psychological or personal impact on students and their confidentiality was maintained through an online, password protected, secure storage facility with backup and recovery capability. Data access was restricted only to the researcher and her supervisor and the data gathered was not shared with any other party. Due to the nature of topics discussed in the reflective writings, participants could suffer negative consequences if particular comments were directly attributed to them. For that reason, names of persons and places have been changed in order to protect participants’ and others’ identity in this report. List of pseudonyms, participant
names and research data will be held secured for a minimum of seven years after any publication.

3.11 Summary

To explore the learning experiences of medical students by focusing on the level of reflection and the contextual background chosen to reflect upon, the content of written reflections was analysed. This chapter includes the framework used, participant sampling strategy, ethics approval and addresses issues of rigour related to validity and reliability. This chapter has also described the detailed method of assigning the final level of reflection and the process of the thematic analysis. The goal of this work is to produce a thick, rich description to understand the nature of student experiences and their reflective abilities. The next chapter will present the findings of this study, followed by a chapter of discussion of the findings and suggested recommendations. The final chapter brings about implications for research and practice.
Chapter 4  Results

4.1  Introduction

This chapter presents the results of the analysis of student written reflections. It begins with the findings of the level of reflection, word count data for reflections submitted and themes emerging from student experiences in the pre-clinical years. Exemplar quotes are presented to illustrate major themes and to provide a rich description. Quotes were not corrected for grammatical errors. Any identifiable names, places, locations and comments identifying students’ prior professions, were changed to include pseudonyms and are indicated by (brackets).

4.2  Level of Reflection

The purpose of a reflective framework is to coach students to explore experiences logically through a stepwise analysis to achieve a higher level of reflection. Table 3 shows the findings of issues encountered at each level of reflection when assigning a final overall level of reflection.

Table 3: Issues encountered at each level of reflection

<table>
<thead>
<tr>
<th>Level of Reflective Framework</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0</td>
<td>Writing was fragmented, risked loss of meaning and achieving credibility</td>
</tr>
<tr>
<td>Level 1</td>
<td>A single sentence description of event</td>
</tr>
<tr>
<td></td>
<td>Excessively lengthy description</td>
</tr>
<tr>
<td></td>
<td>Description of event contained multiple issues but avoided reflecting on all issues highlighted</td>
</tr>
<tr>
<td></td>
<td>Description contained what was learnt overall</td>
</tr>
<tr>
<td></td>
<td>Description contained observations of others and thereafter not linked to ‘self-analysis’ or how the event would impact ‘self’ in the future</td>
</tr>
<tr>
<td>Level 2</td>
<td>Wrote a ‘Description,’ then ‘Feelings’ and back to a ‘Description’</td>
</tr>
<tr>
<td></td>
<td>Wrote an ‘Analysis’ before ‘Feelings’</td>
</tr>
<tr>
<td></td>
<td>No curiosity about feelings, thoughts or behaviours (omitted this level altogether)</td>
</tr>
<tr>
<td>Level of Reflective Framework</td>
<td>Findings</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td></td>
</tr>
</tbody>
</table>
| • Evaluation: What did you do well? What would you change? | • Skipped the Evaluation stage entirely  
• No ‘Evaluation’ but there’s an ‘Action Plan’ 
• “In the future I would like to change..” and similar statements included in the ‘Evaluation’ and no continuation onto the next levels |
| **Level 4**                  |          |
| • Analysis (general): What did you learn? | • ‘Analysis’ was incorporated in ‘Evaluation’ 
• Some only reflected about the importance of the lessons learnt but did not elaborate further |
| **Level 5**                  |          |
| • Analysis (specific): Do you have the skills or knowledge to make the needed change? How will you go about obtaining this knowledge, experience or practice? | • ‘Specific Analysis’ was about non-specific skills or knowledge  
• Some quoted journal and text book references as evidence  
• General and specific analysis was combined into one |
| **Level 6**                  |          |
| • Action Plan: How will you behave or interact in a similar situation in the future? What do you need to learn or practice so that you can achieve this? What is your plan? | • The ‘Action Plan’ is not for a similar situation (The reflective ‘cycle’ was not evident)  
• Lightly touched on the future plan (A brief one sentence ‘Action Plan’)  
• Several participants used the term ”In the future” but the ‘Action Plan’ was very general and simplistic and not a plan for a specific, similar situation or circumstance  
• Assumed the scenario presented will not be encountered in the future and omitted the ‘Action Plan’ |
| **Others**                   |          |
|                             | • Used own set of similar questions and not the template given to reflect upon  
• One reflection contained only a single paragraph with no form of organisation, structure or flow |

Fifty students contributed 207 reflections. Each reflection was assessed by using the reflective framework. The responses to the reflective framework questions were analysed and assigned an overall level of reflection ranging from Level 0 to 6. Figure 9 shows the number of reflections coded at each level of the reflective framework.
1) Level 0 and Level 1

Only one reflection each was assigned a Level zero and Level 1 as the writing was fragmented and there was no attempt to use the reflective framework to represent a narrative of a reflection.

2) Level 2

Reflections receiving a Level 2 did not proceed beyond ‘Feelings’ or simply listed actions of a higher level without adequate exploration past the ‘Description.’

3) Level 3

Reflections coded at Level 3 focus on Evaluation and students reflected on what they did well and what they would do differently. The following example on the student’s performance during the semester stopped at Level 3 and did not progress to other levels:

“One of the areas I feel I could improve is my ongoing revision of previously learned material. It is difficult during the semester to fit this into my workload. A strategy that seemed to work was to dedicate the first hour of the day to revision (rather than summarising lecture notes). I only implemented this during the last 8 weeks and found it hard to maintain as the workload increased towards the exam period but I felt it was a useful strategy and plan to continue this. Another area I’d like to change for next semester is to focus on learning the core conditions and presentations well, rather than just
learning the information presented in lectures. I feel this is a more effective learning approach during clinical rotations where self-directed learning will take greater emphasis.” (Z17D2)

The majority of reflections (81% of 207) were coded at Levels 4 to 6.

4) Level 4

In those reflections demonstrating a Level 4, students identified in general the importance of lessons learnt. However, there was no elaboration of specific skills needed to formulate an action plan. In the example below, the student identified the importance of three learning experiences; conducting a comprehensive history, time management and obtaining consent. Nevertheless, there was no specific analysis of required skills or knowledge for future encounters of similar experiences. The reflection ended with this paragraph:

“I learnt from this experience the importance of doing a full comprehensive history, as often things can be missed as they may seem less important to a patient, but in fact could be quite important. I think this an important lesson to learn for the future, especially as I progress from medical student to intern and have less time to spend with each patient. It also highlighted the importance of obtaining consent and discussing openly with a patient that anything they communicate to me may be passed onto my superior and confirm from the outset that they are okay with this.” (A14D2)

Another student who reflected at a Level 4, implied that communication is an important aspect during an injection procedure but there was no analysis on how to develop those skills or what they would do differently in future encounters. Therefore, this reflection did not receive a Level 5. Additionally, the statement “In the future…” is a very simplistic ‘Action Plan’ and not specific to the injection procedure experience described.

“In future I need to remember communication is an essential part of health care. I need to develop and employ distraction strategies and ensure I check in with patient comfort before, during and after procedures. I believe this will become more natural as I become more comfortable with procedures.” (F2D2)

5) Level 5

At Level 5, students’ writing should demonstrate specific skills or knowledge needed to enforce change and how one may go about obtaining that skill or knowledge. One student identified him/her as being not very assertive and confident in interviewing patients and demonstrated good reflective ability at Level 5. Unfortunately, this student had not
commented on the ‘Future Plan’ and how he/she may act differently in a similar situation in the future.

“I would like to get some more experience in psychiatric interviewing, but it is not a condition that can be easily mimicked by a peer, there is no real substitute for real patients in this case. As such, I will only get more confidence in my psychiatric interviewing skills by practicing on real patients, which may be a little awkward at the start. I think basic people skills are the best place to start with psychiatric interviewing, and these will only really develop more with more practice.” (E2D3)

In another reflection that was also graded at Level 5, the student reported of an encounter with a Parkinson’s disease patient where the student identified his interview questioning as being “a little insensitive” and less empathetic. The student concluded with the following specific analysis of the skills required but there was no apparent plan written on how to utilize this understanding in the future.

“I’m going to talk to my peers about how they respond in these kind of situations as well as doing a little internet search to see if I can find some helpful tips on non-sarcastic responses and ways to continue a conversation after a sensitive issue has been brought up. I think this comes with practice, and I hope that by being brave and talking to more patients in our clinical phase I’ll be able to teach myself how to navigate conversations delicately and less awkwardly. I’m also going to ask my clinical mentor this question and see if she has any tips for me. I think also practicing with my peers before I go into hospitals will not only help me think about my responses but also help them in this area.” (E4D3)

6) Level 6

At Level 6 students are expected to identify an ‘Action Plan’ on their behaviour, skills or knowledge requisites and relate their actions to a similar situation in the future. One student who was unable to build rapport with a patient initially sought to practise motivational interviewing techniques and reflected on what they would do differently in the future. This student quoted two journal references on motivational interviewing and wrote about shared decision-making tools.

“I have now done some additional revision of motivational interviewing techniques and believe that I am now well prepared to use these techniques when another opportunity presents itself, and am now resolved to at least ask about and assess the patients willingness to make changes to their lifestyle in the future. I will use the 5 A’s (ask, advise, assess, assist, arrange) framework in the future.” (D17D1)
Another who reflected at a Level 6, expressed on improving their study technique for future exams. Although the future Action Plan is not specifically stated as such, what needs to be learnt or practised is listed.

“I should also make better use of clinical text books such as GP Companion as these provide information about how to interpret test results. Aside from typing up cases into succinct table formats and then printing and binding these at the end of each rotation, I will also need to ensure I am getting adequate practice at performing practical skills such as catheterisation and venepuncture and to keep a log of these skills and to keep note of which skills I need to get more practice on.” (F4D6)

**Reflective narrative prompted by a listed question**

Several students chose to write down the reflective framework questions or a similar set of their own questions and attempted to answer those questions when writing their reflective narratives. Of the 52 reflections that had a set of questions written down and followed with the reflective narrative, 50 (96%) reflections achieved a Level 4, 5 or 6. Amongst those, 25 (48%) achieved a Level 6, 13 (25%) achieved a Level 5 and 12 (23%) achieved a Level 4.

For example, one student (Z17D3) who reflected at a Level 5 used their own set of questions to reflect upon: ‘What I did well, Areas for improvement, and Plan for future.’ However, another (D9D1) who used ‘Describe, Analyse, Conclusion and Plan’ format, reflected only at a Level 4 as the ‘Conclusion and Plan’ comprised of only an evaluation. Furthermore, 78% of this reflection was confined to a lengthy ‘Description’ of the experience and there was no adequate weight given for a ‘Conclusion and a Plan.’

**4.3 Word Count**

Students wrote between 136 - 1243 words in response to the six-level reflective framework provided. The overall average word count was 432 with a median of 429. The mean being close to the median indicates that the data conforms to a normal distribution with no significant outliers that may skew the data. Figure 10 shows the relationship between the average word count, the number of reflections and the level of reflective ability. No reflection on average between 200 – 308 words was assigned higher than a level 3. One hundred and sixty-seven (81% of 207) reflections with longer entries were reflecting at a level 4-6. Those who wrote on average more than 450 words and up to 479 reflected at levels 5 and 6. This is slightly more than half of the study sample.
4.4 Themes

Context of the reflective experience:

The predominant setting for the reflective narratives was the school environment for more than half of the 207 reflections submitted. In the pre-clinical years, it is plausible that they spend most of the time in this setting and choose to reflect about their didactic learning experience. Other areas of reflective experiences were of clinical settings; general practice, emergency department and hospital wards. These areas offered students to reflect on their initial clinical placements, first-hand interactions with patients and observations of the health systems, their clinicians and interprofessional teams.

Core themes:

The main approach to the analysis of medical students’ reflective narratives was to follow a general inductive approach where a systematic strategy was employed to develop themes relevant to the research question of ‘what do medical students focus on when writing reflectively about their learning experiences?’ and present the findings of the most important themes. Data saturation and some redundancy of information was seen after the analysis of 38 participants. However, the entire selected sample of all 50 participants’ reflections (207 in total) were analysed for completeness and to maximize the understanding of the breadth of their learning experiences.
Four primary themes emerged from the data. The themes and corresponding sub-themes of student learning experiences are listed in Table 4 and presented thereafter with accompanying student narratives for elaboration.

### Table 4: Core themes and corresponding sub-themes

<table>
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<tr>
<th>Themes</th>
<th>Sub-themes</th>
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<tbody>
<tr>
<td>Awareness of self</td>
<td>Coping with Stress</td>
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<tr>
<td></td>
<td>Teaching &amp; Learning</td>
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<tr>
<td></td>
<td>Abilities &amp; Difficulties</td>
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<td></td>
<td>Conduct</td>
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<td></td>
<td>Identifying Values</td>
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<tr>
<td>Readiness for practice</td>
<td>First Procedure</td>
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<td>Role as Doctor</td>
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<td>Role as Student</td>
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<td></td>
<td>Volunteering</td>
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<td></td>
<td>Assessment &amp; Feedback</td>
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<td>Workload</td>
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<td>Interacting with patients</td>
<td>Patient Interview</td>
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<td>Communication Ethics</td>
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<td></td>
<td>‘Real’ vs ‘Standardised’ Patients</td>
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<td></td>
<td>Patient Feedback</td>
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<td></td>
<td>Confronting &amp; Uncooperative Interactions</td>
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<td></td>
<td>Psychosocial Aspects of Care</td>
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<tr>
<td>Encountering the health system</td>
<td>Medical Errors &amp; Quality Care</td>
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<tr>
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<td>Student Liability</td>
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<td>Site Preparedness</td>
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<td>Collaborative Practice</td>
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<td>Health Advocacy</td>
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4.4.1 Theme: Awareness of Self

Coping with Stress:

1) Physical and mental worries

Anxiety during procedural skills: “I have been a little anxious about performing the “invasive” clinical skills such as venepuncture, inserting IV cannulas and urinary catheters, injections, and suturing.” (Z17D1)

Trying to keep themselves calm to make the patient at ease: “Although I was very nervous, but I tried to calm myself down before approaching the patient so that I will not influence the patient’s emotions.” (H5D3)

Anxiety due to the language barrier: “I used to feel quite nervous when it came to taking history from a patient in front of the class, especially coming from a non-English speaking background. I also have an accent that I am quite aware of. I was told that my voice is quite soft during the clinical skills class, during history taking from simulated patients.” (MDFED2)

Awareness of mental health issues as a medical student: “It is very important as studying and practicing medicine can be a stressful and a challenging career at times. In addition, medical practitioner’s mental health status can impact on the competency of his or her
medical practice. ...As a medical student it allowed me to realize how badly some issues can influence one’s life and a career.” (MDFED6)

Recognising self-care and well-being: “...I need to make sure I seek help early when I’m struggling. Towards the end of semester two I was fatigued, burned-out and feeling down. In the past I’ve been able to pull myself out of these spells, but this did not work and I lost too much valuable time before the exams. In hindsight, it would have been better to seek help when I first realised this episode was more persistent than usual.” (Z17D6)

A mixed bag of sentiments: “It’s difficult to summarise how I feel about my first year because I oscillate between satisfaction (at how much I learned last year developed as a medical student), fear (of how much more I have to learn and my capability), confidence (I can sit in a consultation, understand my mentor’s approach and develop a list of possible diagnoses) and worry (about how much I’d been taught that I’ve forgotten and difficulty in recalling necessary information).” (Z17D6)

2) Time management

Time wasted: “I think sometimes as a medical student I feel pushed for time as it is and can get frustrated when time is being wasted on things that I do not think will be helpful.” (A14D1)

Managing studying and working part-time: “However, it trained me to set up a time line to finish the writing task which helped me a lot on improving my planning and goal-setting skills.” (MDFED3)

Time limitations when seeing patients: “I however found myself afraid to initiate this discussion, as I was concerned that I may offend the patient if I started to discuss diet, exercise and weight, and I was also worried about time, as each appointment at the GP clinic had only been allocated 15 minutes.” (D17D1)

3) Work-life balance

Disruptions of social life: “I also want to make an effort to better balance my study and home life and minimising my stress during the semester”...“Time spent away from family during clinical placements is affecting their eating habits, health and well being.” (Z17D6)

4) Being supportive
Support each other: “...I recognise that the calm nature in which I approached the learning session meant I was also able to help the other students around me who were also struggling with nerves.” (E3D1)

Support peer learning: “As we are all learning together I think I should definitely be more aware of how to help my peers. I think the best way to practice this is to be around my peers more, to practice and study together, to watch each other and give feedback, to be confident in ourselves to share our ideas, and to be perseverant to be able to receive and use critical feedback.” (E4D2)

Access mental health support services: “As a team, there is a need to ensure each other’s safety and health in order to be productive towards our common goal of treating patients. To ensure that medical professionals have sufficient emotional support relating to work, it is important to have regular psychological check ups and evaluations by professionals.... the health and wellbeing of medical professionals must not be neglected to ensure the efficiency of their work” (H5D1)

Friend’s feedback valued: “I also received good feedback and encouragement on my progress, from my friend who has been proofreading my assignments over past two years.” (MDFED3)

Teaching and Learning:

1) Adult learning strategies

Self-directed learning: “This semester I tried to focus on distilling my learning to focus on key conditions and concepts rather than trying to learn too many details. I also tried to focus on information that I felt would be most relevant to my clinical rotations next semester.” (Z17D2)

Narrative reflection: “I enjoy writing literature reviews and reflections as I have convinced to myself that my English writing skills have improved to a great extent by doing so.” (MDFED3)

Reinforce knowledge by recalling and teaching: “I realized that I worked harder to understand the material, recall it more accurately and apply it more effectively when I teach it to my colleague.” (MDFED5)

Preparing notes ahead of exam: “For the upcoming and future examinations I will annotate over the slides during the lecture, but I will also spend more time throughout the week to
summarise the notes into a word document so that by the time study week comes around I will have a compact set of printed and bound notes from which to study fro.” (F4D6)

Group study valued: “I have only gone to a handful of these study groups as I have not always felt up to date enough to attend. However, I certainly believe this study technique is a valuable tool and I have always come away feeling more confident in my knowledge.” (F4D2)

Group study dynamics: “During one particular study session I fond myself getting quite short with her because she was laboring over particular details of a lecture that I deemed not to be important (or at least worth spending any extensive amount of time on).” (A14D1)

Hands-on learning: “I learned about my own capability to work with patients and how I tend to learn best through physically doing things.” (D18D6)

See one, do one, teach one: “I believe that the best way that I learn is to watch someone knowledgeable perform a technique, then for my to perform it with supervision and then for me to teach the technique to someone else.” (F4D4)

Evidence-based learning: “In hindsight, I could make this learning experience better by taking more notes and by going home and researching more about each of the conditions I encountered that very same day. This way new knowledge is rapidly utilized and is more likely to remain with me.” (F4D3)

2) Resourceful learning

Be more proactive:

“I think that I could have been more proactive about engaging the patients. The other student and I weren’t doing anything for the majority of the time we were on the ward and I wished that I’d asked one of our supervisors if we could’ve asked to speak to the patients” (E4D1)

“I will also be very active in seeking out opportunities to observe these procedures and participate as much as possible in my clinical rotations.” (Z17D1)

“Given the busy environment of a tertiary teaching hospital I anticipate that I will have to seek out information and put myself out there in order to receive the best opportunities for learning....” (F4D1)
“I realize that it is essential that I seek out my own information and ask questions about anything I am unsure about (even if I do feel embarrassed at not knowing the answer to something) when I am in the hospital environment on placement.” (F4D4)

“In my future on the wards I will have to take advantage of every teaching opportunity that I am offered, whether it be from a more senior doctor or another health professional such as a nurse.” (A14D3)

**Personal Abilities and Difficulties:**

1) **Confidence**

Disappointed: “This was a huge shock because I felt confident about my skills, but it was ultimately a great lesson because it showed me the effort required to learn and practice clinical skills.” (Z17D4)

Feeling ready to practice: “I was surprised at how well equipped I was to carry out the tasks assigned to me at this placement, and it helped me become more confident in my ability to relate to patients in a meaningful and genuine way.” (D18D2)

Need more confidence in presentations: “I felt my presentation to my mentor was OK, but I was unsure if it was concise enough, and my delivery needed to be more confident.” (Z17D3)

Be confident when facing similar situations: “There will be many similar situations in my future as a student doctor, and even as a qualified doctor, where I will be faced with a new procedure or learning a new skill, where it will hold me in good stead to be confident in my ability to approach new situations and take the most away from them.” (E3D1)

Fear of failure: “This was extremely disappointing as I had done a lot of preparation and felt good about myself immediately after the exam. I lost a lot of self-confidence and severely doubted my ability to do this course, coming to terms with this as a learning experience was difficult.” (D18D5)

Overconfident: “A student with too much confidence may end up being cavalier, careless, unaware of patients’ discomfort and lead to patient harm. Being over-cautious though can also lead to patient harm…… If I appear too cautious and lacking confidence, the patient may be nervous and less willing to be “practiced on.” (Z17D1)

2) **Competence**
Felt like a failure: “This was incredibly embarrassing as I tried to muddle my way through the examination, before the GP became aware of my lack of proficiency and took over. Whilst he didn't chastise me, I still felt inadequate and like a bit of a failure.” (C16D1)

Felt incapable: Last week was my first learning experience of two of these skills (injections and inserting IV cannulas) and while I'm a little more confident after the workshops, I still feel inadequate to perform these interventions on actual patients.” (Z17D1)

Unsure of the history taking procedure: “….didn’t quite know how to approach taking a history from someone who didn’t have an acute presentation that I could question them about.” (E4D2)

Discovery of own limitations after interviewing a mentally unwell patient: “This experience would make me change the way I receive information from patients who are mentally ill.” (H5D2)

Lack of ability: “I think that I did a good job of asking the mother about the history of the nappy rash, however when it came to the physical examination I had no idea what to do.” (D17D3)

Conduct:

1) Actions and behaviours

Body language: “Sometimes I feel that when I’m trying to be empathic my body language and speech changes.” (E4D3)

Reflection-on-action of own non-verbal cues: “I analysed my actions and realised I may have made certain non-verbal cues which gave away my lack of comfort.” (C16D3)

Professional conduct: “I would like to try and work on my professionalism skills, and learn how to be more comfortable with potentially embarrassing situations for the patient. If the patient can sense I am uncomfortable, it makes them even more uneasy, something which I wish to avoid.” (E2D1)

“My actions weren't very professional but I was so inexperienced I just had no clue on how to act naturally in such a situation.” (C16D2)

Being professional and tactful in providing input: “I approached this in more of a conversational manner than an authoritative, and explained that I had worked in pharmacy
for 10 years. In this case it worked well, the nurse and the patient were both appreciative for the input." (A14D4)

Involuntary laughter brought about by a peer asking a question resulted in embarrassing the peer. Thereafter, the student reflected that: "…..our professionalism is always on display and is always being assessed. Had the same situation occurred in the clinical setting, or had the question arisen from a patient, I believe each of us would have acted in a more professional way…." (E3D3)

Be less judgemental: “I felt like I made a real difference that day. If I could do it over I think I would try to have less judgemental thoughts at the start of any consultation. I know there will still be things that will shock me but I need to be able to control it and treat people like people, flaws and all.” (C16D3)

2) Relationships

Establishing future professional relationships: “I am so glad that I made the decision to participate in peer-assisted classes as they greatly helped me to improve my skills, and it was a really good opportunity to get to know and interact with senior medical students. It also helps us with how to form professional relationships.” (MDFED2)

Identifying Values:

1) Respect

Respectful work ethics and doctor-patient interaction: “He does not take notes while the patient is in the consulting room, rather he remembers what occurred and spends a few minutes following the consultation typing up his patient notes. This makes the patient feel like they have his full attention and that he is listening actively to what they say.” (F4D3)

Granting respect: “I was trying to think of how I would feel if the situation were reversed, and I was the patient with a medical student that could be my peer examining my body. I would like to think I wouldn’t mind; however, I feel there would always be a little bit of awkwardness regardless.” (E2D1)

Disrespect: “Doctor on call prescribed Hudson mask to increase oxygen supply. Patient refused, became very agitated. Doctor and two nurses have forced the mask. I was just a bystander, but I was shocked that nobody listened to the patient, focused on oxygen saturation numbers.” (D9D1)
2) Trust

“We end up having a very deep and meaningful conversation and I felt incredibly privileged to act as confidant and she ended up asking me some questions about contraception which she said she felt to embarrassed to ask her mother or doctor.” (C16D3)

3) Integrity

“And mr A was talking, he said he just wants to go outside for the last time. He knew death is coming, he did not want to prolong it, he just wanted to see the sky last time.” “…I have voiced my concerns, I contributed to resolving the patient’s anxiety without contradicting the doctor’s advice. I slept well that night with a feeling of moral satisfaction.” (D9D1)

4) Justice

“This was the time I raised my concern in polite way. I said I can take the patient outside. To my great surprise the doctors refused, saying that the patient is delusional and I should totally ignore what he is saying.” “…My reflection on the events are simple. Sometimes medical officers do not listen to patients. There might be many reasons for it, tiredness, impatience etc.” (D9D1)
4.4.2 Theme: Readiness for Practice

First Procedure Encounters:

Fear of inflicting pain on others: “During this time I realised that I was not afraid at all for others to practice taking blood from me, but was very worried about inflicting possible pain on others.” (E3D1)

“As this is my first time going through this procedure I was a little anxious about it too, because I do not want to inflict excessive physical pain to my fellow classmates and I was also fearful that my fellow classmates might bruise my arm too.” (H5D5)

Felt uneasy but performed well: “I have previously had a needle phobia and so approached this activity with some apprehension and concern that I may not be able to complete the task, which is considered to be a basic skill required of medical students and interns. I was very pleased and relieved to find that I did not feel at all uncomfortable or anxious during this venepuncture experience.” (F4D5)

Trying to keep the patient comfortable and distracted: “Many people fear needles and an important aspect of administering injections is distracting the patient, saying comments like ‘tiny ant bite’, and ensuring they are comfortable throughout the procedure.” (F2D2)

Role as Doctor:
Developing good communication skills and addressing language barriers: “It was amazing to see doctor-patient interactions, such as: how a doctor explains to the patient all medical procedures in layman terms, and how it works when the patient’s first language isn’t English with a translator.” (MDFED4)

Composed when dealing with patients: “I do however respect the hell out of the GP I was with as he took it all in stride and was very natural and calm in dealing with (John) and discussing things through to resolution.” (C16D4)

A strict interview structure made the “conversation very stiff.” “They also weren’t noticing their patient and their surroundings, for example, one patient who had presented with pneumonia was finding it difficult to breathe while speaking, and had a sputum cup and inhalers on his bedside – his interviewer however, kept focussing on his acute presentation of pneumonia before only asking at the end if he had a predisposing lung condition. While we are taught with a strict structure I think it’s important to be flexible and take into consideration all the clues that are offered so that an interview can be both a succinct gathering of information and a time to show the patient you care” (E4D2)

Lack of respect and shared decision-making: “During this placement I felt that the patients weren’t being listened to. I know the doctors are busy and have to get all their paperwork done, I just felt it wasn’t done in the best way” (E4D1)

A similar observation was reported when a registrar continued taking the history despite patient’s reluctance: “The patient was not responding well to this questioning and she was getting more withdrawn and anxious, at one point in the interview she stopped answering at all and started playing with her 2 year old child.” (A14D5)

**Role as Student:**

Overstepping the ‘boundary?’ “The other student that I went with is very assertive and confident, and was asking the patient lots of questions during interviews, though sometimes I felt it might have overstepped the boundary as a medical student on a day placement.” (E2D3)

Another comment identifying limitations: “For now, I’m only good to suggest things, not to criticize.” (D9D1)

“My place is simply to observe;” “As a medical student, I was not in a position to comment at length, but I did express my feelings regarding who should have explained the situation to the patient, in my opinion.” (MDFED1)
Giving feedback to superiors: “How students should approach a superior doctor is not discussed in class.” “...perhaps I can ask my clinical mentor how they would feel as a superior if a medical student addressed them about their behaviour and how to do that in the best way.” (E4D1)

Uncertainty of student responsibilities when they find out vital information from patients: “I was then unsure as to what my role and responsibility as a medical student was, should I inform the doctor directly?...He had already had his consultation with the doctor so it would involve him coming back. I was also aware that if I was to tell the doctor I didn’t want it to come across that she (the GP) had missed something important.” (A14D2)

The role of a former allied health professional now a medical student: “As I am currently in the role of medical student I was unsure whether I should say something, or whether that would be beyond the duties I am expected to perform. I am very aware of not overstepping my duties as a medical student and blurring the lines with my pharmacy background, especially as I didn’t want to make the nurse uncomfortable. This is something that I am constantly aware of, and I know this is an issue that will arise in the future as I enter the wards.” (A14D4)

Volunteering:

To gain practice skills: “Besides having placements arranged by the university, I will also try to volunteer in other organisation which provides me an opportunity to practice my skills and get better with it.” (H5D3)

For exposure to future career opportunities: “I started working as a volunteer in a breast clinic at one of the leading hospitals in (City name), for nearly a year now, and really enjoy it. My main intension for choosing to working in a breast clinic is my desire to perhaps specialize in oncology in the future.” (MDFED4)

Assessment and Feedback:

Direct observation was intimidating but worthwhile: “Having my mentor observe my examinations was daunting but really rewarding.” (Z17D5)

Students praise constructive feedback given by mentor: “My student mentor has been very helpful, and she also practiced history-taking with me, always encouraging me. The feedback and advice I have received has greatly helped me identify my weaknesses and improve my strong skill.” (MDFED2)
Seeking supervisor feedback: “I did struggle with summarising this information to the psychiatrist with the patient there, and I feel as though I should have asked for more feedback from the psychiatrist after interviewing patients who didn’t communicate normally.” (D18D2)

During a clinical examination, the supervisor requested the student to continue confidently or have another student take over: “I plan to put any criticisms, especially poorly expressed ones, into context and become less likely to let such experiences damage my self esteem.” (D18D1)

Occasionally, students mix praise and critique, as in this example: “I may not always agree with the criticisms directed at me, however, I know now that it is in my best interest to take them on board, especially when they are coming from superiors who have more experience than I do” (E3D2)

Workload:

Preparatory reading materials are extensive: “...sometimes I find the reading list is extensive and overwhelming with all other work.” (MDFED3)

Assignments are challenging as no strong background skills: “I found part two of the assignment to be challenging because I had never been involved in the research process before, and felt a little lost as to where to start.” (D17D2)

Students are concerned that they will lose some of their knowledge by the time they are ready for clinical practice: “I am still struggling to cope with the vast amount of information that is being provided in the course.... For exams, it is fine to cram a bit to learn the gritty details to obtain marks for, but I am a little bit concerned about understanding the knowledge for future years and to be a good doctor” (Z1D1)
4.4.3 Theme: Interacting with Patients

Patient Interview:

Putting patient at ease when the patient was embarrassed by the volume of medications she was taking: “I put her at ease by explaining the medications she was taking (statin, proton pump inhibitor, diuretic) were very common and her situation was not unusual.” (Z17D3)

Obtained a comprehensive history: “I let the patient speak un-interrupted for as long as possible. I had good body language, including facing the patient and appropriate eye contact. I asked both open ended questions and closed questions. I made brief, accurate notes.” (F2D3)

Nevertheless, history taking may not always flow smoothly: “… I realised how difficult it can be to take a history from an elderly patient and obtain accurate details of their past medical history as it can be difficult for the patient to remember specific details.” (F2D3)

Addressing patient needs ‘as whole:’ “I tried to focus on the patient as whole and remember that she was more than a disease personified. I asked about her life before Parkinsons and the changes that’d occurred since her diagnosis in regards to her social life, independence, mental health etc. (E4D3)
Responsibility of being accountable: “I did learn however the importance of being specific with questions about drug use, as patients often are elusive or reluctant to disclose the whole truth for fear of judgement or legal repercussions.” (D17D4)

Time limitations when interviewing:

“I asked a lot of open questions and gave (Mrs D) a lot of time to respond. While this was valuable (it provided a chance for (Mrs D) to share her stories and feel comfortable to open up), it ultimately took 20 min to complete the comprehensive history which is not an efficient interview” (Z17D3)

“I did well in being a good listener and allowed her to share her story with me. However, I need to take into account that in real life I will not be having the luxury of time to interview a patient and I should ask questions in a more orderly manner and get to the point.” (H5D4)

“I think this an important lesson to learn for the future, especially as I progress from medical student to intern and have less time to spend with each patient.” (A14D2)

Communication Ethics:

1) Rapport

Building rapport before the procedure: “The thing that I would change is I will not be so nervous for the next injection and I will try to prepare myself better beforehand and have more doctor-patient rapport before administering the injection.” (H5D3)

Building a good doctor-patient relationship for long-term care of patients: “...especially since cancer management is a long term ordeal, it is very important to build a good rapport with the patient.” (MDFED4)

2) Empathy

Responsive to patient’s feelings: “(Mrs D) shared a story of the death of her daughter 5 years earlier. We discussed the impact of this experience on her life and how she coped with that event.” (Z17D3)

Conversely, “lacking a frame of reference” to empathise: “I have realised that most of my learning journeys have been about combating my own biases and learning to communicate through education and social barriers. I don’t think I am less sympathetic with the people in the scenarios I have talked about, but rather I lack a frame of reference to empathise with them.” (C16D1)
“Breaking bad news” badly: “I also had trouble explaining what was wrong to the patient, as we have not had much practice breaking bad news, and this was quite a young patient who had a diagnosis of Hepatitis C.” (D17D4)

3) Consent

Obtaining consent: “I feel that I was quite respectful of the patient by not assuming that she was comfortable with me being involved in the consultation and examination, and waited until consent was sought before proceeding.” (E2D1)

Importance of re-consent: “When the doctor told me to observe the examination it was necessary to ask consent from the patient because although the patient consented to me being present during the visit, his consent may not have extended to my observation of the examination.”... “Following orders from the doctor I observed the examination, with no objection from the patient, however, a year and a half later I now am able to critically reflect on the interaction. Without consent I put myself in a potentially serious legal predicament that could have carried serious repercussions.” (E3D4)

Another wrote if a patient discloses potential sensitive information they would obtain re-consent before carrying on: “I could say something like: ‘I am sorry to hear you have been diagnosed with anxiety, I would like to ask some more questions about your anxiety such as the nature of your anxiety and when you were diagnosed. Would this be okay or would you feel more comfortable discussing this with your GP in the other room?” (F2D1)

4) Confidentiality

Consent to inform confidential discussions to doctor: “It also highlighted the importance of obtaining consent and discussing openly with a patient that anything they communicate to me may be passed onto my superior and confirm from the outset that they are okay with this.” (A14D2)

‘Real’ versus ‘Standardised’ Patients:

A student, who was asked by examiners to sound more empathetic, stated: “Initially this did not seem a valid point to me as there is only so much empathy that can be conveyed to a patient that I know full well is reading a script.” (E3D1)

Standardised patients are ‘normal:’ “Patients in practice in class and in clinical assessments may be nerve-racking and a bit intimidating, but 90% of these patients usually have no abnormality/are normal.” (Z1D1)
One student was able to draw blood in a male specimen with prominent vasculature however, commented: “...this in turn made me worry, knowing that the majority of patients I am likely to see in the clinical setting will not be such good specimens.” (E3D2)

Students want more exposure to ‘real-life’ patients:

“I would like to get some more experience in psychiatric interviewing, but it is not a condition that can be easily mimicked by a peer, there is no real substitute for real patients in this case.” (E2D3)

“More experience talking to real patients would have helped with my history taking, which at times can be disjointed and too long.” (D18D6)

**Patient Feedback:**

Value patient’s viewpoint: “I also think there is a lot that can be learnt from patients themselves, so I am going to continue asking patients for feedback after interactions where possible.” (A14D3)

Patient feedbacks on how her doctor plays an integral part in her care plan, which the student wants to emulate: “The patient did mention that not all of her oncologists were equally as caring and hopefully, I don’t lose some of my caring and understanding personality if I do become one.” (Z1D2)

**Confronting and Uncooperative Interactions:**

After being offered a modesty sheet, the patient who was taken aback by the offer, told the student: “...we had better get used to looking at breasts if we were to ever graduate medical school. This experience demonstrated to me the importance of picking up on patient cues and the idea that it is necessary to realise that guidebooks are exactly that, a guide that, within reason, can be strayed from in order to maintain a patient's best interests.” (E3D5)

This student felt uneasy on her first psychiatric placement: “Honestly I felt distinctly uncomfortable as he was evidently manic and was staring at my breasts as he talked to me.” (C16D2)

Encountering ‘Shocking’ behaviour of a patient under the influence of drugs: “From this point on (John) proceeded to emphatically yet eerily calmly began to discuss the fact that if his brother came around again he would shoot him in the head with a spear gun as his probation prevented him from getting real gun. This was beyond shocking to me and I had to
school my reaction to nothing and act professionally when inside I was freaked out with the level of violence people rationally consider.” (C16D4)

Trying to avoid upsetting discussions: “When it comes to history-taking or performing clinical exams on patients, I find it quite intimidating as I don’t want to offend my patients by using inappropriate words, by mistake, which could interfere with the doctor-patient relationship.” (MDFED2)

History taking was confronting and challenging with an adolescent patient and the patient’s mother: “The patient stated they had anxiety. I asked if they could tell me more about this. The mother interrupted and stated that the patient did not have to answer anything that it was just for my benefit. I immediately apologised and suggested we progress into seeing the GP.” (F2D1)

Learning to reassure when patients are tearful: “I went back to mr A to talk. He started crying, talked about death. I tried to comfort him, let him voice his anxiety. I really did not believe he was delusional, he was fully aware of his status and surroundings. I promised the patient I’ll take him for a walk, as soon as I could.” (D9D1)

Interviewing psychiatric patients are challenging: “As I have not had very much experience with psychiatric interviewing, I found it a bit confronting to be put on the spot when (Dr. Brown) asked us to ask (Anne) some questions.” (E2D3)

**Psychosocial Aspects of Care:**

Mental health placement was good exposure to address patient needs holistically: “Through this experience, I learnt that treating a patient is not just treat a person’s physical illness, but treatment should be given in the physical, mental, emotional and spiritual aspect of the patient.” (H5D4)

Students gain knowledge of psychosocial aspects in the Mental Health Tribunal: “I learned more than I ever had in my coursework about the social determinants of health; it was quite confronting and very saddening to see how patients illnesses manifested as severely as they did because of the repeated traumas they experienced in life due to social or economic disadvantage.” (D18D2)

Corroborating evidence: “If I were to face a similar situation in future, I will always take into account the mental state of the patient before conducting an interview with him and analyse the consistency of the patient’s statements and also note down the inconsistencies.” (H5D2)
Financial burdens interfering with medical treatment: “She enjoys making dolls and joined a doll club together with her friends. However, she cannot afford making dolls anymore, because she is financially burdened by the cost of her asthma medication. This narrows her social life spectrum and she has started to lose confidence when interacting with others.” (HSD4)

A different perspective of the patient-(family)-doctor interaction: “I think too often I focus on the facts at the expense of considering the lives of the patients we treat and how that intersects with their health. In particular, in the CEL sessions this semester I learned a lot about family and how often doctors need to manage family members as well as the patient themselves.” (D18D4)

4.4.4 Theme: Encountering the Health System

Medical Errors and Quality Care:

Handling an error: “No one had followed up on the blood tests, so the first time they were viewed was in this consultation now. It turns out the glucose tests showed some abnormalities, and that she was in the pre-diabetic range.” .... “In this situation, I was not directly involved, I was simply an observer. ...“This situation was not really the fault of anyone, as the regular GP’s departure was quite sudden, and so her patients were given to other GP’s in the practice without any handover.” (E2D2)
Error reporting procedures: “One day, the radiologist came to meet the surgeon. She told her that the biopsy results of this particular patient were switched with another patient’s results, which stated the patient had cancer. The radiologist suggested to the surgeon that a second biopsy was needed to confirm either result..... Moreover, the radiologist refused to let the patient know about the error regarding the results of her first biopsy.” (MDFED1)

When unable to determine the cause of illness, GP (General Practitioner) ensures appropriate safeguards: “…he makes a point of ensuring parents feel no hesitation in bringing their child back should symptoms not subside. This primarily ensures that serious infections don’t get missed, however also assures parents that their concerns aren’t being dismissed and there are things they can do to ensure their child receives medical attention when required.” (D18D3)

Weighing-up on the consequences of not performing duties of a licensed allied health professional while functioning as a medical student: “If patient safety is of concern I think I would be neglecting my role as if I was not to intervene, but there may be circumstances which are less clear cut but still clinically important.” (A14D4)

Student Liability:

One student was wondering of their scope of duties as they were only allowed to observe: “I know there might have been some reasons as to why we couldn’t go and talk to the patients without supervision, I just think that there was definitely an opportunity that I missed to advocate for patients.” (E4D1)

Are there legal consequences if medical students perform duties as a licensed allied health professional? “I think I will also make an effort to ask the people I am working with in the future, for example the interns, registrars and nurses if they would mind the input, and I need to check as the legal ramifications for performing (Allied Health Professional) duties (such as giving advice on medications) as a medical student.” (A14D4)

Site Preparedness:

1) Lost opportunity

Lack of opportunity to perform experiential activities: “For the majority of the time we were sitting in the back just watching the doctors write in the files and watch the patient try and start conversations with the doctors sitting right in front of them.” (E4D1)
Remained outside in the corridor: “As there were a lot of people on the ward round (8 in total), there were times when we physically could not all fit in the patients room to observe.” (A14D3)

Inadequate learning experiences: “I have been on 2 placements at the GP practice I have been assigned to, all of these three placements have been somewhat uneventful as the GP has not given me any tasks to perform or skills to learn.” (D18D3)

Passive observation is not ideal: “My GP is extremely busy and often double booked. I could overcome this issue by asking if I could take histories from patients with new presenting complaints in another consulting room first and then presenting their case to the GP .... I would not be able to achieve this if I was simply learning passively by observing my GP consults.” (F4D3)

There was not enough time to meet mentor for the first time and it was only a quick introduction and a cursory discussion of the placement that took place: “In hindsight, it would have been better to think more deeply about what I was hoping to achieve from the placement and discuss more openly what I hoped to experience from the placement, what his plans for the placement were and work out a brief plan.” (Z17D5)

2) Patient unwilling

Patient was uncomfortable being interviewed: “There was one particular patient who looked uncomfortable with the number of medical personal who were in the room, which was completely understandable as it would have been intimidating for any patient.” (A14D3)

Patient was reluctant to let medical students observe: “She reluctantly gave permission for medical students (myself and another female) to observe. This was obvious by her hesitancy and the language she used.” (A14D5)

Collaborative Practice:

Learning the composition of teams: “I experienced how a multi-disciplinary team management is involved in taking care of a cancer patient. Breast cancer nurses, psychologists, radiologists, surgeons, medical oncologists and community services are involved in to take care of the patient.” (MDFED4)

Teams are committed: “If someone is a part of a team, that person is bound to be faithful to the team and work towards the progress of it.” (MDFED1)
Another student realised how multidisciplinary teams are very important for complicated care: “Her oncologist, she stated, was the one who drove her out of this rut, by providing her an ample amount of services that would take care of her mentally as well as physically; psychologists, physiotherapists, dieticians and many more.” (Z1D2)

Accountability in patient hand-over: “...I will make sure in the future that I follow up on every patient that is my responsibility, and to properly communicate to the next person that will be dealing with their care when they are handed on.” (E2D2)

Health Advocacy:

Access to health services: “I feel as though a lot of what I observed could be what patient advocacy at the individual level may look like – where the social situation, relationships and financial difficulties of the patient are considered in their treatment ...” (D18D3)

Foreign students exposed to the Australian healthcare system and the rural clinical environment value those experiences: “Furthermore, as a foreign student from (Country Name), I am able to determine the differences in the healthcare setting, policies and provision between Australia and (Country Name)” ....“It is a great opportunity to talk to cancer patients from the country and ask them about the barriers they face while getting the treatments. As I am interested in completing my internship in a remote or rural hospital, this would be a great opportunity for me to talk to patients and help to identify their concerns, to prepare me for the future.” (MDFED4)

4.5 Summary

This chapter contains a description of the findings of medical students’ level of reflective ability and the focus of their learning experiences. It included the issues encountered when analysing their reflections and provided narratives of levels of reflections. The majority of students were found to reflect at Levels 4 to 6. Several students chose to write down the reflective framework questions or a similar set of their own questions and those reflections too were found to achieve higher levels reflecting at Levels 4-6. As there were no word limit restrictions it was decided to analyse the word count of reflective narratives. Slightly more than half of the study sample wrote on average more than 450 words and this cohort achieved reflective Levels 5-6.

Students discussed all types of reflective encounters including experiences of clinical placements but most students focused on their self-awareness and the school learning environment. These experiences brought about four themes: Awareness of self, readiness for
practice, interacting with patients and encountering the health system. In the next chapter, these findings are discussed in relation to the research questions that guided this study and recommendations are suggested. Limitations of this study will be presented in the last chapter along with implications for future research and practice.
Chapter 5  Discussion and Recommendations

5.1 Introduction

The use of reflective journaling to facilitate reflective practice is well documented. The published literature contains reports that written reflective narratives guide students’ own learning process and critical thinking ability. This was evident by those who reflected at higher levels (Levels 4-6) as presented in the previous chapter. Besides, those who organised and structured the reflection focusing on the six-step framework, and adopted a specific word count also successfully reflected at deeper levels.

The transition from medical students who have never treated real-life patients to student doctors seemed to be an important phase in their development. Many chose to reflect upon this experience reassuring themselves as acceptable clinicians. They also confessed not quite being ready for workplace and vice-versa. In this chapter, study findings will be discussed and suggestions for improvement of curriculum will be presented. The discussion will address the research questions that guided the study: (1) How do medical students reflect in terms of depth using a reflective framework? and, (2) What do medical students focus on when writing reflectively about their learning experiences?

5.2 Level of Reflection

In this study, the six-level framework provided to aid in reflection was used to answer the first research question: How do medical students reflect in terms of depth using a reflective framework? To determine the depth of reflection, a systematic classification form was used. This aided in assigning the levels of the reflective framework that students have reflected upon and to ascertain if any level has been omitted. Additionally, in its ‘Remarks’ column, the form captured several issues encountered when assigning the ‘final’ level of reflection. These issues were highlighted in Table 3 in the previous chapter.

1) Students ability to reflect at a deeper level

The findings reveal students often had trouble moving from one level to the next and frequently skipped steps to arrive at an ‘Action Plan’ without sufficient ‘Evaluation’ or an ‘Analysis.’ This finding is in agreement with Gibbs who also found that students often have trouble reflecting in sequential stages even with the help of a structured framework. Additionally, a few students focussed on a superficial description of the event or expressed
in detail their experience itself and not as much their reaction to it or how the incident has informed their views or learning. Some reflections were unorganised and unstructured and writing appear to drift without direction or focus.

Regardless of these findings, it was encouraging that 71.6% (166 of 232) of students have submitted their voluntary assignment on reflective writing and the majority (81%) of reflections submitted by students were at a level 4 or above. The finding that 57% (118 or 207) of reflections were written at a Level 5 or 6 affirms that guided reflective writing as an initial experience was a creditable skill the students accomplished. A similar study\textsuperscript{12} sampling undergraduate medical students found comparable results with 46% of students achieving high levels of reflective ability; reflecting to the level of “application,” analogous to a Level 5 in the current study.

In contrast, undergraduate medical students who had not utilised a reflective framework or received guided instruction, demonstrated a low level of reflective ability with only 15.3% being rated as “reflective” or “critically reflective.”\textsuperscript{81} This shows that learning through reflection may be limited without the help of a framework. Further, students may not have had time to stop and reflect or devote sufficient time, and thereby failing to explore feelings and thoughts in depth. Other times, they may have written simply to meet assignment requirements without genuinely engaging in the process.

This study demonstrated the medical students’ capacity to analyse, relate their current theoretical learning to a real life situation and reflect on the experience in order to learn from them. However, students should be informed of the significance of describing the experience adequately to give enough detail to understand the context in which the experience occurred. More importantly, they need to evaluate and analyse the experience to show the thinking processes involved in formulating an action plan.

Medical students should be encouraged to engage in a reflective process that is intended to facilitate personal and professional development. The approach to the reflective process has been described by Sandars\textsuperscript{5} as a cognitive process that can be controlled by training. Being aware of this cognitive process by way of ‘metacognition’ allow for self-monitoring strategies. However, students find it difficult to monitor and evaluate their awareness. Encouraging students to talk aloud and discuss about the stages of reflection, or briefing and modelling of the metacognitive process by a facilitator are considered effective approaches to facilitate this process.\textsuperscript{5}

\textbf{Recommendation:}
During orientation, UWA medical students participate in two sessions. The first one familiarises them with different models of reflections. In the second session, students watch a short film titled “The Art of the ED,” discuss the film in small groups and subsequently submit a written narrative at a later time. In future workshops, to improve the teaching and learning of reflection it is recommended to introduce students to higher stages of reflection by using ‘model’ narratives of past students as examples to demonstrate the sequential stages of reflection. Students can also be engaged in an exercise to read a narrative and grade it by using the reflective framework provided. This exercise can be done independently or in a group setting and is applicable to a wider group of health professional students. Additionally, since students submit reflections later, they should be reminded to habitually record their observations first and subsequently think through and reflect on the experience in detail.

2) Reflective narrative prompted by a listed question

Surprisingly, those who took time to write, organise and structure the reflection focusing on the six-step framework or their own set of questions, achieved a reflective Level 4 or above. In fact, nearly half achieved a Level 6. In general, it seems that those students whose reflections listed the questions and then their answers accordingly, reflected at a higher level. A similar format was used in a reflective learning journal in another study encouraging students to write each entry under a specific step. This enforced following each step of the reflective framework.

Recommendation:

In general, students should be encouraged to make each part of the six-step reflective framework distinct in My Learning Journey. This may involve modification of the e-portfolio electronic template to create a fillable form, which will prompt the student to reflect in a stepwise manner. Having specific ‘free text’ boxes for each of the six steps along with the guiding questions of the reflective framework will steer them through the sequence without skipping a level. A similar learning portfolio with a boxed-template to complete specific questions sequentially for each module undertaken, was kept by the researcher when she was enrolled in a certificate course in Medical and Health Professions Education. This helped greatly in organising the reflective narrative as the questions were visible, yet divided on the template given.

It is clear that the stages of reflection and obtaining best results from good reflective narratives should be made explicit to both staff and students. The stages of the reflective framework used in this study should be used as a basis for assessing reflective writing. The initial 3 levels may warrant a relatively low grade, with a satisfactory grade for those
reflecting at Level 4, and higher grades for Levels 5 and 6. It is anticipated that the ability to reach higher levels of reflection depends on students giving themselves time to revisit original entries and building upon them. The written portfolio being electronic will allow students to return to their original reflective writings and make amendments. More importantly, encouraging student awareness of achieving higher levels may facilitate the attainment of deeper reflective levels.

5.3 Word Count

The findings of the word count analysis suggest that the more text the students write in their reflective narratives, the better they succeed in their ability to reflect deeper. This may echo the training they received which included a practical exercise along with the use of prompting questions in the reflective framework. There is evidence that extensive writing may indicate the processing of a topic more deeply. In this study, those students who reflected at higher levels (Level 5-6) wrote on average more than 450 words.

It is possible however, that there may be differences in the ‘quality’ of their writing between those who wrote more and those who did not. This was not analysed in this study. However, in one study, the ability of writing and storytelling did not influence the measurement of reflection scores. The authors found that reflective ability could be separated from writing and storytelling skills.

Recommendation & Future Research:

Essentially, the word count analysis implies that adopting a minimum word count requirement in the future design of the e-portfolio My Learning Journey would be beneficial.

Future research could compare a subset of summative graded reflections with those that were not graded to see if there is a difference in ‘quality’ between those who wrote a lot and those who did not.

5.4 Student Experiences

The second research question investigated the focus of the learning experience. The findings suggest that reflective thinking develop in association with an event or an experience and the learning in reflection is related to not only on adherence of a reflective framework but to the significance of the experience. Students reflected on learning how to retain personal values and integrating those into a new professional identity in the process of becoming professional practitioners.
5.4.1 Awareness of Self

A predominance of student reflections was found related to this theme. As illustrated in their narratives, medical students objectively demonstrated self-awareness and insight to recognise own well-being and of others.

1) Coping with stress:

Several students reflected on being anxious, fatigued, burnt out, having poor coping mechanisms and these factors interfering with their lifestyles. However, they also identified the importance of being aware of one another’s mental and physical health. Depression, exhaustion and anxiety in medical students is a significant global problem with a 27% overall prevalence. Disturbingly, only 16% seek professional help.\(^8\) Evidence shows Australian medical students too face mental health problems and these problems are not being addressed. Female students reported more mental health diagnoses and high levels of psychological distress than male students. Although employing a small sample size and a subgroup analysis, the study reported indigenous students appear to be more vulnerable than their peers. The transition from study to work emerge as a particular stressful time.\(^8\) All these elements may influence their career and the ability to care for patients.

Students also discussed studying together and supporting their peers who are “struggling with nerves.” This is in stark contrast to an earlier finding\(^4\) where students reported a reluctance to discuss their work and gained emotional support through the reflective process alone.

**Recommendation:**

Supporting by strengthening mentor-student relationships, easy access to seek help, facilitating meetings with peers and seniors to learn from their experiences, and self-reflection programs\(^8\) to build resilience prior to their transition to clinical work, may benefit students.

2) Teaching & Learning

Understandably, being in their pre-clinical phase, many students reflected about their own learning experience, their needs, motivation, taking ownership for their learning and how to improve their learning style. Although lectures have been the most frequently used method delivering theoretical knowledge in their early years, students identified other adult learning strategies. Students preferred ‘active learning’\(^8\) where they were able to get involved in more than just listening, engage in activities to develop their skills and interact with patients.
By understanding the way students learn, we will be able to plan effective ways to deliver medical education. However, this is thought to necessitate changing both educator and learner perceptions of their roles, cultural changes, faculty development and increased learner autonomy.88

Conflicting views were expressed of student exposure to study groups. Their experience fostered an awareness of roles in teams, and conflicts and interactions within groups. Students reflected on factors affecting team structures, group dynamics and working effectively in a learning group. One student reported the inability to work effectively and getting impatient with another group member. Ability to manage teams is seen as a part of the doctor’s job however, teaching leadership and management skills are considered more complex than clinical skills. Research also suggest that medical students may be more open and accepting of the role of collaborative practice, leadership and management education than once thought.89 Such a programme of study based on the TeamLEAD framework has been successfully pioneered by Duke-NUS Graduate Medical School where students spend their entire first year learning basic sciences by engaging in collaborative, team-based activities.90

**Recommendation:**

Perhaps, curriculum planners may consider developing and strengthening teamwork and leadership education by incorporating more student led team activities and exploring views of students to changes in different course designs.

Several students reflected on taking an initiative to engage patients and seek out available teaching and learning opportunities during placements. This was a trait observed by Goldie and colleagues91 too, which showed that being ‘proactive’ is an important quality of a good clinical student actively managing their own learning. As such, this characteristic of self-directed learning could be used as a formative assessment and thereafter in evaluating the student effectiveness in clinical settings.91 These ‘proactive’ students could be useful in managing student-led group activities and to be trained as future near-peers or tutors.

**3) Abilities & Difficulties**

In this study, students demonstrated the capability to recognise personal abilities and difficulties related to their knowledge and performance. Several students reflected being disappointed, feeling like a failure and talked about embarrassing situations of inadequacy. Previous studies41,92 too have demonstrated that insecurity concerning professional skills,
their own credibility, fear of making mistakes and feeling ‘not good enough’ are common thoughts of medical students in their early clinical years.

Confidence in a professional environment as measured by one’s “self-esteem” is an important component in the development of a doctors’ professional identity formation.³ One student debated of being overconfident, leading to cavalier mistakes causing patient harm. This is because, those who are overconfident (or have high professional self-esteem) are likely to regard mistakes as someone else’s fault and those with low self-esteem may be badly affected by a mistake.³ So, challenging these unhelpful behaviours and restrictive ways of thinking and allowing them to address their practice habits without fear, should be encouraged by incorporating reflection as a normal part of medical student training.⁴¹,⁹³

Feeling incapable, unsure, and lacking proficiency and incompetency were reflections of numerous students. Clanton and colleagues⁹² describe of the confidence of a skill and competence that emerges after training. For example, confidence was reported to improve after a skills workshop but competency was acquired after two years of training. Thus, the self-reported incompetency by these medical students in their first 3 semesters of their course, is likely accurate. Contrastingly, high performers tend to underestimate their own performance in self-assessments, whereas low performers overestimate.⁹⁴ Another study reported students’ self-criticism may increase with more experience as they become aware of technical problems involved.⁴⁰

**Recommendation:**

Given the limited time available for teaching and practice in medical school, short video demonstrations prior to hands-on practice have been successfully employed to improve student competence.⁹²

4) **Conduct**

One student reflected on peer-assisted classes not only help to improve on knowledge and skills but also to interact and form professional relationships. This is supported by the idea of Wald,⁹⁵ where relationships are described as influencing the adoption of professional values and in return enhancing professional identity formation. He states that students actively create professional identities through interactions with patients, mentors and colleagues.

Several students have displayed professional behaviour in the educational and clinical settings and outlined challenges to behaviours. Being professional and tactful when students have recognised dealing with others and their own emotions, which may directly relate to
their views and awareness about self-identity. These findings seem to be consistent with those of other studies that suggest that students enter medical school with a pre-existing personality, which may have been shaped by prior experiences.

**Recommendation:**

McKimm and colleagues suggest educational leaders conduct activities that explore students’ ‘unconscious biases’ by giving and obtaining multi-source feedback when students are working in groups or teams. They caution in carrying out these assessments in a non-threatening manner, and in a safe, psychological and physical environment. Their work resonates with Gaufberg and colleagues who recommend to foster safe havens for students to reflect rather than suppress their emotions.

5) Identifying Values

Influence of societal expectations on students’ actions, observations of behaviours and interactional relationships were emphasised under this theme. Students showed awareness of elements of professional, respectful and courteous communication with patients and displayed critical self-reflective values of respect, trust, integrity and justice.

Core values of professional work ethics such as recordkeeping at the time of consultation while paying particular attention to communication, respecting patient’s views about their health, and discussing with patients their condition and available management options were mentioned in student reflections. Being mindful that increased advocacy was needed, recognising that there was a range of people involved in their patient’s care and the awareness of patients who may have additional needs were further professional qualities reflected by students. However, students also identified negative morals of their superiors not being attentive to the concerns of the patient and being disrespectful of patient’s wishes.

It is encouraging to compare these findings with that discussed by others who express that identities are constructed within and developed through activities surrounded by interactional relationships and primarily with members of the medical profession. Therefore, it is particularly important to be aware of how things are accomplished, unofficial rules and unspoken values within placement settings students’ visit. When students reflect on unprofessional approaches, disrespecting patients and exposure to negative influences, there need to be good role models and trained facilitators to guide them accordingly. Teachers as role models, meaningful patient interactions and enhanced self-awareness developed through reflective writing have been identified as major influences in professional identity formation.
**Recommendation:**

Placements should make sure there are adequate and appropriate processes to help students to raise concerns about fellow professionals or patients.

### 5.4.2 Readiness for Practice

1) **First procedure**

Fear of inflicting pain on others and being anxious when several students reported performing procedures on fellow students. One student reflected a “safe and controlled” environment of a health camp improved their confidence. In a recent study, venepuncture, intravenous drip insertion and catheterization were identified as basic clinical procedures that should be independently practiced by junior clerkship students. Increasing the frequency a student performs a procedure, has resulted in the improvement of self-confidence.

2) **Role as doctor**

Several reflections were related to observations of the doctor-patient partnership and the patient’s perspective of the healthcare experience. Respecting patient’s language preferences, considering the influence of patient behaviour and lifestyle factors in clinical assessment, and the lack of shared decision-making were some of student experiences.

Several students reflected their teacher as a ‘role model’ in clinical encounters both positively and negatively. They identified “amazing,” composed and unique styles of doctor-patient interactions, those that were “stiff conversations,” patients not being “listened to,” and “too busy” clinicians. These findings related to positive and negative role modelling by health professionals, match those previously described in the literature. In another study too, students noted the skilful approaches to caring for patients and when mentors failed to meet patient expectations. Exposure to clinical mentors challenge students’ preconceptions, and students learn new medical knowledge and techniques from observing their mentors. Role models are influential in medical students’ carrier choice and students identify role modelling as the single most important aspect of professionalism. It can be suggested that student early placement experiences in the clinical setting may negatively affect certain specialities in the future.

**Recommendation:**

Medical faculty should create opportunities for medical students to discuss their placement experiences and take appropriate actions to address such issues at placement sites. Further,
developing student reflective skills and encouraging reflective activities long-term is vital in student professional development.

3) Role as student

Several students’ reflections focused on their role as a student and hierarchical boundaries in medical training. In addition to finding out where they ‘fit’ in the system, they also observed power issues in doctor-patient relationships. They highlighted unhealthy teacher-student interactions and wondered how best to give feedback to their superiors which is “not taught in class.” These findings corroborate with another study on the ‘hidden curriculum’ by Gaufberg and colleagues,39 reporting this “dominant culture” of medicine and students struggling to find their place in the ranks of medical training.

Additionally, many medical schools now enrol postgraduate students who may be licensed to practice or already practising as an allied health professional. These allied health professionals too are unsure of their ‘roles’ as medical students.

**Recommendation and future research:**

As a resolution to avoid hierarchical boundaries, one study39 has recommended multidisciplinary teamwork with clear roles for all team members including students to develop mechanisms of accountability.

Former allied health professionals now in the ‘role’ of a medical student, is an important issue for future research. Further studies to investigate their uncomfortable experiences as an ‘outsider’ in the ward, and their identity conflict as they struggle to blend a previously developed identity with an emerging one as a doctor, needs to be undertaken to clearly understand and define their roles.

4) Volunteering

Students reflected favourably in engaging in volunteer activities to gain practice skills and to broaden their knowledge beyond what is delivered in their current curriculum. This is in contrast to earlier findings where medial students were not keen on engaging in voluntary activities.37 Chosen volunteer activities in their pre-clinical years may be an indication of medical students’ focus on specific specialities as career choices.

**Recommendation:**
These findings have important implications for educators planning placement and curricular activities. It is recommended that volunteer activity locations to be enlisted as additional clinical clerkship sites or be developed as an ‘enrichment program’ for those medical specialities that have been plagued with attracting students consistently.

5) Assessment and feedback

“Daunting” observations by the mentor during clinical procedures, and the quantity and quality of feedback given was reflected the most under this theme. Direct observation by supervisors is a key component of clinical assessment of medical students, nevertheless, unlike in this study, it is reported that medical faculty often fails to observe students performing clinical skills. However, those students who were observed more often expressed more self-reported confidence. In a recent study exploring student perspectives on observation and feedback of their communication skills, the majority of students perceived observation and feedback as helpful and desired more opportunities to develop their interview skills.

“Poorly expressed” and disapproving feedback from supervisors can be upsetting and disappointing to students. While it is difficult to avoid judgement associated with feedback, the provision of meaningful negative feedback requires skill and understanding of the feedback process. The key reasons that supervisors fail to give quality feedback is related to time limitations, their lack of skill in giving feedback and appreciation of the role of feedback as a teaching tool.

**Recommendation and future research:**

A potential strategy to address student discomfort of being observed would be to increase the number of formative, ungraded observations and focus on feedback for learner improvement rather than a summative evaluation.

A framework of competencies and objectives that outlines what is expected of the student and the use of a direct observation tool to inform students about the behaviours to be assessed may alleviate student anxiety. More importantly, ensuring formal training for those who teach students, mandatory teaching qualifications, and a culture that recognise and rewards teaching excellence, should be an integral part of medical schools.

This work did not explore the impact of teaching and assessment responsibilities on the mentors or supervisors themselves; hence, this area of inquiry may represent a rewarding subject for further study.
6) Workload

Extensive lists of reading materials, remembering a vast amount of information “for future years” and a lack of background skills in research were concerns of students. Relatedly, implementing and evaluating a life-long personal learning plan, evidence-based practice, information literacy, and the scientific method are all ‘scholar’ themed outcomes topics in the current curriculum. Yet, similar negative feelings of stories of students being overwhelmed with their workload\textsuperscript{111} and lacking skills needed to practice evidence-based medicine\textsuperscript{112} are found in the literature. A medical student survey reveal students have a narrow concept of what research entails, lack awareness of research activities in their home schools and may perceive research being isolated from clinical practice.\textsuperscript{113} Apart from time and availability of research mentors, another barrier to involvement in research in medical school is formal teaching of research methodology.\textsuperscript{114} Those medical programs that have established a research focused curriculum have provided additional training in research design and implementation,\textsuperscript{115} or independent scholarship and research for one full year.\textsuperscript{116}

Recommendation:

It may be essential to examine ways to improve student engagement in research in the pre-clinical phase. This may be achieved through student mentoring by motivated staff, developing a summer training program for students to conduct a research activity\textsuperscript{117} or short courses on critical appraisal of medical research which will link to the scholarly activity unit in the clinical years.

5.4.3 Interacting with Patients

Several narratives under this theme referred to interviewing patients, communication ethics, patient encounters, discoveries of learning from patients, and psychosocial aspects of care. Students revealed the important and often vital roles that patients play in their conception of what it means to be a future doctor.

1) Patient Interview

Medical students’ first interviews focused on reflections of themselves being comprehensive, thorough, accountable, and addressing patients’ mental and social needs. They aspired to balance empathy with efficiency of practice, and build good rapport with patients to put them at ease and for lasting relationships. These findings are often cited in other literature. The ability to communicate effectively is an important part of the doctor-patient relationship\textsuperscript{9,108,118,119} and instilling good practices of communication in their student years
will help them as future medical practitioners. Students are required to use communication skills to understand each patient’s biological, psychosocial and cultural background, but they must be taught how to integrate medical knowledge and clinical reasoning with communication.

Several students wrote about time affecting the patient encounter, conflicting with their desires to spend as much time as possible to take a comprehensive history or to build good rapport. These findings are comparable to previous work where authors say the challenge of insufficient time either associated with the volume of patients or the clinic flow, prevented students from engaging in patient encounters they desired.

2) Communication Ethics

Students recognised common bioethical issues in the doctor-patient relationship and engaged in building rapport and displaying caring, compassionate behaviours. Some shared “lacking a frame of reference” to empathise, and trying to “combat their own biases” to address the norm assumptions and standards that determine ‘empathetic’ behaviour. It may be difficult for students in their initial interviews to concentrate on the medical condition, the process of eliciting information and responding to patients’ behaviours and feelings, all at the same time.

Studies demonstrate the technical process of communication is reported to be easier to teach and learn than empathy or respect. These may be difficult to measure and as one student reflected, is reliant on inherent emotional and cultural influences. Another study designed to demonstrate medical students’ ability to detect emotional cues and respond empathetically, increased during a course employing different teaching activities (didactic, reflective, workshops and simulated patients) and 10-minute consultations. The training course was delivered to third year medical students immediately before their clerkships and authors recommend it be a regular formative activity.

One student reflected on finding it difficult to “break bad news” to a young patient due to inadequate training. However, a recent literature review evaluating various forms of training strategies from didactic approaches to small groups and standardised patients, indicate an improvement or a change in behaviour of medical students. Authors found, these training programs showed an improvement in the trainees but often were resource and time intensive for educators.

Several students mentioned of patients consenting to procedures but drew attention to obtaining re-consent when patients participate in activities undertaken by the student. A
similar finding is reported by Yardley and colleagues,\textsuperscript{125} where students query if a patient presents to the doctor for treatment can it be implied that consent is inevitably granted, or the doctor is not required to ask for re-consent if there had been an established long-standing relationship.

These are important doctor-patient relationships, which will enable student doctors to work in partnership with their patients. In placement settings, students often may not inform patients of their first encounters or their inexperience, but patients feel that they should be informed, says Santen and colleagues.\textsuperscript{126} Although their study found that 90\% of emergency department patients consented for minor procedures even when informed of the student’s lack of experience,\textsuperscript{126} a study published prior to that reported the reluctance of emergency department patients to be a medical student’s first patient.\textsuperscript{127} Both studies employed a survey method but the students in the study with positive results\textsuperscript{126} explained to the patient in detail of their training and stated in advance that the encounter will be supervised by an experienced physician.

Respecting patient’s right to confidentiality and any exchange of confidential medical information should be in the best interest of the patient.\textsuperscript{8} Patients may view students as being in a position of responsibility and will be willing to allow students to be involved in their care and treatment. Then again, as one student reflected, discussing transparently and appropriately with the patient and obtaining their consent for disclosure of confidential information to their supervisors are ideals of professional identity formation.

**Recommendation and future research:**

It is recommended that patients be informed of students who will be under supervision during all encounters in order for the patients to decide on consent. More importantly training the student for a positive and confident interaction may alleviate student fears when they go for their first clinical placement day during the first month of the medical course. For example, train students to use a ‘scripted’ communication that explains the procedure and its risks, student’s own training so far, asking for patients views on previous experiences and patient assurance of the procedure being conducted under supervision.

Future work may focus on more exploration into emotionally intense communication skills training and opportunities to reflect on challenging interactions. An internet based eLearning web application to enhance bad news delivery\textsuperscript{128} with a structured assessment and feedback may be an alternative teaching method that may reduce cost of these training programs.
Additionally, studies concentrating on evaluating student factors such as personality, gender, social and cultural influences would be of interest prior to undertaking any radical curricular changes.

3) Real versus standardised patients

Several students reflected about the authenticity of standardised patients and their inability to empathise with them. Students feel they are “good” or “normal” specimens and are not substitutable in the psychiatric setting. The impact of authentic experiences and demonstrations of genuine emotional expressions seem to be significant. In a study conducted to teach empathy, students also made comparisons of standardised patients and authentic patients, and felt a sense of responsibility towards real-life patients. As in this study, students questioned the realism of standardised patients and whether the learning could be considered as ‘preparedness’ for authentic patient interactions.

Recommendation:

It is recommended that educators mind this “gap” and make simulations with standardised patients as real as possible; have debriefing in classroom and placements, use reflection, peer discussion and tutor facilitation to discuss differences, and bring complexity and uncertainty into classroom.

4) Patient feedback

Students reported patients giving positive feedback about their encounter with the doctor and seeking to learn from patients. Similar outcomes were seen in one study with students reflecting positive encounters learning from patients. Patients too had favourable reactions to students and expressed a belief in the importance of teaching. Similarly, Derby and colleagues report that patients’ comments of appreciation made students feel valued and increased their sense of personal responsibility to learn.

5) Confronting and uncooperative interactions

Several students described confronting, uncooperative patients and some with “shocking” behaviours. Oftentimes, students found themselves being “freaked-out,” apologising or attempting to avoid embarrassing these patients. Although these encounters were clearly stressful, their reflections emphasised on picking up patient cues and non-verbal behaviours. One study found students fear offending patients when they discuss sensitive topics such as the living situation, mental health, weight loss, substance abuse and sexual practices. These results corroborate with another study that inquired in detail about student
predicaments and how students portray themselves in difficult patient encounters. Authors say that it is common for students to struggle with negative emotions in their clinical years and perceive themselves as being alone in these encounters. Students want to be patient-centred but feel they lack guidance on how to manage these challenging interactions.131

Several students reflected on their unpreparedness for fronting mental health patients and conversing with them. They felt uncomfortable being “put on-the-spot” when asked to interview a psychiatric patient and reflected of being uncertain not knowing how to respond in a confrontational situation. They also felt awkward when patients ask inappropriate personal information. This view is comparable to Soliman and colleagues132 who found that students spend much of the time during their first week on their own and conquering their fears of psychiatric patients than actually seeing patients. Conversely, one study133 found students’ attitudes towards mental illness quite favourable at the end of a 4-week placement and believed that movies were influential in shaping their attitudes.

Recommendation and future research:

Providing effective feedback as a teaching moment soon after a challenging encounter134 and brief courses for students to help recognise potential conflicts135 may be helpful when encountering difficult patients. Future research can focus on how we can support students following challenging experiences and the guiding role of mentors.

An implication of the finding of being unprepared in encountering psychiatric patients is that medical students need to be primed prior to accepting a mental health placement. It is suggested that the use of film71 related to mental disorders and psychiatric interviewing be introduced in a ‘safe’ learning environment prior to their first mental health placement.

6) Psychosocial aspects of care

Students attending psychiatric placements brought up several psychosocial aspects and holistic care. Treating not only physical illness but also mental, emotional and spiritual attributes, seeking to corroborate inconsistencies of statements and broadening their knowledge of financial and social determinants were reflected. Similar sentiments were found in another study136 where students reflected positively on experiencing how social and mental health systems interact. However, a more recent study119 discovered medical students find eliciting information about patients’ emotional and psychosocial life the most challenging. Their perspective of the need to “manage” family members were comparatively similar to another study where family members were seen as adversaries rather than allies.131
One student seems to be deeply affected by the health disparities faced by vulnerable groups and underserved populations, which is also reflected in another study conducted in the United States of America. In this study too, students talk about the scarcity of resources for mental illness, the stigma related to the illness and the views of the system about psychiatry overall. Unfortunately, these foundational interpretations and attitudes towards psychiatry may influence students’ decisions negatively on pursuing psychiatry as a career, despite efforts by educators and government initiatives to advance the field of psychiatry. Psychiatry enrichment programs for students who are considering or are interested in psychiatry have been recently started to entice students to the speciality.

**Recommendation and future research:**

Future research is needed to find out what are the favourable components of ‘enrichment programs’ or student rotations, and which type of students (those with a non-science or a science background) are interested in the field of psychiatry. It would also be of significance to evaluate longitudinal interests of students and their career choice as these may be implications for university admission committees and curriculum planners.

### 5.4.4 Encountering the Health System

1) **Medical errors and quality care**

Students in this study were exposed to medical errors, compromised patient safety and legal issues, to some extent all related to components of health systems and policy education. One student reported on observing how an error was discovered and how it was handled, but was uncertain of the balance between individual and system accountability. While one wrote about an error that was not disclosed to the patient, another penned how the GP takes appropriate safeguards to prevent patient harm. Seiden and colleagues consider medical students as a valuable resource for medical error prevention, and advocate students be trained to recognise errors and speak up when errors occur. Further, when errors occur, there may be a perceived threat to professional identity if a complaint is made.

A study evaluating students’ perception of training of health policy in medical school, reports that nearly 40% of graduating medical students reported a lack of instruction in health policy training over the 4 years in medical school. Their perceptions of training in the component of ‘quality and safety’ increased the least of all components, and that of ‘licensure and law’ disturbingly declined.

**Recommendation and future research:**
It is recommended that students be taught to uphold professional standards that supersede self-interest that might cause hesitancy in revealing a potential error or intimidation by medical hierarchy. In the event of an error, include medical students in discussions with risk management to learn how to disclose medical errors. Fischer and colleagues suggest educators develop curricula that integrate actual cases of medical errors and faculty disclosure. Potential training topics could address error and near miss discussions in the clinical setting, disclosure to patients, disclosure techniques, risk management, root cause analysis and policies related to medical errors and medication safety.

Future directives in health systems and health policy education could leverage on online lectures and teaching modules, adoption of a standard for teaching core concepts (medical errors, patient safety and legislation) and evaluating student satisfaction in these areas.

2) Student liability

Students discussed and identified potential liabilities in the health care setting. One student who holds a professional degree questioned legal consequences if he/she performed duties of an allied health professional in the capacity as a medical student. Another wondered why students were asked to “observe” and if they needed supervision to interview patients. It appears students are unsure about how much responsibility they have or the scope of their duties in the clinical setting. In a recent article by Samarasekera and colleagues, the authors discuss how the evolution of clinical learning from the student being an observer to a member of the clinical team, is shaping an integrated, systems-based approach in healthcare settings. They also reveal how ‘entrustable professional activities’ are being standardised in all clinical teaching sites in Singapore.

Recommendation:

In the clinical setting, periodically have conversations on what is and what is not within the scope of medical students’ duties. Create guidelines for entrustable professional activities describing in detail what professional activities are included, to firm student expectations and guide supervisors when taking entrustment decisions.

3) Site preparedness

Several students reported the lack of opportunity to be ‘involved’ in clinical placements, being ‘left out’ during consultations, time constraints in meeting mentors, patient reluctance to be interviewed and inadequate patient contact. These findings are in concordance with
other studies\textsuperscript{125,145,146} where the focus has been the student clinical learning environment. One study\textsuperscript{125} reported that students reflected of disappointing placements where the supervisors were unprepared for the student visit and were unable to provide educational opportunities. Another study conducted in the primary healthcare setting found that the medical students viewed the relationship with their clinical supervisor as the primary determinant for the outcome of the clinical placement. Their learning was perceived to be meaningful if they were active participants, were accepted and trusted.\textsuperscript{145} In a recent survey done in Australia on medical student perceptions of clinical rotations, students reported of similar concerns. It was found that the main factors that made clinical placements useful was the amount of patient contact, being exposed to a variety of patient conditions and being part of a clinical team. Bedside tutorials were also highly rated by students as they were able to learn from experienced clinicians examining patients.\textsuperscript{146}

**Recommendation:**

In a busy practice when space is limited or only one consultation room is available, Dewitt\textsuperscript{147} suggest giving medical students “a job” instead of simple observation. Have the learner look up medication side effects, type a patient note while the doctor is talking to the patient, review medical information for the past three visits and relate findings, or ask the student to perform a specific examination or measure vital signs while the doctor is writing notes.

Possible opportunities for improvement of clinical placement exposure may include: (1) First day orientation: an introduction to the placement, with a set of learning objectives and a brief plan for each student (2) Avoidance of GP practice placements that are too demanding or those that are uneventful (3) Encouraging active patient-centred participation (interviewing, examinations, venepuncture, presentations) (4) Clinical teaching sessions discussing patient cases in depth (when students are unable to join ward rounds) and (5) Assigning a placement mentor directly responsible for the student.

4) **Collaborative practice**

Students observed the composition of multidisciplinary teams and noted how teams are committed and important for complicated patient care. They understood the purpose of continuity of care and working as a team. They also drew attention to how one doctor’s approach to utilize the expertise of other health professionals was valued by the patient. Students’ experiences of collaborative activities were comparatively positive in this study however, literature presents mixed findings. In inter-professional group work, medical students reported a gain in understanding the importance of communication and teamwork in patient care,\textsuperscript{148} other professionals’ roles and clarity of their own professional role.\textsuperscript{148,149}
Then again, there were findings of barriers to collaboration; feeling intimidated by doctors and exclusion of medical students from interaction by nurses.148

**Recommendation:**

Attachments with nursing and other allied health professionals or facilitated inter-professional team experiences will further expose medical students to develop collaborative shared practices.

5) **Health advocacy**

Students observed that basic principles to health advocacy is demonstrated by all those involved focusing on the patient, working together with respect and recognising each other’s roles and contribution to the process. Socio-cultural factors, special and specific needs of persons and culturally secure communication with Aboriginal people were identified as those elements that would influence health and health care of individuals and communities. Additionally, the role of the doctor in advocating for patients battling with debilitating diseases prompted students to ponder their future career pathways and specialisations.

One enthusiastic foreign student valued the exposure to rural placements to identify cultural barriers and concerns of indigenous patients. The student who was interested in completing a rural internship wishing to pursue a rural medical career also commented favourably experiencing the Australian health system and comparing that to his/her own country’s health system. International medical students make up approximately 15% of Australian medical school cohorts and the numbers are expected to continue to increase. However, as a group, international medical students are affected the most when finding an internship position despite indicating a willingness to move to regional and rural areas.150 Nine international students who studied at UWA for six years were unable to secure internships for the first time this year.151 Lack of workforce planning, inadequate government funding, medical schools recruiting international students with no central regulation and so on, are some of the reasons cited for the Australian internship crisis.150

**Recommendation and future research:**

Medical schools should be transparent and communicate to foreign students prior to recruitment the likelihood of obtaining an internship position. What impact rural placements and the Australian healthcare system has on performance and the chosen careers of foreign medical students, who obtained a medical degree in Australia, require further exploration.
5.5 Summary

In order to explore the reflections of medical students during the pre-clinical phase of their Doctor of Medicine course, the following research questions were utilized:

1. How do medical students reflect in terms of depth using a reflective framework?
2. What do medical students focus on when writing reflectively about their learning experiences?

Findings revealed students often did not follow sequential steps of the reflective framework and at times skipped steps to arrive at a final plan. Regardless, 57% of reflections were written at a Level 5 or 6. It was also found that those who followed each step of the reflective framework and wrote on average more than 450 words also reflected at higher levels.

The focus of student experiences reflected the awareness of their personal values as well as narratives of their readiness for practice as student doctors, early interactions with patients and their encounters with the healthcare system. Several suggestions to resolve issues encountered were recommended.
Chapter 6 Conclusion

6.1 Introduction

This chapter is a discussion of the findings of the study in relation to major themes and the dynamic nature of professional identity being generated from within medical students’ experiences. Implications for stakeholders and future research possibilities are also presented along with unavoidable limitations that may have contributed to a certain degree of subjectivity.

6.2 Discussion in Relation to Major Themes

From the thematic analysis, four major themes were identified capturing student experiences of their learning journey in the first three semesters of medical school:

1. Awareness of Self
2. Readiness for Practice
3. Interacting with Patients
4. Encountering the Health System

Many of the students’ reflective narratives seem to be of their experiences grappling with an individual awareness that encompassed their worries, learning styles, abilities, values and how they conducted themselves in response to specific situations. Excerpts of these narratives were coded and categorised under the theme ‘Awareness of Self’. In the context of medicine, this self-awareness is known to improve one’s professional performance as one is aware how their emotional and behavioural make-up influences their practice. One student alluded to this performance as their “professionalism being on display (E3D3).”

For more than ten years, there has been an upsurge in interest around teaching medical students how to think and act as professionals; essentially “medical professionalism.” Yet, providing students with a prospectus in professionalism or observing their behaviours may not be as effective as they could be, according to literature. The focus should instead centre on “professional formation,” where the goal is to help the students secure their foundational views of self-awareness of professionalism, while guiding them to identify ethical and moral conflicts they experience in clinical practice. In essence, this research
did just that. Students’ narratives of their transformative learning journey and how they perceive their professional identities in the pre-clinical practice setting were captured in the other three major themes: Readiness for practice, Interactions with patients and Encountering the health system.

It is important to distinguish between professional identity and professionalism in medicine. Wilson and colleagues\textsuperscript{99} artfully clarify professional identity as how one “conceives of him or herself as a doctor” whereas professionalism is the behaviour displayed in being a professional. Fundamentally, these include their ethics, values, behaviours, expertise and service to the profession as a good doctor.\textsuperscript{96,99} Given its importance, understanding the formation of professional identity is essential, as inadequate support for the formation of professional identity may impact not only the learner but also their patients, the profession and the society at large.\textsuperscript{97,155}

A good starting point is to recognise what develops and affects professional identity. Cruess and colleagues\textsuperscript{156} explain that each individual’s journey from lay person to professional is unique because they enter medical school with a personal identity formed since birth and proceed through medical school to develop their identity as a physician. Professional identity is not acquired in isolation, rather is co-constructed through student experiences in the academic environment, via encounters with patients, prior experiences and influences of societal expectations.\textsuperscript{96} Holden and colleagues\textsuperscript{154} classify it as a complex process one experiences encompassing professionalism, psychosocial identity development and formation during the transformation from a lay person to a physician. A similar concept is described by Goldie\textsuperscript{98} where identity formation is attributed to social and relational settings where students transform ‘self’ into new ways of thinking and relating. For example, interacting with members of the medical profession, negative experiential influences or meaningful patient interactions impact the formation of professional identities. Wald\textsuperscript{95} articulates that reflection, relationship and resilience interconnected by reciprocal feedback loops affect professional identity formation.

6.2.1 A New Model of Professional Identity Formation

This work, undertaken to explore medical students’ learning journey in their pre-clinical years was instrumental in understanding the formation and development of their professional identity. Figure 11 is a graphic representation of a model of professional identity formation that was shaped by student reflections of practice experiences fusing with views of their self-awareness. This model places professional identity formation within the context of medical education and delineate the interconnected factors that influence its creation.
Although the construct of this model was undertaken without the exploration of a proven theoretical framework or early concepts of identity development,\textsuperscript{157} it aligns with the themes found in earlier research as discussed above. However, a number of key elements may add further insights to previous work.

Firstly, it was observed that three major themes of student experiences were related to their 'practice.' During their pre-clinical phase, their readiness to practice by learning to overcome their fears of first procedures, observing their role models forming professional partnerships with patients, identification of their boundaries as a student, daunting assessments and the extensive workload were all significant in preparation for their professional role. When students encountered patients during clinical placements, first activities they conducted were patient interviews. Students recognised communication ethics, interacted with 'real' patients,
struggled to deal with negative emotions during confronting situations and challenged their foundational understandings of psychosocial aspects of care. Encountering the health system for the first time in the clinical practice setting, they discovered medical errors and wrestled to uphold professional standards, questioned about their scope of practice and identified opportunities to practice as a professional.

Secondly, an all-encompassing self-awareness theme clearly evolved from data. Revealing stressors and joys of their learning environment, students brought to light their abilities and difficulties, and identified theirs and others behaviours and values. Within this theme, there appear to be a dialogue addressing their future professional role as a doctor and how and what they need to change.

Thirdly, it was observed that there is an interconnectedness between these two themes; their practice and self-awareness. It is clear that themes did not operate in isolation and some themes were not a factor in every student’s reflection. Neither did professional identity develop in isolation. Based on these findings, it could be assumed that analyses of professional identity formation may be incomplete without due consideration to the convergence of the multiple themes presented in this work and the over-arching frame of this proposed model.

Lastly, professional identity formation appears to depend on students’ subjective interpretations of their experiences as they attempt to bring together their role as a professional and their own individuality. Interestingly, it was found that defining professional identity of those who practice in more than one profession (for example, a paramedic as a medical student) is more difficult, as roles may be less clear-cut and the professional demarcation unclear.

6.3 Implications for Practice and Future Research

The findings overall provide the following insights for research and practice:

What are the implications of these issues for preceptors, clinicians and supervisors working with pre-clinical students?

Students value teaching methods, which actively engage them and offer opportunities for discussions with their supervisors. It was demonstrated that positive connections with patients and other health professionals were empowering for students. However, students require support to navigate the clinical setting and make the most of the learning environment. This in turn requires the development of supervisory staff and provision of
education for educators. Future faculty development programmes should consider factors, which influence learning, including the issues highlighted in this study and the impact of medical student experiences.

What are the implications for ePortfolio developers?

It was found that 81% of reflections were written at higher levels demonstrating reflective practice forming the basis of deep learning from experiences. To effectively implement reflective practices, educators must understand the elements of reflective practices. For example, utilising a structured framework and a reflective exercise during orientation perhaps maybe a starting point for guiding the learner in the use of reflective practices. Additionally, reliable assessment strategies that measure the depth of reflective exercises could be developed. Moreover, fostering reflective learning to take place starting from students’ foundation years and following through longitudinally to clinical and graduate levels may promote self-directed and lifelong learning. Investigating the depth of reflection of each student as they, progress through the course is an area for further research.

While the open nature of the reflective framework prompted students to broadly reflect and capture any event or challenge faced, a deeper, targeted exploration based on particular findings would be worthwhile. It would be important in future studies to more explicitly explore the role of gender and previous professional background to measure factors such as interest, motivation and writing skills that might influence their performance when writing reflections. A survey could be conducted to elicit their confidence in writing reflective summaries.

What are the implications for students? Does engaging in facilitated group reflective activities increase student ability to reflect deeper?

This study demonstrated that reflective narrative develops with a guided reflective framework and helped students gain a better understanding of the self-reflective practice. However, it may even be helpful to practice the reflective process through different viewpoints or perspectives of different disciplines. Reflective writing with the help of others or by discussing issues collectively and debating points of others may deepen the reflective ability. However, further work is required to establish this. In future studies it may be possible to engage in group reflective activities, specially after a critical incident to see how the group would reflect and act differently in a similar situation. Group reflective exercises may also facilitate discussions of ethical, moral and social contexts.

What do these findings mean for curriculum planners?
After training is completed doctors are responsible for taking complex professional judgements focused on both quality patient care and patient safety. Patient safety being the ultimate goal of health professional education, a natural progression of this work is to conduct ongoing evaluations to ensure effectiveness of the curriculum, pedagogies and learning experiences of students. Although this study identified several issues and provided worthwhile recommendations, it has also raised several questions for curriculum planners: (1) Does reflection alter clinical behaviour? (2) How do unsupervised experiences such as history taking during clinical placements influence student learning? (3) Does reflection improve patient care?

**What are the implications for professional bodies?**

Professional bodies and regulators of professionals should discuss and identify the distinctiveness of professions, and collaborative (shared) responsibilities of professionals.

**How would findings aid administrators?**

Typically, students pursue community service activities or work placements prior to their applications to medical school. It would be worthwhile to explore student experiences prior to medical school to identify their early discoveries of professional identity. This information would be helpful for admissions officers.

**Do issues identified resonate with other settings and students from other health professions?**

Within the tradition of qualitative analysis, the concept of generalizability has been identified as transferability in which findings are transferred to other settings or groups. A systematic review on reflective practices of health professional students found that the learning environment had an encouraging or an inhibiting effect on reflection. Authentic practice experiences to reflect upon were limited and deeper levels of reflection appeared to be more difficult to attain. Therefore, the methodology of this study can be applied to the profession of nursing and allied health where the context (early years of study and clinical placements), data collection (written blogs or portfolio content), and the process of analysis (thematic analysis) are similar. Additionally, it would be interesting to extend the scope of this study across Australia to get a pulse on the experiences and perceptions of reflective writing among other students in different professions and contexts.
6.4 Limitations of this Study

Student narratives in this study provide comparatively inclusive and comprehensive experiences of their pre-clinical years. The sample of students included in the study were capable of narrating and describing a wide range of experiences resulting in multiple themes lending to the presentation of a more inclusive model of professional identity formation. However, several limitations to this study need to be acknowledged.

Participants are medical students in their pre-clinical years and the specific nature of the group may limit the findings to the profession of medicine or allied health professions in similar settings. Similarly, the study was conducted in one university with approximately a quarter of the class participating therefore; the findings may not be applicable to other institutions. Nevertheless, the number of reflections (207) adds richness to data and achieving data saturation allows some confidence in evolved themes.

Participants who submitted reflections may be more motivated students and their experiences or writing style may be different to those who chose not to submit. However, they were university postgraduates studying medicine in a course conducted entirely in English and it was assumed that their reflective writing is produced at an academic level.

Since this was a large group, there was no attempt to clarify authenticity of their stories. The self-reported narratives could have introduced an egocentric or a self-serving bias. However, it is unlikely that the narratives have been ‘crafted’ as they were not used for summative assessment. Furthermore, the study was based on their retrospective recollection of events contributing to a memory bias. Nevertheless, some students recalling specific non-verbal cues and patient behaviours may indicate narratives occurring within days or weeks of an event and mitigate this bias for a more accurate reflective report.

Participants were aided with the process to follow when writing reflections. This facilitated the comparison of responses and the analysis of data. Additionally, the framework eliminated researcher bias. However, students were not required to follow all the steps of the reflective framework. This inconsistency may affect the quality of the reflective work produced. Similarly, the framework provided may have limited the flexibility relating their experiences and focused on a more constrained and streamlined narrative.

Each participant’s reflections (up to six) were downloaded from the e-portfolio as a single document by the research supervisor prior to assigning a pseudonym. The researcher accessed these downloaded documents and analysed all the submitted reflections (per student) sequentially one after the other. This may introduce a grading bias, as the
researcher could be judgemental and impartial in assessing subsequent reflective narratives upon reading the initial reflection. However, the researcher was cognisant of this ‘stereotyping bias’ and a more careful analysis was undertaken to repeat the data analysis in a methodical way by using a systematic classification form.

Students’ ability to effectively reflect at deeper levels were measured by analysing student reflections as a whole collection and not individual students. Students were allowed to submit up to six reflections and when analysing those it was found that one student might reflect at several different levels. Therefore, instead of averaging out the level of reflection per student, it was decided to analyse each reflection and present findings as a collection.

Sampling written submissions in a way that replicates the gender balance in the broader medical student population in the UWA was not done because it does not alter the potential bias introduced by the voluntary submission of reflections. Similarly, to analyse differences in student experience based on gender is also limited because it is a common understanding that voluntary response rates are lower in males in the higher education sector.\textsuperscript{160}

6.5 Conclusion

“Reflections such as these have been helpful, as taking a realistic look at incidents rather than being guided by my emotions around an event have helped me stay confident that I can do this degree” (D18D1)

Reflective thinking of medical students was assessed by various means including the analysis of the level achieved in the six-step reflective framework and exploring student written narratives. Use of the framework was indicative that they were mindful of their experiences and are able to write about their feelings, evaluate and analyse the encounter and formulate an action plan for a future occurrence. The framework was found useful in scaffolding reflective writing of the ePortfolio. Those students who followed each step of the reflective framework and wrote on average more than 450 words demonstrated they were engaging reflectively with their practice achieved higher levels of reflection.

When compared, it is interesting that several themes covered in previous literature were found in the reflective writings of the current study participants. Medical students wrote frequently about their self-awareness, readiness to practice, first interactions with patients and of encountering the health system. Proposals for curricular development and suggested recommendations were discussed within each of these four themes. It was learnt that clinical practice and self-awareness development rarely happens alone. The interplay between these components develops one’s professional identity.
Overall, this study provided invaluable data to inform the professional identity formation of medical students and appropriate changes needed for the medical curriculum. In addition, an enhanced student awareness of issues pertaining to patient safety and quality of care was demonstrated. By better understanding the students’ experience in the classrooms and at placement settings, educators can shape the curriculum to challenge and inspire the next generation of doctors.
References


43. Williams EP, Walter JK. When does the amount we pay research participants become “undue influence”? AMA J Ethics. 2015;17(12):1116.


90. Samarasekera DD, Ooi S, Yeo SP, Hooi SC. Medical education in Singapore. Med Teach. 2015;37(8):707-713.


APPENDIX
## Appendix A  A Summary of the Literature Reviewed

<table>
<thead>
<tr>
<th>Author</th>
<th>Concept/Definition of Reflection</th>
<th>Study Design</th>
<th>Framework / Depth (Level) of Reflection</th>
<th>Assessment of Reflection</th>
<th>Data Analysis</th>
<th>Breadth of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block et al.</td>
<td>Not defined</td>
<td>Recalled event followed by facilitated small group discussion and written reflection</td>
<td>No framework used</td>
<td>Voluntary submission for summative assessment</td>
<td>Text editing analysis</td>
<td>Communication, Multidisciplinary collaboration, Medication review, Discharge planning, Homelessness, Substance abuse, Health system, Non-adherence</td>
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<tr>
<td>(2014)</td>
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<tr>
<td>Carr et al.</td>
<td>Purposeful thinking to provide new ideas</td>
<td>300-word reflection followed by facilitated tutor discussion and resubmission of 700-1000 word reflection</td>
<td>No framework used but developed own framework by analysing reflections.</td>
<td>Formative and summative</td>
<td>Thematic analysis and Quantitative analysis of frequency of themes in two groups</td>
<td>Knowledge, Communication, Culture, Personal &amp; professional development, Attitudes &amp; judgements, Patient lifestyle, Role of student, Educational experience</td>
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<tr>
<td>(2006)</td>
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<tr>
<td>Author</td>
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<tr>
<td>Duggan et al. (2009)</td>
<td>Self-reflection Not defined</td>
<td>Videotaped patient interviews followed by faculty and patient / group feedback</td>
<td>Single reflective question from patient</td>
<td>Non-evaluative faculty and patient feedback</td>
<td>Videotaped feedback transcribed and analysed</td>
<td>Learning areas identified Integrating disability with chief complaint Patient’s daily life Treatment plan Attitudes (interaction tensions, communication, assumptions) Patient experience Interview strategies</td>
</tr>
<tr>
<td>Elam et al. (2004)</td>
<td>Not defined</td>
<td>Interview</td>
<td>Field tested interview questions</td>
<td>Not assessed</td>
<td>Transcribed responses coded and categorised</td>
<td>Community service and voluntary activities</td>
</tr>
<tr>
<td>Farrell et al. (2013)</td>
<td>Not defined</td>
<td>Structured journal every other week during semester</td>
<td>No framework used</td>
<td>Not indicated</td>
<td>Developed and used a coding template</td>
<td>Exposure to mentors in geriatrics curriculum New knowledge and techniques Assessment of mentors</td>
</tr>
<tr>
<td>Gauftberg et al. (2010)</td>
<td>Not defined</td>
<td>Two-page narrative essay</td>
<td>Prompt to start with a description of a personal anecdote or a story</td>
<td>Guided feedback</td>
<td>Thematic analysis</td>
<td>Themes related to ‘hidden curriculum’ Power &amp; hierarchy Patient dehumanisation Hidden assessment Emotional suppression Limits of medicine Emerging accountability Balance &amp; sacrifice Faking it Human connection</td>
</tr>
<tr>
<td>Author</td>
<td>Concept/Definition of Reflection</td>
<td>Study Design</td>
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<td>Assessment of Reflection</td>
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<td>Breadth of Experience</td>
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<tr>
<td>Grant et al. (2006)</td>
<td>Reflection as defined by John Dewey</td>
<td>Structured learning journal and facilitated tutorials followed by semi-structured interviews</td>
<td>4-step critical incident technique framework</td>
<td>Not assessed</td>
<td>Transcribed audio recordings to develop a coding frame</td>
<td>Learning styles, Learning content, Integrate learning material from multiple sources</td>
</tr>
<tr>
<td>Kanthan et al. (2011)</td>
<td>Self-reflection</td>
<td>500-word reflective document</td>
<td>Template of reflective questions</td>
<td>Ungraded, pass/fail at end of term</td>
<td>Developed a rubric to merge dominant themes and the level of reflection</td>
<td>Significant course events, Skills, Personal abilities, Learning style, Emotions, values &amp; beliefs</td>
</tr>
<tr>
<td>Lonka et al. (2001)</td>
<td>Not defined</td>
<td>Portfolio log book followed by facilitated group sessions</td>
<td>Structured set of prompting questions</td>
<td>Not assessed</td>
<td>Content analysis and grading rubric</td>
<td>Portfolio work useful, Opportunity to feedback on teachers, Learning development, Time consuming, Feedback not anonymous, Lack of opportunity, Written exam</td>
</tr>
<tr>
<td>Nevalainen et al. (2010)</td>
<td>Not defined</td>
<td>Learning diaries followed by group discussions</td>
<td>Structured questions</td>
<td>Teacher feedback</td>
<td>Thematic content analysis</td>
<td>Insecurity of skills, Confusion with medicine, Credibility, Fear of making mistakes, Coping with responsibility, Tolerating oneself, Accepting oneself</td>
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<tr>
<td>Author</td>
<td>Concept/Definition of Reflection</td>
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<tr>
<td>Thomas et al. (2007)</td>
<td>‘Mindful practice’</td>
<td>Web/palm based digital patient logs and a knowledge test</td>
<td>Reflective prompt to enter learning needs</td>
<td>Review log with preceptor at midpoint</td>
<td>Thematic analysis</td>
<td>Mindful practice tracked by:</td>
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<tr>
<td></td>
<td>Implications of an experience or action</td>
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<td>Factual knowledge</td>
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<tr>
<td>Wen et al. (2015)</td>
<td>Re-thinking of an experience</td>
<td>Student observation of a patient interview, followed by a written reflection and a faculty observed, recorded group feedback session</td>
<td>Gibbs reflective framework</td>
<td>Guided tutor and student feedback</td>
<td>Content analysis of transcribed audio recordings</td>
<td>Communication</td>
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<td>Health system</td>
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<td>Role of family</td>
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<td>Ethics</td>
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<td>Patient perspectives</td>
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<tr>
<td>Westmoreland et al. (2009)</td>
<td>‘Self reflection’</td>
<td>Initial reflective writing, a facilitated introduction to geriatric medicine, followed by a dialog with elderly and a final reflective writing</td>
<td>List of questions to stimulate the dialogue</td>
<td>Patient feedback</td>
<td>Thematic context review</td>
<td>Ill / dependent elderly</td>
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<td>No clear definition</td>
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<td>Volunteering</td>
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<td>Medical school or prior employment experience</td>
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<td>Insights about elderly</td>
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<td>Insights about being a physician</td>
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<td>Positive and negative experiences</td>
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