“They call us NSBs”: The lived experience of becoming a doctor from a non-science background

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Declaration

This thesis comprises only my original work towards the degree of Doctor of Education. Due acknowledgement has been made in the text to all other material used.

This thesis is fewer than the maximum word limit in length, exclusive of tables, figures, bibliographies and appendices.

Signed: Neville G. Chiavaroli

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Abstract

Graduate medical programs worldwide commonly admit students from a wide range of disciplines, including those with a non-science background (NSB). This is the case in Australia, where around half of medical schools are based on graduate entry. Around 10% of successful applicants each year are NSB students, and most complete the course and go on to become successful medical practitioners. However, little is currently known about their lived experience of the medical course and, in particular, about their experience of professional identity formation (PIF) as medical students and doctors.

In this thesis, I use a qualitative phenomenological approach to explore the lived experience of junior doctors who entered medicine as NSB students. My study seeks to understand why NSB students choose to enter medicine relatively later in life, how they experience medical school, and how they form their professional identity. My data sources were 15 in-depth interviews (conducted mostly online due to COVID-19 restrictions) with recently graduated NSB doctors from seven medical schools and various disciplinary backgrounds, as well as medical school society "survival guides" from eight medical schools. The data were analysed using thematic analysis, informed by the phenomenological focus on lived experience, while also drawing on affect theory, practice theory and theories of professional becoming.

The findings of the study suggest that NSB students face unique epistemological and ontological challenges throughout their journey in medicine. These can be divided into three broad themes: Getting Inspired/Getting In; Catching Up/Fitting In; and Becoming Doctors. The first theme relates to the complex aspirations or significant moment that sparks the interest in medicine and the challenges of a highly competitive selection process for graduate entry medical programs. The second theme relates to early experiences of the medical course, in which NSB students are typically characterised by their deficit in science knowledge and commonly encounter an unfamiliar pedagogical approach, which can challenge their previous epistemic beliefs about learning. Finally, as they progress through the course and graduate as doctors, NSB students also experience significant challenges in constructing their new medical identity as they work to reconcile notions of diversity, indistinguishability, and occasionally competing values.

While these findings provide deeper understanding of the lived experience of NSB students and doctors they also challenge traditional models of PIF in medicine. A phenomenological perspective of NSB students' experience of PIF draws out an ambivalence about widespread

expectations of academic equivalence with science-background students (reflected in institutional discourses of “indistinguishability”), along with a variable and at times faltering process of professional identity formation. This is in contrast with prevailing conceptions of PIF that model an essentially linear and predictable pathway to being a doctor. I posit that a more nuanced and multidimensional construct of *becoming* might provide a more productive framework for understanding how doctors from non-science backgrounds experience the development of their professional identity and, ultimately, the way they view and practice medicine.

Preface

Third party editorial review was provided in this thesis. The editor provided copyediting and proofreading services in line with the recommendations of the Institute of Professional Editors (Australia). The editor was knowledgeable in the field of education, but not medical education nor the topic of the thesis.

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pandemic. Their willingness to participate in this study during that period speaks volumes about their commitment to the profession and to the education of future doctors.

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List of abbreviations

AAH	Australian Academy of the /Humanities
ACER	Australian Council for Educational Research
AMA	Australian Medical Association
AMC	Australian Medical Council
BMA	British Medical Association
FMSS	Flinders Medical Students' Society
GAMSAT	Graduate Australian Medical Schools Admissions Test
GEMSAS	Graduate Entry Medical Schools Admissions System
GEMPASS	Graduate Entry Medical Program Application & Selection Service
GP	General Practitioner
GUMS	Griffith University Medicine Society
HASS	Humanities and social sciences
IMG	International medical graduate
MANDUS	Medical Association of Notre Dame Sydney
MCAT	Medical College Admission Test
MDANZ	Medical Deans of Australia and New Zealand
MeDUSA	Deakin Medical Students' Association
MSOD	Medical Schools Outcomes Database
NSB	Non-science background
PBL	Problem-based learning
PIF	Professional identity formation
PIP	Post-intentional phenomenology
WUMSS	Wollongong University Medical Student Society

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Chapter 1: Introduction to the study

> So you've landed yourself a place in a medical degree and you don't know the difference between mitosis and meiosis, let alone that dreaded Krebs cycle. Don't worry, there are plenty of people in the same boat – they call us NSBs.
>
> –Excerpt from Feet First 2016: A Guide to Incoming Students of the *Sydney Medical Program*, Sydney University Medical Students Society

Medicine is a science. At least, that is what many, perhaps most, academic and professional stakeholders in medicine would publicly maintain. "Every doctor a scientist and a scholar," declares the title of a publication by the British Medical Association (BMA, 2015). And so, every year, almost 4,000 students (MDANZ, 2023) enter medical schools in Australia, most with several years of science learning behind them, whether undertaken at school or as part of their undergraduate university degree. Importantly, however, many of these students – approximately one-fifth of the national cohort – do not have any significant science training at all when they arrive in medical school. These students are commonly referred to as "non-science background" (NSB) students, or NSBs, within medical schools. How they get there, how they experience the medical course, and how they form their professional identity within this prevailing culture of science in medicine is the focus of this thesis. In this chapter, I outline the educational context for this study, including the selection requirements and processes for entry into medicine and the curricular features which impact on and form the NSB student experience through medicine and into the workplace. I conclude the chapter by outlining the research questions that have guided the thesis, situating myself in relation to this research study, and providing an overview of the remainder of the thesis.

Medical education in Australia

For most of the history of medical training in Australia, medical students have been selected from high-achieving students, based predominantly on their performance at school in science-based disciplines. While over time additional elements have been added to the selection process, such as interviews and psychometric testing, the requirement of a strong foundation and superior achievement in the sciences has generally remained the core basis for selection. By many indicators, this has been a successful approach to selection for medicine; the vast majority of medical students successfully complete their course (MDANZ, 2023) and go on to practice in a health system

recognised as being amongst the world's best.[1] However, over the past 25 years or so, there has been a significant shift in the pathways available to study medicine in Australia. Firstly, many medical schools created "dual entry" pathways; that is, specific graduate entry places in their undergraduate medical courses, enabling university graduates to enter the course alongside the school leaver cohort, usually with credit for any previously completed bioscience subjects. Subsequently, a second pathway for graduates opened up during the 2000s and 2010s when a number of medical schools changed to or were created to offer only graduate entry courses, requiring all applicants to have completed an undergraduate degree in order to enter the medical course. Such programs are generally of four years' duration, compared to the usual five or six years for undergraduate medical courses.

While science graduates continued to make up the vast majority of graduates entering into medical training, the graduate schools created opportunities in Australia for non-traditional students. Most graduate medical schools accept applications from students from *any* undergraduate discipline, including non-science qualifications, although all graduate programs require a competitive score on a national medical selection test (GAMSAT)[2] in addition to a high Grade Point Average (GPA). The GAMSAT includes a section that requires significant science knowledge and understanding, reflecting a continued belief in the importance of a strong scientific basis for the learning and practice of medicine. However, most graduate medical schools do not require specific tertiary science prerequisites and each year, as mentioned at the beginning of this chapter, many NSB students, including from the humanities and social sciences (HASS), manage to perform sufficiently well on GAMSAT and other selection criteria to be selected into a medical program in Australia.

The move to graduate entry pathways for medicine can be seen as one of the major innovations of medical education globally of the past 20–30 years (Searle, 2004). Several different events coincided to create a "climate of change" in Australian medical education during the 1990s (Geffen, 1991). For one, the decision made by the UK General Medical Council to remove automatic registration of Australian medical graduates in the UK meant that Australian medical schools no longer had to align the length of their medical courses with the British model, which had mandated

[1] According to Schneider et al. (2021), where Australia is named as one of the top three performing countries in terms of health care system.

[2] The full name is the Graduate Australian Medical Schools Admissions Test. The reference to Australia was formally removed in 2004 but the acronym has remained the same.

a minimum of five years of primary medical training. Second, the 1988 White Paper (Department of Employment, Education and Training, 1988) on higher education triggered increased participation rates in university, including an increase in mature-age students and a focus on access and equity in tertiary study. Finally, workforce factors such as immigration, regional factors, and changing patterns of practice led to a recognition of the importance of institutional diversity, highlighted in a comprehensive survey of medical education (Doherty, 1988).

These events meant that new approaches to medical education were now feasible and desirable. One of the major changes proposed was consideration of a four-year, graduate entry degree. As noted above, the standard focus for selection into Australian medical schools was high-achieving school leavers, typically based on performance in mathematics and science subjects. Places in medical schools were highly competitive, and only the top 2–3% of matriculants stood a chance of being selected (Geffen, 1991). While a few places were generally reserved for "lateral entry" (that is, for applicants who had already commenced a tertiary degree or entered the workplace), there was often a sense of incongruity between these two sub-cohorts. In the words of one older student: "If I have to listen to yet another story of one of my group getting drunk at a 21st birthday party, I'll scream!" (quoted in Sefton, 2004, p. 1133). The consideration of a pathway and course exclusively for graduates promised to open up new and arguably more appropriate opportunities for many older students who had either previously failed to get into a medical course, or simply not seen it as a viable option once they left school.

Three medical schools initially made the decision to make their courses exclusively graduate entry: Flinders University (in 1996), the University of Sydney (1997), and the University of Queensland (1997). Now, almost 30 years later, graduate entry programs have become a significant part of the medical education landscape in Australia. Currently, just over half of the 21 medical schools in Australia select their students exclusively from graduate applicants (see Table 1). This includes both the older medical schools (such as the Universities of Melbourne and Sydney), and more recently established medical schools at Deakin University, Griffith University, University of Notre Dame, and University of Wollongong.

Table 1 *List of Australian Graduate Medical Schools (as of March 2023)*

Medical School	Enrolments (2023)	Year graduate course est.	Selection criteria
Australian National University	115	2004	GPA/GAMSAT/Interview
Deakin University	135	2008	GPA/GAMSAT/Interview
Flinders University	199	1996	GPA/GAMSAT/Interview
Griffith University	231	2005	GPA/GAMSAT/Interview
Macquarie University	73	2018	GAMSAT/Interview
Notre Dame (Fremantle)	114	2005	GAMSAT/Interview
Notre Dame (Sydney)	128	2008	GAMSAT/Interview
University of Melbourne	359	2011	GPA with science prerequisites /GAMSAT/Interview
University of Queensland	387	1997	GPA with science prerequisites /GAMSAT/Interview
University of Sydney	293	1997	GPA/GAMSAT or MCAT
University of Western Australia	234	2012	GPA/GAMSAT/Interview
University of Wollongong	82	2007	GAMSAT/ Situational Judgement Test/Interview

Source of data: Medical Deans of Australia and New Zealand Database https://medicaldeans.org.au/data/

Several profession-oriented justifications also underlay the decision to create graduate only medical courses. Firstly, maturity was a key factor: it was felt that older and more mature students would make a more informed career choice, and thus enter the course with greater motivation and commitment to the course and profession (Elliott & Epstein, 2005). Contrasts were drawn with typical 16- and 17-year-olds who had (prematurely, some argued) focussed their school studies on mathematics and sciences in order to be well-placed to enter medicine, and for whom medicine may have seemed more of a reward for hard work and a high tertiary entrance ranking than a well-considered vocation (Elliott & Epstein, 2005; Sefton, 1995). Secondly, there was a strong sense of trying to create a “level playing field” for all applicants (Elliott & Epstein, 2005), in particular for female and rural students, who were often disadvantaged by the current system (through the emphasis on mathematics/science subjects as part of selection criteria). Moreover, new ideas about curricula and professional training, such as problem-based learning, early clinical experience, and greater self-direction, further reinforced the idea that a new breed of student might be necessary to make the most of these new pedagogical approaches: one who was more self-sufficient, had already developed skills in tertiary study, and would be better placed to engage in collaborative learning in clinical contexts and environments (Sefton, 1995).

While the establishment of graduate programs was not specifically designed to target NSB students, it was a key principle of the early reformers that entry to medicine should be open to *any* graduate who could demonstrate the appropriate mix of knowledge and broader academic skills, demonstrated by their performance in their prior degree and on the GAMSAT (Geffen et al., 1994). As a key advocate explained at the time:

> The [qualifying] degree may be taken in any discipline. Studies in the behavioural or social sciences or in the humanities are likely to enhance performance in the "verbal reasoning and writing skills" section of the admissions test. For those applicants intending to acquire an appropriate background for the science section of the GAMSAT through tertiary study, we emphasise that there are no prerequisite courses or subjects. As mentioned, the bachelor's degree is an opportunity to gain the knowledge of tertiary level chemistry and biology required for the GAMSAT test. An introductory university physics course may also be helpful. It should be possible to include most of the study as part of most Science, Arts and other degrees. (Geffen et al., 1994, p. 393)

Thus, there was a sense of pragmatism to the policy; it did not really matter *how* a graduate obtained the requisite science knowledge, as long as they proved themselves sufficiently knowledgeable during the selection process. Nonetheless, there is a certain contradiction in this position: any graduate student is welcome to apply, as long as they have sufficient science knowledge. This ambivalence is still reflected in the position of the Australian Medical Association (AMA, 2019), which states:

> A science degree is not a prerequisite for graduate-entry programs and academic excellence in the humanities and social sciences is encouraged and recognised; however, knowledge and ability in the biological and physical sciences will also be needed in order to succeed in the GAMSAT. Keep in mind that some graduate programs require completion of first year subjects in anatomy, physiology and/or biochemistry. (Graduate entry medical program section, 2nd paragraph)

Clearly the shadow of science expectations and prerequisites still hovers over the place of NSB students in medicine. Nonetheless, demand for medical study has turned out to be significant and consistent among non-science graduates. Over the past five years, on average, approximately 20% of medical students entering a graduate course have majored in a non-science discipline[3], with approximately half of those completing their prior degree in the arts and humanities. This raises

[3] Defined as any degree not in the natural and physical sciences or health sciences. Data available on the MSOD website (https://medicaldeans.org.au/priorities/medical-schools-outcomes-database)

important questions for training for a profession that sees itself as fundamentally science-based, especially regarding the nature of the medical curriculum itself and the place of science.

Science is indisputably a central component of modern medical curricula, both undergraduate and graduate. The 1910 Flexner Report, commissioned by the Carnegie Foundation and the American Medical Association (Finnerty et al., 2010), revolutionised the way medicine was taught in Western countries and established science as foundational to medical education programs (McColl et al., 2012). Medicine has subsequently become known as a science-based profession and medical schools in Australia are closely associated with, if not governed alongside, departments of science disciplines. The biomedical sciences are central to medical curricula, justified as providing fundamental knowledge about the human body and disease, as well as in forming the appropriate scientific and clinical reasoning (Finnerty et al., 2010). "With time," writes one clinical educator, clinicians "seamlessly recognise a group of clinical facts linked by biomedical knowledge, without needing to overtly describe the underlying pathophysiology" (Woods, 2007, p. 1174).

Science thus could be said to be *constitutive* of medicine, not just foundational, a view succinctly captured, as we have seen, in the document *Every doctor a scientist and a scholar* (BMA, 2015). The occasion of the anniversary of the Flexner Report provided the opportunity for many medical educators to re-assert science's central place in medicine (Finnerty et al., 2010; Weatherall, 2011), arguing that science was as important and fundamental as ever, if not more so. Other medical educators have challenged this view of medicine, arguing that it comes at the cost of teaching other essential skills required in clinical practice, such as communication, empathy and ethical reasoning (Daaleman et al., 2011; O'Sullivan et al., 2012; Sklar et al., 2002; Wear & Castellani, 2000). Such views underlie many medical educators' advocacy for a broader disciplinary base for medical education, including the application and inclusion of humanities disciplines as a counterbalance to the scientific and technological focus of medical curricula and the profession (Bleakley, 2015; Doukas et al., 2013; Jones et al., 2019; Loftus, 2018). Many educators prefer to look to a contemporary of Flexner – William Osler – who is seen to represent a more humanistic, patient-focussed approach to medicine (Taubner, 1992), without denying its scientific foundations: "the practice of medicine is an art *based on science*" (as cited in Rae, 2001, p. 1861, emphasis added). It is a crucial distinction, echoed by Loftus (2018) who points out that doctors are more than just "applied scientists" (p. 251), and that there is a "world of difference" (p. 252) in the goals of the doctor and the scientist. Montgomery (2006), a social scientist working in medical education, has even argued that medicine is <u>not</u> a science, at least "not in the positivist sense that is customarily meant" (p. 32). She elaborates:

> It is far more than a body of scientific knowledge and a collection of well-practiced skills, although both are essential… Its essential virtue is clinical judgment, the practical reasoning or *phronesis* that enables physicians to fit their knowledge and experience to the circumstances of each patient. (p. 33–4)

I will return to this concept of phronesis later in this thesis. For now, it is important to note that many medical education researchers are more inclined to take the view that the dominance of science within the medical curriculum is not as self-evident as its proponents would have it. As Whitehead (2013) argues, the biomedical sciences have been "*discursively framed* as foundational curricula content" (p. 28, emphasis added). The implications of this (largely successful) framing are significant and far-reaching, shaping the position of science with respect to medicine and marginalising the non-science disciplines that many clinician-educators regard as equally important in medical practice.[4] Despite the reforms brought in as part of new graduate medical programs, there has been no real shift in the fundamental dominance of science disciplines in the Australian medical curriculum. In such a context, the admission of non-science students might be seen as an anomaly in an otherwise science-dominated system of training doctors.

Research questions

It is this apparent "anomaly" that I have chosen to investigate for this thesis. In particular, this study seeks to address the research gap in relation to doctors from non-science backgrounds, focussing on and seeking to understand their experience of becoming doctors in the context of a profession that is framed as a science. As I discuss in the next chapter, there has been relatively little research into the experiences of NSB medical students in medicine to date. The little interest that has been shown has focused largely on tracking the expected performance gap of NSB students compared to their peers within the medical course. Exploring the lived experience of NSB students during the course and as they enter the medical workforce could be expected to shine important light on factors which influence their learning, their professional identity formation, and ultimately their clinical practice.

Thus, my primary research question is:

[4] For example, "The education of physicians for the present and future must provide a scientific and systematic acquaintance with both the sociological and the biological fields and methods for utilising, for applying the principles in both. Physical factors involved in illness are fundamental, but comprehensive medical care must include whatever the humanities and social sciences can contribute." (Smyth, 1962, p. 496)

What is the lived experience of becoming a doctor from a non-science background?

This topic is informed and underpinned by the following secondary research questions:

What are the circumstances of non-science background students deciding to become doctors?

What are the epistemological (knowledge-based) and ontological (identity-based) challenges NSB students face to become doctors?

How well do current theories and practices of professional identity formation (PIF) in medical education address and capture the experience of becoming doctors for NSB students?

In researching this topic, my intention is not to set up comparisons or draw conclusions between non-science and science-background medical students. I have not designed my research to explore such a question, nor do I think it is of particular importance. After all, regardless of background, medical graduates exit medical school with the same qualification and licence to practice. My focus in this thesis is fundamentally on the experience of NSB students and doctors, partly because of my own interest in the area (as I address below), but also in response to the fact that the majority of research into the medical student experience appears to assume a homogeneous cohort, as some scholars have recently pointed out (Volpe et al., 2019; Wyatt et al., 2020). In the graduate medical education context, the "default" medical student is typically assumed to be male, white, and of high socioeconomic status (Volpe et al., 2019), and I additionally contend that "he" is assumed to have a science background. Through this research on the lived experience of NSB students who have successfully graduated as doctors, my study promises to shed important light not just on this specific cohort of medical students, but also on the nature and diversity of medical cohorts more generally. Thus, my findings on the NSB students' experience and their professional identity formation can be expected to apply to medical students more broadly. I return to this matter in the final chapter of this thesis.

Research approach

In order to explore these research questions, I have adopted a phenomenological approach. As a qualitative methodology, phenomenology focuses on people who have experienced a phenomenon, facilitating the elicitation of authentic and insightful reflections on a topic. Phenomenological research is typically situated within an interpretivist (or constructivist) paradigm,

where the researcher recognises that their own understanding and experience of a phenomenon inevitably shapes how the phenomenon is explored, analysed and interpreted. It is a decidedly different approach to conducting research within a positivist paradigm, which has tended to dominate research in medical education. The suitability of a phenomenological approach became progressively clearer the more I delved into the topic and grappled with issues around identity formation for the NSB doctors. What does it mean for someone with minimal science background to enter training for a profession that sees itself as fundamentally science-based? How does one form their professional identity in such circumstances, and how are they seen by peers, teachers, and the profession? Phenomenology offers an appropriate and generative methodology, operationalised in this study through in-depth interviews and document analysis.

Situating myself as researcher

As a qualitative researcher, I recognise that my own frame of reference informs my methodological and analytical approach to this research topic. Accordingly, I bring to the fore here aspects of my own journey and positioning that I believe to be relevant to this research study. My own professional background is in health, having trained and worked as a physiotherapist for many years, during which time I also completed an Arts degree. I subsequently took up a position in a medical education department in Australia, where my role chiefly involved supporting and assuring the quality of the curriculum and assessment practices. I now work as an educational consultant and researcher with a not-for-profit educational research organisation. Having therefore completed degrees in both humanities and applied sciences, and having worked as a clinician, medical educator, and education researcher, I come to this research as very much an "insider." In many ways my working career has been a process of reconciling in my own professional life the "two cultures" of the arts and the sciences, as C. P. Snow (1961) famously put it. This insider status is both an advantage and a cause for particular reflexivity.

As someone who has changed professions and worked across disciplinary boundaries, I feel that my own professional circumstances have sensitised me to the experiences of NSB students, and undoubtedly have drawn me to a topic involving professionals coming to terms with new epistemologies and paradigms. There were even occasions when I felt the participants' narratives about coming to terms with science mirrored my own journey from a positivist-oriented medical educator/health professional to educational researcher working within a qualitative paradigm. This is an important background factor for the research I have undertaken. While qualitative approaches are often utilised in medical education research, such work sits, or at least has traditionally sat,

somewhat marginally (if not uncomfortably) within an epistemological framework that could be characterised as "objective, positivist and quantitative" (Mclaughlin, 2024, p. 1). Bringing attention to a relatively neglected and potentially marginalised aspect of medical education has been a strong driving force for me through this research, as has trying to translate the findings and insights from this study in a meaningful and comprehensible way to a positivist field and audience.

I see this as one of the significant attractions of the qualitative approach, recognising and acknowledging my own experience and situatedness, which has influenced my interactions with and eliciting of relevant material from the study participants. As one phenomenologist has observed:

> The phenomenon lies hidden. It's tantalising, it's underneath but it's also connected with what is already visible. And there are clues in what is visible to help access the phenomenon underneath … But the phenomenologist helps bring that into play. (Smith, 2019, p. 170)

I believe my own background and experience in the field will have inevitably played into the questions I asked, the lines of conversation I pursued, perhaps even the rapport I sought to establish, while exploring together and co-constructing the lived experience of NSB doctors. At the same time, I have been conscious of wanting to avoid coming to this research with a pre-conceived "agenda," expecting to find certain outcomes or "prove" a particular point, or thinking that my findings would be more than partial or provisional "tentative understandings" (Vagle, 2018, p. 135). This seems to me to befit complex and multifaceted phenomena such as lived experience and professional identity. But I do believe my findings may still be insightful, suggestive, and productive for understanding the place and experience of NSB doctors in medicine, as well as for other researchers to work with, critique, and/or extend, including with other methodologies and paradigms.

Structure of the study

The remainder of this thesis is structured as follows. In Chapter 2, I review the scholarly literature relevant to my research questions, namely theories about professional identity formation (PIF) in medicine and empirical research into the performance and experience (such as it is) of NSB medical students. This chapter further contextualises my study and outlines the importance of exploring the lived experience of NSB doctors. In Chapter 3, I situate and explain my research with regard to relevant conceptual and methodological frameworks, discussing in greater depth the rationale and implications of researching this topic using a phenomenological approach. In Chapters 4, 5, and 6, I present and analyse the data elicited and collected from interviews and analysis of medical student society documents. These chapters are structured chronologically in terms of the experience of the NSB student, that is: beginning with the initial impetus and decision to become a

doctor; followed by the experience of entering medical school as a recognisably different kind of medical student; and finally through the latter phase of training and transition into early clinical practice as fully fledged doctors. In Chapter 7, I recap the key findings from the data and discuss what can be learned about medical training and the process of identity formation from the experience of NSB doctors, while Chapter 8 concludes the thesis with some final reflections on the phenomenon of the NSB doctor in the context of medical school and the medical profession.

Chapter 2: Literature review

Introduction

In chapter 1, I explored the historical and contextual background for graduate entry into medicine in Australia. In this chapter, I delve further into the literature to consider how medical educators and scholars have investigated the topic of NSB students in medicine, and in particular how they have explored the broader aspects of their education, such as their PIF. I approach this topic through a narrative, thematic review of the relevant academic literature, tapping into three main bodies of literature:

a. literature focusing on the performance of NSB students in medicine;
b. literature on PIF of medical students in general; and
c. specific critiques of the current PIF model in medical education.

This account is not intended to be comprehensive or a systematic review of the literature, but rather a focused and critical appraisal of the most relevant studies for the topic of NSB students in medicine. Such an approach befits the phenomenological methodology I have adopted for this study, where the literature review is typically and deliberately performed in a partial and selective way so as to avoid pre-determined or overly influenced direct exploration of the phenomenon (Fry et al., 2017; Vagle, 2018). In keeping with the phenomenological approach of this study, then, my purpose in this review is to set the scene for a deeper investigation of the NSB phenomenon, while remaining open to where the empirical work may subsequently lead.

Literature on NSB students in medicine

The majority of the research on NSB students in medicine has focused on evaluating their academic performance relative to their science-trained peers. This reflects, arguably, the initial reservations of many educators about the viability of NSB students in a medical course. These studies have drawn mixed conclusions on the issue. For example, Puddey et al. (2019) found that medical students from a humanities background generally performed less well throughout the medical course and had a higher chance of needing to sit at least one supplementary examination. On the other hand, several other studies have concluded that while NSB students typically perform

less well academically in the early phase of medical training, any performance differences tend to diminish over the duration of the medical course (Aston-Mourney et al., 2022; Craig et al., 2004; Ellaway et al., 2014 Muller & Kase, 2010; Neame et al., 1992; Yens & Stimmel, 1982). As the study by Ellaway et al. (2014) notes:

> Students with a non-science background performed less well on examinations than their science peers, but this difference diminished over time and students' examination performance in all Themes converged in or around the third year of medical study. This reflects the findings of previous studies, although with a greater level of precision than previously reported. (p. 683)

Similarly, the study by Aston-Mourney et al. (2022) concluded that:

> Students from [non-science] backgrounds are just as likely to successfully complete the degree as those students from Health or Science-related disciplines, [lending] further support for the idea that a Biomedical pre-requisite for medicine is not necessary. (p. 10)

In other words, NSB students seem no more likely to drop out from medicine than science-background students, at least not in the case of the medical school where these authors conducted their research. While some other studies *have* found slightly higher attrition rates in NSB students in certain medical programs (e.g., Ashikawa et al., 1991; Puddey & Mercer, 2014), the majority of studies find no systematic difference between NSB and "mainstream" medical students in terms of course completion. Rather, the broader research on attrition in medicine points to a variety of factors – including academic, age, health, psychological, social, and health factors – influencing the decision to withdraw from a medical course (Dong et al., 2018; Hefny et al., 2024; O'Neill et al., 2011; Yates, 2012). Thus, attrition needs to be interpreted contextually. These findings – no greater attrition rates and eventual similar performance – provide important evidence of the viability of NSB students in medicine and may raise questions about the requirement of some medical schools for specific prerequisite science content.

A few studies have noted certain attitudes or skills which may be positively associated with a non-science background. Hirshfield et al. (2019), for example, found that medical students who had a previous degree in the humanities or social sciences performed better on a validated measure of communication and interpersonal skills than science-background students. This echoed earlier research that found that medical students with non-science majors tended to show greater patient empathy and stronger attitudes towards being patient-oriented than students with science majors (Dornbush et al., 1987). The study by Harding et al. (2022) supports these results, finding a positive association between several demographic factors, including previous discipline, and the "patient-

centredness" of medical students in an Australian graduate medical school. Among other associations, students from humanities-based degrees generally had higher patient-centredness scores than students with degrees in other disciplines, including science. I return to the concept of patient-centredness of NSB students in Chapters 6 and 7, based on qualitative data obtained in my own research.

More qualitative research on the lived experience of NSB medical students has only recently started to emerge. Lam et al. (2020) at the University of Toronto, for example, conducted interviews with fourteen medical students who entered the course with a background in the humanities or social sciences. While many of these NSB students noted a sense of affirmation during the selection process, where their alternative disciplinary background was perceived as a distinctive and a positive feature, most reported a strong sense of devaluing of that academic background by both peers and teachers once in the course. For example, several reported that their intrinsically critical and questioning approach to learning seemed to often frustrate their science-trained colleagues, and occasionally teachers too. As a result, some NSB students felt they were having to constantly "manage" their identity as medical students. As one medical student expressed:

> Not that I'm not being myself, but rather… there's a part of me that I can share in these situations and there's a part of me that I don't… I feel like a big part of me doesn't come with me to medical school. (Lam et al., 2020, p. 406)

As a result of such experiences, many NSB participants in the Lam et al. study reported either self-censoring the language and ideas associated with their previous disciplines or finding themselves actively resisting the medical school socialisation process (a theme I also explore in the results chapters of this thesis).

The very recent study by Ahmed et al. (2024) reported similar findings. Based on interviews with current NSB medical students (specifically with arts and humanities backgrounds) at several Canadian medical schools, the authors report that these NSB students experienced frustration with the "perfunctory" inclusion of humanities approaches and themes in the medical curriculum, as well as with the exceptionally demanding curriculum that all but precluded pursuit of their arts-related interests in their own time. The authors did report positive aspects of the NSB students' experience in medicine, namely the sense of camaraderie with other NSB students and their own valuing of their arts/humanities backgrounds and skills, which they perceived to be both personally valuable and highly relevant to a career in medicine. However, a sense of inadequacy in relation to their knowledge of science was a common finding. Given the overall sense of disregard for

arts/humanities elements, in both the course and the NSB students themselves, one student wondered why the medical school had even selected them into the course (Ahmed et al., 2024, p. 9).

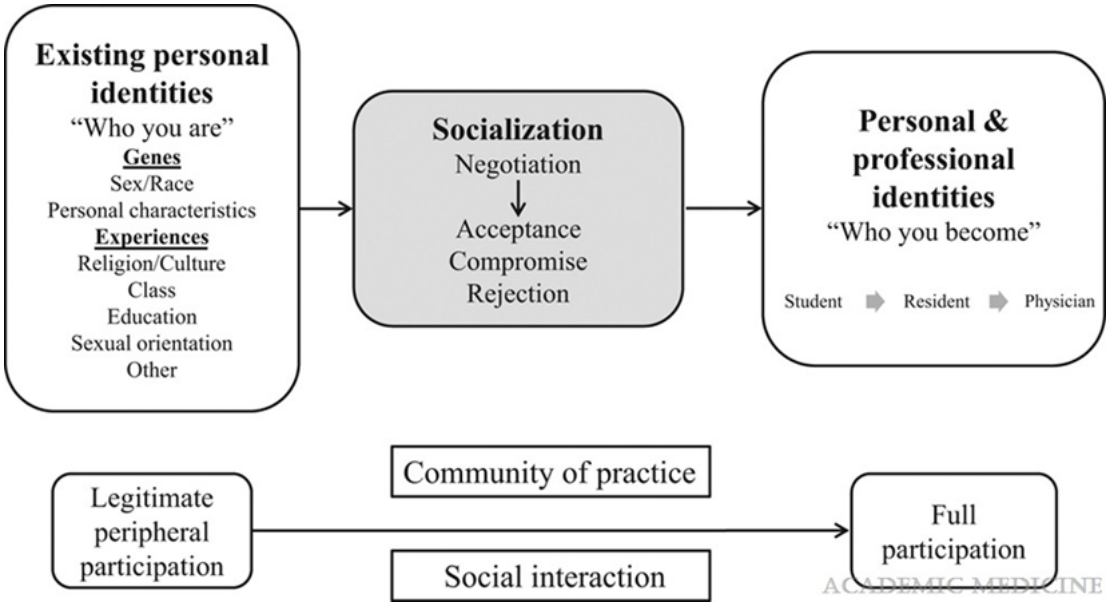
This more recent literature reflects an emerging shift in scholarly interest in NSB students from the epistemological (How well can they learn medical science?) to ontological (How do they experience being and becoming medical students?). Such research gives us a glimpse into the other world of the NSB student experience, beyond the obvious academic challenge of learning science from a non-science background, and into their sense of belonging and their identity formation as medical students and doctors. As Lam et al. (2020) note, "the supposed capital of their educational background transforms from an asset during the application process to a burden as they progress through medical school" (p. 20). This finding would seem to tap into the "hidden curriculum," a key concept in medical education, which has been defined as the "commonly held understandings, customs, rituals, and taken-for-granted aspects of what goes on in the life-space we call medical education" (Hafferty, 1998, p. 404).

In such a tacit system of learning, certain behaviours and characteristics are normalised in medical school while others are marginalised, or at least characterised by "mixed messages" (Huang et al., 2022). For example, Wright et al. (2019) have noted that an apparent professional virtue, such as compassion, can be downplayed or even dismissed in medicine if not assessed explicitly within a curriculum because students note its absence and draw the conclusion that it is not really as valued as teachers or clinical supervisors might assert. Indeed, the way supervisors behave with their own patients in this regard is likely to be far more influential than any verbal claim. Other unintended outcomes attributed to the hidden curriculum include a loss of idealism, "ritualised" forms of professional identity, undermining of ethical integrity, acquiescence and reproduction of hierarchies, and loss of empathy (Lempp & Seale, 2004; Spencer, 2004). In a similar way, for the NSB students in the study of Lam et al. (2020), avoiding creating difficulties through critical questions appeared to be part of the hidden curriculum that they had to learn. Thus, not only are NSB students forming their identity as medical students and doctors through their medical training, they are learning about what *kind* of identity is more acceptable than others.

Professional identity formation in medicine

The concept of professional identity formation, or PIF, has become a fundamental concern and practice in medical education over recent years. This idea has significantly extended individualised notions of professionalism, based on the possession and demonstration of character traits or virtues, such as altruism, integrity, ethical standards, excellence and duty, or, alternatively, teachable and measurable competencies reflected in student behaviours and professional behaviour checklists (Irby & Hamstra, 2016; O'Sullivan et al., 2012, Veen & de la Croix, 2023). In contrast with individualised notions of professionalism, the PIF concept sees identity formation in more social and constructionist terms (Links et al., 2019), that is, as a process of socialisation into the values, dispositions, and aspirations of the medical community (Cruess et al., 2014; Cruess et al., 2019; McKimm & Wilkinson, 2015; Veen & de la Croix, 2023). Drawing explicitly on situated learning theory as articulated by Lave and Wenger (1991), the PIF concept characterises medical students as moving, with appropriate teaching, socialisation, and guidance from role models and mentors, from "legitimate peripheral participation" to "full participation" in medicine as a practice (Cruess et al., 2014; Cruess et al., 2015). Figure 1 below is reproduced from an influential paper that offered a schematic representation of PIF, where the upper portion depicts the socialisation component of PIF, while the lower portion depicts how an individual moves "from legitimate peripheral participation in a community of practice to full participation, primarily through social interaction" (Cruess et al., 2015, p. 720).

Figure 1 *Schematic representation of the PIF process (Cruess et al., 2015)*

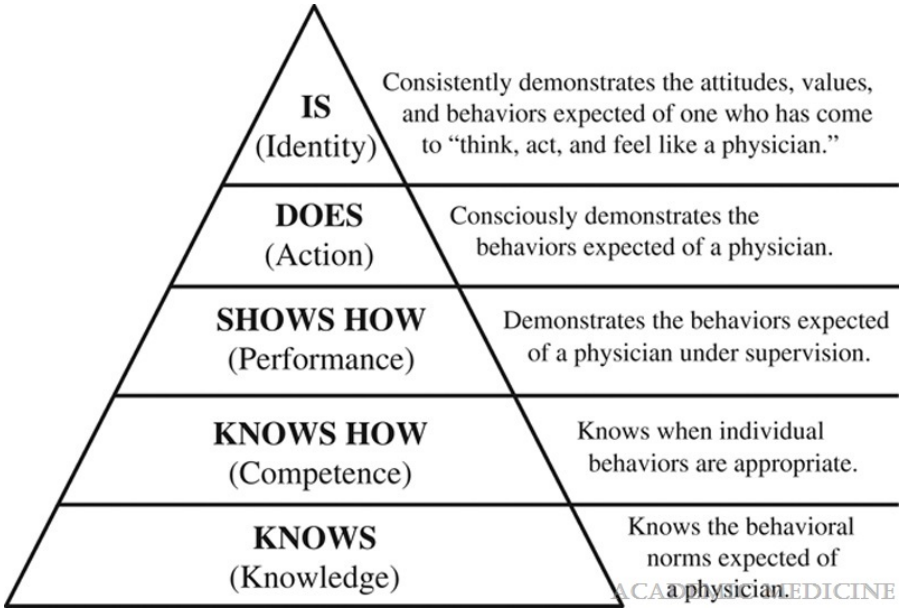


The PIF model thus sees professional identity as "a representation of self, achieved in stages over time during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual *thinking, acting, and feeling like a physician*" (Cruess et al., 2014, p. 1447, emphasis added). The italicised part of this quote has become emblematic as a characterisation of PIF in medicine, combining epistemological, behavioural, and ontological notions of identity formation. As Irby and Hamstra (2016) summarise, from a pedagogical perspective the PIF model aims at supporting the various "stages" of identity formation, including particularly challenging transitions such as from being a student in a classroom setting to being a member of a health care team in a clinical setting, or from student to physician in training. In this model, lapses in professionalism are seen as a failure to progress appropriately through the developmental stages of PIF, requiring "stage-appropriate strategies to monitor and intervene" when such lapses occur (Irby & Hamstra, 2016, p. 1609).

The success of this model in medical education can be perhaps best gauged through its association with a widespread framework for assessment and pedagogy in medical education known as Miller's pyramid (Miller, 1990). This framework characterises assessment in medical education as targeting one of four "levels" of student activity – Knowing, Knowing How, Showing How, and Doing – and has been very influential in terms of assessment practices, teaching and research in medical education. Signalling the growing acceptance of the PIF model, Cruess et al. (2016) posited that Miller's pyramid might be re-envisioned with the (completed) PIF process at the

highest level of expected achievement of medical students, represented by the verb "is" (see Figure 2 below).

Figure 2 *The 'amended' Miller's pyramid (Cruess et al., 2016)*



Identity development is thus presented as the culmination of medical education, the "capstone" of the knowledge and clinical skills components of the curriculum. Successful students progress through the "knowing," "showing," and "doing" stages of professional learning to eventually "being" a doctor, represented in the above framework as the final "identity" phase. By this stage, according to the PIF model (and pending the relevant assessment processes), successful students will have reached the point of "thinking, acting and feeling like a physician."[5]

In the PIF approach, then, professionalism is no longer seen as an intrinsic part of character nor simply as a set of measurable skills; rather, it reflects a *social constructionist* view of identity (Frost & Regehr, 2013; Monrouxe, 2016), through which we "actively construct new understandings of our world through the interaction of our prior beliefs and the new events and activities that we encounter" (Monrouxe, 2016, p. 41). Accordingly, discussions about identity formation (across different contexts) utilise language that explicitly references the discursive and constructed nature of identity formation (Wetherell & Mohanty, 2010). That is, identity formation is alternatively

[5] Hereafter, I will adopt the term "doctor" instead of "physician" when quoting this phrase, as the former is more commonly used in Australia as the generic term, while the term "physician" is generally reserved for specialty training (viz., the "Royal Australian College of Physicians").

characterised as an active process involving "narration, navigation and negotiation" (Kelchtermans, 2018, p. 229); as a "customisation" or "tailoring" process (Pratt, 2006); or as a form of "crafting" (Scanlon, 2011) whereby individuals "actively choose, alter and modify their identities based on what will enable them to get along best in their professional context" (p. 16). When difficulties arise in aligning or negotiating or reconciling different identities, scholars draw on several concepts and terms to describe this process too, such as crisis (e.g., Costello, 2005), dissonance (e.g., Joseph et al., 2017; Monrouxe, 2010), tension (Monrouxe & Sweeney, 2014), and identity trouble (Wetherell, 1998). Scholars thus talk of the "strategies" by which professionals attempt to resolve such challenges in identity formation, including acceptance, resistance, and "hybrid formation" (Frost & Regehr, 2013). All of these ideas and terms suggest an active process of identity formation requiring purposeful and ongoing effort or work; it is not something that just happens as a result of mere immersion and socialisation within a learning environment.

Critiques of the PIF model

Theoretically, the PIF model based on constructivist paradigms of identity development opens up a more adaptive and diverse conception of professionalism and identity formation in medical students, one that might be recognised as inherently variable not only in terms of pre-existing personal identities, but also in terms of pedagogical, social, and institutional influences. However, there are several elements in the way the model is conceptualised or described that may be challenged in terms of the model's assumptions about identity formation. Firstly, as can be discerned in both the definition and diagrammatic representations shown above, the overall PIF process is presented as essentially linear and developmental (or "staged"): successful students will progress through the sanctioned sequence of identity formation, and through the socialisation process of medical school and clinical placements, emerge from the periphery as "full participants," at which point they can be declared to *be* a doctor. In other words, reaching the "Is" phase of Miller's pyramid implies an end-stage stability of identity formation. Admittedly, proponents of the PIF model do acknowledge that the PIF process is not necessarily smooth or straightforward. As Cruess et al. (2015) point out, "the rigor required by medicine and the necessity of deconstructing a portion of a pre-existing identity is potentially stressful and can lead to 'identity dissonance,'" adding that "some of this stress is unavoidable" (p. 723). Elsewhere, three of these authors have written that "progress towards the acquisition of a professional identity does not proceed in a straight line, but is characterized by periods of progress, often associated with transition or change, and occasional times of regression" (Cruess et al., 2019, p. 642).

These are important concessions to the reality and complexity of the PIF process but, of course, "regression" does imply deviation from a linear (and ideal) pathway, while the reference to "dissonance" is characterised as exceptional, rather than an inherent part of the process. This implied linearity is reinforced by the sense of a uniform and homogeneous doctor reflected in the final element of thinking, acting and feeling like *a doctor*. Several scholars have drawn attention to prevailing ideas in medicine of "neutral" (Beagan, 2000) or "standardised" versions of a doctor (Frost & Regehr, 2013), whereby medical students progressively lose (or at least are expected to lose) their diversifying characteristics to emerge as essentially similar practitioners, not just in terms of knowledge and practice (where it might be argued as professionally necessary), but from an identity perspective too. Wetherell (2009) neatly sums up these critiques as follows: "scholars are now suspicious of stasis and the fixed traits and determining and unchanging essences, which were so crucial to the past history and etymology of 'identity'" (p. 2). This critique of 'static' conceptions of identity echoes Heidegger's view of 'being' as a dynamic phenomenon (Heidegger, 1962/2008), always changing and intertwined with the world and with time. Similarly, contemporary identity scholars conceptualise identity formation as a dynamic and fluid process, rather than as a fixed and final state. The current PIF model, with its focus on a convergent end-point of professional identity, risks upholding a homogeneous and limited version of what it means to be a doctor.

Another important challenge to the PIF model is the insight that the process of identity formation occurs more often (and arguably more impactfully) outside of the formal curriculum, in those "interstitial spaces between the ideal and the practiced" (Martimianakis & Hafferty, 2016, p. 279). In other words, in the "hidden curriculum" mentioned earlier. Thus, despite medical educators' best attempts at enlightened and progressive curriculum design, frequently the message that students receive about PIF is at odds with the intended curriculum. As O'Sullivan et al. (2012) note, "complying with this hidden curriculum is a successful survival strategy, [and] its influence on, and overlap with, the formal and informal curricula should not be under-estimated" (p. e70). Consequently, as is evident from the significant literature on the topic, medical educators and clinical supervisors are increasingly cognisant of the importance and implications of the hidden curriculum for the PIF of medical students, as potentially conveyed through the language, behaviour, and discourses circulating in the sites of medical student training.

The expectation of homogeneity is just one of these discourses transmitted through the hidden curriculum. We have already seen some of the implications of this assumed homogeneity in PIF in the studies of Lam et al. (2020) and Ahmed et al. (2024), in terms of the active devaluing and marginalisation of the HASS backgrounds of the NSB students. Similar critiques of PIF have been

applied from other perspectives. For example, McKimm and Wilkinson (2015) argue that recognising the cultural and contextual elements of PIF, as well as its "ever-shifting" nature (p. 842), would offer a more supportive approach to facilitating the transition of international medical graduates (IMG) to unfamiliar work settings and cultures. Research by Volpe et al. (2019; 2021) has identified that published studies of PIF in medicine tend to overlook sociocultural and demographical data as part of their analysis and the interpretation of PIF in medical students, despite in many cases having already collected the relevant data. They argued that this highlighted the tacit belief that the experience and process of PIF is assumed to be essentially the same for all medical students. Wyatt et al. (2021) have extended this research in their study of the PIF experiences of minority physicians in the US, concurring with the conclusions of Volpe et al. (2019; 2021) that race and ethnicity were indeed "largely absent, invisible or considered irrelevant in PIF research" (p. 153). Situating their findings in the context of post-colonialism, these authors go on to report that:

> Our analysis reveals a major gap in the research literature in that although medical education recognises the challenging social and learning environments faced by URM [under-represented in medicine] physicians, and the need for more robust mentoring programmes, the PIF literature has not elucidated the factors that play a role in their PIF. (Wyatt et al., 2021a, p. 153)

Such critiques not only point to a more fluid and variable concept of PIF, but also ask *whose* form of professional identity is being privileged in the conceptualisations and models of PIF. The answer to this question has direct implications for the nature and experience of PIF in medical students who differ from the "mainstream" cohort in terms of age, gender, ethnicity, sexuality, disability, socioeconomic status, and, I argue, prior academic background. As one identity theorist notes: "integrating new professional identities into personal identities is an easy process for people whose personal identities are consonant with their new professional role, but traumatic for those whose personal identities are dissonant with it" (Costello, 2005, p. 26).

The emerging literature on the subject suggests that many NSB students do indeed see their "non-science" identities as dissonant with respect to the dominant place of science in medicine. The underlying normative assumptions about PIF in medicine mean that NSB students enter medical training framed in the context of a deficit discourse, ostensibly in relation to their prior knowledge but potentially also in relation to their identity. This perceived deficit is something that NSB students generally acknowledge and accept as the inevitable consequence of entering medicine via a non-mainstream pathway. However, the critical literature points to the potential role of the PIF concept itself in exacerbating such dissonance, a theme I seek to consider further through this thesis. In the

next chapter, I turn to and discuss in depth the methodology I adopted to explore this theme and the broader experience of PIF in NSB students and doctors.

Chapter 3: Methodology and theoretical framework

> The phenomenon calls for how it is to be studied.
>
> –Mark Vagle (2018), *Crafting Phenomenological Research*

Introduction

As outlined in the preceding chapters, the focus of this research is to explore and understand the phenomenon of NSB students becoming doctors and, in particular, how they experience their professional identity formation. In this chapter, I clarify the parameters of the study, elaborate on the methodological framework, describe the specific methods I have used to collect the relevant data, discuss the process of data analysis, and explore some of the key theoretical aspects and implications of conducting qualitative research in the context of medical education.

Methodological framework

As research textbooks and papers commonly espouse, the nature of the phenomenon under investigation necessarily informs the methodological approach of the study. In my case, my interest in the lived experience of NSB junior doctors as students and doctors, and especially those in the process of *becoming* doctors, calls for an interpretive and qualitative approach. Situating this research within the interpretive paradigm aligns with (as I explored in chapter 2) a conception of identity formation that is contextual, multifaceted, and fundamentally ontological. In researching this kind of phenomenon, we cannot justifiably expect to find a single verifiable "truth" about becoming a doctor, for any medical student, let alone for NSB students. Rather, the PIF process takes in the contexts, experiences, identity shifts, and reflections of participating NSB doctors, and shining light on these facets will require a suitably interpretive and qualitative approach.

Such an approach will potentially extend and deepen much of the current research on NSB students in medicine, which, as noted in the previous chapter, has until very recently adopted a positivist and quantitative approach, focusing on measurable indicators of "success" such as academic performance and course completion rates. This study seeks to go beyond this focus to

explore the experiential aspect of NSB doctors' journey into and through medicine. This is not to say that a positivist approach to this topic would be unproductive. As Clarke and McPhie (2014) comment,

> positivism is a way of seeing no less valid than others based on its ontological assumptions. … [However,] it does not mean we should continue to choose to base our reality, and indeed our resulting action, on a positivist model. (p. 200)

A qualitative approach, by contrast, gets at the *lived experience* of becoming a doctor for NSB medical students, including the affective forces that drive them to change their life direction, often at great personal cost or upheaval. For some, this could include a sense of self-doubt and uncertainty upon their arrival in medical school, where they are surrounded by students who have been immersed in science disciplines for at least the length of their undergraduate degree. Conversely, they may experience the exhilaration of learning in a new discipline or an extraordinary sense of achievement and optimism emerging from overcoming perceived deficits to graduate as a doctor. In other words, a qualitative approach focuses on what it *means* and *feels like to be* an NSB doctor. In this sense, my study aligns with the recent 'ontological turn' in higher education (Dall'Alba & Barnacle, 2007), which shifts the focus of inquiry onto students' becoming and engagement with their world, rather than (predominantly) on what they know.

As we have seen, the literature on NSB students has tended to focus on issues of potential attrition, relative performance on examinations, and remediation efforts, reflecting a "deficits approach," which arguably stems from the hegemonic place of science knowledge in the medical curriculum (Whitehead, 2013). Other studies that have focused on the PIF process for medical students also tend to assume the process to be homogeneous, regardless of cultural, social, or demographic factors (Volpe et al., 2019). The impact of disciplinary background is similarly seldom considered in such studies. Approaching this topic through an interpretive paradigmatic lens, and bringing a phenomenological methodological approach to bear, promises to create new possibilities for understanding the experience of NSB students and doctors.

Phenomenology as methodology

Phenomenology offers an appropriate methodological approach to frame and guide a broader and more open-ended investigation of NSB students in medicine. This methodology gives voice to those who have personal and lived experience of a phenomenon. It also allows for variability in the lived experience of participants, enabling me to elicit and explore differences as much as thematic commonalities. Such variability may have important implications for conceiving

the NSB experience, as well as the way the PIF process is conceptualised and taught in medical schools.

As a philosophy, phenomenology represents a number of key concepts and traditions that inform and influence how research under a phenomenological banner is carried out. This includes the very concept of a phenomenon itself, in that it has a more nuanced meaning in phenomenology than in everyday usage of the term. In phenomenology, a phenomenon has been defined as "the ways in which we find ourselves being in relation to the world through our day-to-day living" (Vagle, 2018, p. 20). This definition reflects the distinctive philosophical position that human consciousness is not separate from the world (as represented by the Cartesian worldview), but rather "constitute(s) the world while also being simultaneously constituted from experience with the world"; in this sense, phenomena can be said to "manifest" or "appear" to us, "co-constituted between subject and object" (Soule & Freeman, 2019, pp. 858–9). Such interconnectedness is articulated in phenomenology through the concept of "intentionality." This concept has been described as "the way in which humans are *connected* meaningfully with the world" (Vagle, 2018, p. 126); or, in Merleau-Ponty's (1964) evocative description, "the invisible thread that connects humans to their surroundings meaningfully" (as cited in Freeman and Vagle, 2009, p. 3). Freeman and Vagle (2009) elaborate the concept as follows:

> Regardless of how it is described, intentionality is a difficult concept to grasp. Part of its confusion lies in the strength of the image of the autonomous meaning-making agent orienting to the world with purpose and intent ... Intentionality is neither in consciousness nor in the world. It is the meaning link people have to the world in which they find themselves. People in their everyday contact with the world bring into being intentionality but not in the sense of choice or intent. (p. 3)

It is these "intentional meanings" that are the focus of phenomenology. As Vagle (2018) puts it, "when we craft phenomenological research we are interested in accessing those intentional meanings" (p. 76).

For this study, I sought to explore the intentional meanings experienced by NSB medical students as part of becoming doctors, including all its everyday, taken-for-granted elements. Such intentionalities involve or "play out" in relation to the medical curriculum, fellow students, supervisors, friends, family, medical school buildings, lectures, tutorials, dissection lab, hospitals, library, laptops, notebooks, phones, social media accounts, and more, summed up in phenomenology through the concept of the "lifeworld." This concept, attributed to Edmund Husserl, is foundational in phenomenology and, as Dall'Alba (2024) explains, refers to "the everyday

world within which our activities and endeavours are embedded, and which we largely take for granted" (p. 7). This focus on the "taken-for-granted" and embedded aspects of lived experience is a hallmark of the phenomenological approach. As van Manen (1990) notes, phenomenological research is fundamentally "an exploration into the structure of the human lifeworld, the lived world as experienced in everyday situations and relations" (p. 101), which he elaborates as consisting of four "lifeworld existentials", namely, lived body (corporeality), lived human relation (relationality), lived space (spatiality), and lived time (temporality). These, van Manen suggests, are useful guides for the phenomenological research process, and indeed have helped frame my own reading of and focus on the lifeworld which participants experience. I draw attention to these lifeworld existentials at several points in the results chapters. As I go on to discuss in Chapter 7, Dall'Alba and other scholars place the notion of lifeworld at the heart of an exploration of professional practice to frame development of expertise and identity formation as a process of becoming. For now, it is sufficient to acknowledge the centrality of the lifeworld in phenomenological research, and its importance in a phenomenological investigation of the experience of NSB medical students becoming doctors. As Dall'Alba (2009a) notes, "making explicit, and attending to, the lifeworld has the potential to deepen and enrich explorations of professional practice, through providing an integrated framework that highlights the significance of our entwinement with world for practice" (p. 23).

A key distinction in phenomenological research lies in its historical traditions, generally categorised as "descriptive" or "transcendental" phenomenology (associated with Edmund Husserl) and "interpretive" or "hermeneutic" phenomenology (following Martin Heidegger). These two early forms of phenomenology are the foundations on which subsequent developments in phenomenological theory rely (Zahavi, 2019). Descriptive phenomenology is generally characterised as aiming at a meticulous and systematic description of the structures of human experience as they present themselves to consciousness. This approach involves a deliberate suspension of the researcher's preconceptions and theoretical frameworks (a process known as "bracketing") in order to focus on the phenomena themselves, exploring the essential features of lived experiences without imposing external interpretations. The aim is to identify and describe the *essences* (or *invariant structures*) of experiences, reflecting universal aspects of human consciousness.

Interpretive phenomenology, on the other hand, is focussed on understanding the *meanings* that individuals attribute to their lived experiences. In contrast with descriptive phenomenology, interpretive phenomenology acknowledges the role of interpretation and subjectivity in shaping human experience. It seeks to uncover the multiple layers of meaning embedded within lived experiences, while acknowledging and seeking to understand the contextual

aspects of the phenomenon. Interpretive phenomenology emphasises the importance of engaging with participants' perspectives and lifeworlds, with the aims of illuminating and understanding the ways in which individuals make sense of their experiences and attending to the ways in which meanings are constructed, negotiated, and transformed within specific contexts. The formation of identity may be seen as a prime example of such a process.

In this study, my approach to phenomenology is strongly aligned with the interpretive tradition associated with Heidegger. I concur with the inescapability of interpretation; as Vagle (2018) puts it, "to ask phenomenological questions about the world is to engage in an interpretation of interpretations" (p.125). Moreover, as I came to discover through my reading in phenomenology, many researchers are increasingly inclined to view phenomena as more variable and fluid than either of the above traditions assume. This approach is notably conceptualised in the interpretivist variant termed "post-intentional phenomenology" (PIP) by the phenomenologist Mark Vagle (2018) and others working within related approaches (e.g., Aagaard, 2017; Benade, 2016; Clifden & Vagle, 2020; Hofsess, 2013; Hong, 2019; Koro-Ljungberg, 2020; McGregor, 2020; Soule & Freeman, 2019). As suggested by the prefix "post," PIP articulates an explicit commitment to the generative potential of thinking with post-structuralist ideas in the process of phenomenological research. Thus, rather than seeing phenomena as the "stable idealized essences" (Vagle, 2018, p. 124) conceptualised in traditional versions of phenomenology, PIP sees phenomena as "multiple, partial, contextual, in flux and simultaneously producing and being produced" (Vagle, 2018, p. 16).

This focus on "how things connect" rather that on "what things are" is a key aspect of PIP (Vagle, 2018, p. 129), as is the concept of "lines of flight" (Deleuze & Guattari, 1980/1987). This idea is used in PIP to emphasise that phenomena can vary or, in Vagle's (2018) words, reveal how they "flee, elude, flow, and leak" (p. 128), which provides a means for re-conceiving intentionality. As Vagle (2018) explains, "intentional connections 'exist,' but they become plural lines of flight – they elude, flee, entangle, and take on various intensities in and over time, across contexts" (p. 129). In PIP, researchers are encouraged to think differently about (unstable) phenomena and to follow these lines of flight to explore unanticipated aspects of a phenomenon, potentially going beyond the "tight boundaries" of theoretical frameworks or methods to see what the phenomenon "might become" (Vagle, 2018, p. 136).

While PIP retains strong connections with the interpretive tradition of phenomenology, the approach towards intentionality and its divergence from central phenomenological ideas such as essence and bracketing are key differences. Essence, in traditional phenomenology, is regarded as universal; phenomena are conceptualised as having a distinctive essence that manifests in all

situations. In other words, essence is not context-sensitive; in PIP, phenomena are construed as variable, contextual, and unstable (Vagle, 2018). Thus, many phenomenologists have consciously moved away from essence and the core position it has traditionally occupied in the theory and practice of phenomenology. As Benade (2016) notes: "Vagle's post-intentionality liberates [us] from the view that [we] have to extract a universal or defined essence of meaning and understanding of this phenomenon" (p. 138). Instead, PIP conceptualises phenomena not as comprised of essences, but as multifaceted, constantly changing and always in a state of becoming. In sum, Vagle's (2018) approach to phenomenological research sees intentional relations as being in a "constant state of interpretation," so that phenomenologists seek "plausible interpretations of manifestations and appearances" rather than "essences" per se (p. 32). These notions align strongly with the phenomenon I am exploring in this study.

Post-intentional phenomenology also modifies the traditional phenomenological concept of bracketing – that is, the act of setting apart one's judgments and pre-understandings of the world. This idea has frequently elicited ambivalent responses in contemporary phenomenologists. On the one hand, the notion makes sense theoretically in terms of privileging the phenomenon itself, as opposed to interpretations of or theories about it. Indeed, most disciples of Husserl's descriptive phenomenological approach would regard bracketing as a "non-negotiable" aspect of phenomenological analysis (Vagle, 2018, p. 81). Yet, the concept is often challenged by researchers as naïve and unachievable – we can never truly jettison our knowledge and pre-understanding of a phenomenon as we investigate it.

Moreover, some (particularly interpretive) phenomenologists argue that it is precisely our contextual familiarity and knowledge of a phenomenon that places us in the position to better understand it (van Manen, 2014). For example, my very decision to study the phenomenon of NSB medical students becoming doctors arose from my regular encounters with such students through my role as an educationalist in a medical school. It was my recognition of the ontological challenges such students faced in an educational context in which science ruled (ideologically as well as epistemologically) that attracted me to the phenomenon and helped me to appreciate how significant it was in relation to broader considerations of identity formation and professional practice. Without my insider knowledge, I would likely not have noticed this phenomenon as worthy of interest and investigation. It does not seem plausible to claim to "neutralise" that experience of the phenomenon, even as I strive to focus on the phenomenon itself and immerse myself within the lifeworld of the participants. I therefore aim to be explicit about that prior experience and actively seek to manage or restrain its impact on the way I plan, conduct, and write up my research.

Instead of bracketing, then, PIP proposes the notion of "bridling" as a more appropriate idea for managing the researcher's prior experience and expectations as they seek to investigate a phenomenon. As Vagle (2018) explains it:

> First, bridling involves the essence of bracketing in that pre-understandings are restrained so they do not limit the openness. Second, bridling is an active project in which one continually tends to the understanding of the phenomenon as a whole throughout the study. (p. 74)

Bridling is thus not just a more pragmatic form of "restraining" one's pre-understanding, it also serves as a metaphor for the ongoing and active attention the researcher needs to give the phenomenon over the entire course of the study. As Vagle (2018) explains: "we bridle understanding so that we do not understand too quickly or carelessly or do not attempt to make definite what is indefinite" (p. 74). The active sense of the process is well-captured in the notion of bridling a horse, and I have found the bridling concept to be a useful and achievable concept in managing my own pre-understanding of and familiarity with the phenomenon. For example, as I listened to and worked with my participants' stories of their experiences as NSB students and doctors, I was conscious of limiting my own instinct to prematurely connect their experiences with what I had read or heard in previous encounters with the phenomenon of becoming a doctor as an NSB student. While I have subsequently sought to explore those connections in making meaning with my participants, at the time of the interviews, I found the notion of bridling a very helpful reminder to "pull back" on my expectations, while sometimes slackening this restraint as I drew on my understanding to gently probe my participants' meanings and go more deeply into their lived experience.

In drawing on post-structuralism, PIP represents a phenomenological approach that resists theoretical binaries and debates about phenomenological "purity." Rather, PIP conceptualises the phenomena and the knowledge produced through the research process as partial, fluctuating, and situated. The researcher, too, is situated, and PIP places significant emphasis on the notion of *post-reflexion* as a means of conceptualising, implementing and validating the research process. While the idea that a researcher's own assumptions, experiences and connections influence how they approach and interpret the object of study is a quintessential aspect of all qualitative research (Lather, 1993; Watt, 2007), Vagle (2018) argues for a more "radical reflexivity that can begin to uncover underlying, shifting, changing knowledges that are at work in all intentional relations" (p. 154). In other words, it is not enough for the researcher to *acknowledge* their positionality; they need to actively try to understand how it is influencing the very process of research.

The notion of bridling is closely connected to this idea of post-reflexion, requiring "dogged questioning of one's knowledge as opposed to a suspension of this knowledge" (Vagle, 2018, p. 82). Vagle (2018) argues that the researcher's bridling and post-reflexion constitute a significant component for validating the results of post-intentional phenomenological research, more so than conventional qualitative strategies such as triangulation or member checking. This form of reflexivity is an ongoing process, which occurs throughout the research study and thus informs all parts of the project. It is typically recorded in the marginal annotations of the researcher's work: side-notes, correspondence, and more formally in research journal entries. Importantly, Vagle (2018) insists that such post-reflexions from part of the research process (p. 154). I return to this issue at the end of this chapter in connection with the concept of trustworthiness in qualitative and phenomenological research.

Thinking with theory

Another important and distinguishing aspect of PIP is the role and place of theory in the research process. Rather than positioning theory as an *a priori* framework for the analysis and interpretation of data, Vagle (2018) places theory at the heart of research within the post-intentional approach:

> Thinking with theory is not about articulating a theoretical framework that is then used as structure that filters what you can and cannot say in your analysis. It is more fluid and multiple. You think with the theoretical concepts and ideas that help you, at the times and in the ways you need them. (p. 143)

For Vagle (2018), theories are "on equal footing with phenomenological material" (p. 82). This is another important departure from traditional phenomenology, where there can be unease in relation to the potential influence of pre-existing theoretical perspectives on the primacy and centrality of the lived experience of the phenomenon. Accordingly, I briefly describe below three key theories I draw on in subsequent chapters for interpreting and understanding the phenomenon under investigation.

One of the key theories I have thought with throughout this project has been the concept of affect, which has been defined as "an embodied, often nonconscious, intensity that has the potential to trigger action" (Alasuutari, 2023, p. 4). Affect theory, as practiced by educational theorists, encourages educators to go beyond traditionally cognitivist and psychologising conceptions of phenomena by focussing on the multifaceted forces, intensities, and affinities we experience in the world. The social psychologist Margaret Wetherell (2012) describes affect as

"embodied meaning-making" (p. 4), which is "always 'turned on' and 'simmering'" (p. 12). Brian Massumi (2015), adopting the Spinozan rendering of affect as "the capacity to affect and to be affected," explains: "to affect and to be affected is to be open to the world, to be active in it and patient for its return activity" (p. ix). Such conceptualisations of affect help us move from assuming learners to be "autonomous knowing subjects" towards a broader appreciation of the various bodily, relational, and material forces that make up social practices such as professional training (Healy & Mulcahy, 2021). To date, medical educators have primarily been interested in the cognitive and epistemological aspects of NSB students' experience – how well do they make good their intrinsic "deficits" (i.e. knowledge gaps); how "recognisable" they are in relation to science-based graduates; how competent they are as doctors. Little attention has been paid to the final verb within the PIF formulation of "thinking, acting and feeling like a doctor"; thus, emotion has rightly been referred to as the "ever-present absence" within medical education (McNaughton, 2013).[6] Dall'Alba (2009a) makes the similar point that "a focus on epistemology – or what students know and can do – occurs at the expense of [the] ontological dimension or who students are becoming" (p. 54). Affect theory offers an important corrective to this relative neglect. As Mulcahy (2015) explains, "taking the 'affective turn' in education challenges us to better recognise the interweaving of cognition, emotion and action in learning settings" (p. 7). Affect thus becomes a particularly expansive and useful theoretical lens to think with in the PIF context and NSB doctor becoming.

I also draw on practice theory, initially in the form of notions of community of practice (CoP) in the context of PIF theory and subsequently to further interrogate the notion of knowledge as an object to be acquired and internalised. CoP theory provides a useful lens to understand the learning and socialisation experiences that constitute the PIF process. In particular, CoP theory sees this learning process as *situated* in practice, that is, as an "integral and inseparable aspect of social practice" (Lave & Wenger, 1991, p. 31). This challenges the notion of learning as essentially cognitive, personal, and made up of separate and reified "knowledge domains" (p. 52). Rather, practice theorists emphasise knowledge as an activity and process situated in time and space (Gherardi, 2009). This is an important shift in conceptualising what knowledge is, how it is gained, and how it is used. As Feldman and Worline (2016) put it, knowing and using knowledge are mutually constituted. This idea of knowing and doing as mutually constituted is well captured by Gherardi's (2019) concept of *knowledgeable doing*, intended as an integration of theoretical knowledge,

[6] An important exception to this is the research on PIF undertaken by Charlotte Rees and Lynn Monrouxe, and colleagues. See for example: Monrouxe & Rees, 2012; Monrouxe et al., 2014; and Lundin et al., 2017.

practical skills, and tacit understanding. Applied to the medical context, for example, the practice of delivering health care (or rather *caring*) can be rendered as "collective knowledgeable doing." That is, as a situated activity and collective capacity, where relevant knowledge is *activated* rather than simply (and unproblematically) applied (Gherardi & Rodeschini, 2016). Nicolini (2013) captures the implications of this rather different perspective on knowledge particularly well. "Knowing," he writes,

> is always a way of knowing shared with others, a set of practical methods acquired through learning, inscribed in objects, embodied, and only partially articulated in discourse. Becoming part of an existing practice thus involves learning how to act, how to speak (and what to say), but also how to feel, what to expect, and what things mean. (p. 5)

The echo of the PIF definition ("thinking, acting and feeling like a doctor") is again instructive here. Such conceptions of knowledge challenge many of the (positivist) assumptions about knowledge as stable and objective, and as unproblematically transmissible through didactic teaching approaches. Practice theory problematises and potentially disrupts the conception of knowledge as separate to practice, which, as we shall see, resonates with the NSB doctors' experience of learning science, of forming their identity, and practicing as doctors.

Finally, I draw on the theoretical concept of *becoming* to explore and understand the NSB doctors' experience of PIF. The concept of becoming, in relation to professional learning, reflects the idea of ongoing growth, development, and transformation over time, emphasising the ontological nature of education, beyond merely knowledge acquisition, skills, and competencies. Indeed, becoming has been described as the very purpose of a university education (Lodge, 2014). As Nieminen and Yang (2024) put it, "the role of education is not to impose knowledge and skills onto individual students, but to enhance their capacity for becoming whom they want to become" (p. 1034). Such a view challenges constrained models of PIF as static or teleological. As Mulcahy (2011, p. 220) points out, such "unitary, stable and fixed conceptions" risk effacing the identity work that professionals do on a daily basis as part of their identity formation. These ideas are extended by Deleuzian notions of becoming (Deleuze & Guattari, 1980/1987), which further illuminate the dynamic and non-stable nature of identity. Becoming, then, provides an important theoretical framework for understanding the identity formation of NSB doctors, especially in connection with post-structurally inscribed post-intentional phenomenology. I draw on and think with this theory particularly in my analysis of the phenomenological material in Chapters 6 and 7.

Research methods and considerations

Participants and recruitment

In order to obtain the relevant empirical material, I conducted in-depth interviews with 15 NSB doctors who had completed their graduate medical course in Australia within the previous five years. The requirement for *graduated* NSB doctors was included to ensure that the participants in the study had met all the requirements to practice as doctors. Given that the literature has largely been concerned about their academic performance in medical school, this criterion allowed me to take for granted their formal competence as doctors, and focus more on the ontological aspects of their experience of their medical training, especially in relation to their professional identity formation.[7] Interview participants were recruited through several pathways and, in line with the conditions of ethics approval, no direct approach was made to any individual participant. Instead, intermediaries such as hospital-based intern Heads of Supervision, state-based health workforce organisations, and medical school staff with access to alumni networks were identified and approached via email with details of my project and a request that such information be disseminated to all junior doctors within their program. (See Appendices 2 and 3 for examples of communication and information provided to these organisations).

Not unexpectedly, the recruitment of the NSB junior doctors proved to be somewhat challenging. Junior doctors are notoriously busy and preoccupied with the demands of work and ongoing study and, as one supervisor of training said to me in response to my query, "accessing them should not be too hard, but getting them to respond might be!" As it turned out, getting responses was a lesser challenge than maintaining contact and finalising arrangements for the interviews. Over the period between April 2021 and March 2022, I reached out to approximately a dozen organisations and was contacted by 27 junior doctors who, having received and read the informational material relating to my project, identified themselves as "non-science" and expressed their interest in participating. All were sent the relevant consent form and plain language statement (see Appendices 4 and 5). Unfortunately, this phase of my research coincided with the COVID-19 pandemic peaks in 2020 and 2021, which meant that the capacity of the medical workforce was further stretched. All in all, this was a highly disruptive period for education as well as society in

[7] A copy of the interview protocol is included in Appendix 1.

general, and mine was just one of many research projects that was affected by the resultant restrictions. In the end, I was able to secure interviews with 15 NSB doctors.

Table 2 summarises the demographic and disciplinary backgrounds of these participating NSB doctors. Their names have been replaced with pseudonyms to maintain their anonymity. The participants reflect a reasonable representation of graduate medical schools (seven out of twelve nationally). These schools have been labelled in Table 2 with a unique letter, but further demographic details (such as size, geographical location, or rurality) are not supplied in order to minimise the risk of identification of participants and to honour the request for maximum anonymity of several of the medical schools who supported the recruitment of junior doctors for my study. The table shows a clear dominance of female NSB doctors with a degree in the humanities. Neither of these details is unexpected. Arts degrees constitute a significant proportion of degrees that would be classified as non-science, while medical school data indicate that approximately 56% of final year medical students nationally are female (MDANZ, 2023). The larger proportion of female doctors in my sample is therefore likely to be a result of the interaction of gender and field of study, since women also constitute a clear majority of students (approximately 64%) enrolled in Society and Culture disciplines at Australian institutions (Turner & Brass, 2014).

Table 2 *Demographic and disciplinary backgrounds of NSB doctors who participated in the study*

Participant Pseudonym	Gender	Age Range	Previous degree(s)	Medical School	Stage of training	Source for recruitment	Interview method
ID01 Lyn	Female	20–25	Arts	Institution A	PGY1	Supervisor of Training	Walking interview
ID02 Miranda	Female	25–30	Arts	Institution B	PGY1	Prevocational training association	Online video interview
ID03 Chloe	Female	25–30	Arts Biomedicine	Institution B	PGY1	Junior doctor network	Online video interview
ID04 Jacqui	Female	25–30	Arts (Hons)	Institution B	PGY1	Supervisor of Training	Walking interview
ID05 Kiera	Female	35–40	Arts	Institution C	PGY1	Junior doctor network	Online video interview
ID06 Ross	Male	20–25	Music	Institution D	PGY1	State-based health network	Online video interview
ID07 Leonie	Female	30–35	Music	Institution E	PGY5	Medical school alumni network	Online video interview
ID08 Gemma	Female	20–25	Arts (Hons)	Institution E	PGY1	Medical school alumni network	Online video interview
ID09 Annette	Female	20–25	Arts	Institution C	PGY1	Prevocational training association	Online video interview
ID10 Katrina	Female	25–30	Journalism Diploma of Science	Institution F	PGY1	State-based health network	Online video interview
ID11 Simon	Male	25–30	Psychology (Hons)	Institution F	PGY3	Prevocational training association	Online video interview
ID12 Rhys	Male	45–50	Arts/Law	Institution E	PGY3	Medical school alumni network	Online video interview
ID13 Brad	Male	20–25	Engineering	Institution G	PGY2	Prevocational training association	Online video interview
ID14 Debbie	Female	25–30	Nursing	Institution G	PGY2	Prevocational training association	Online audio interview
ID15 Dianne	Female	30–35	Psychology	Institution E	PGY5	Medical school alumni network	Online video interview

Defining non-science background students

The definition of "non-science background" was kept deliberately open, partly to maximise potential recruitment possibilities, but also in line with the phenomenological approach, in that I did not wish to pre-empt or prejudice how this fundamental concept was perceived by the NSB doctor community. As it turned out, this proved to be an important element of the recruitment process, as it uncovered some surprising perceptions about what exactly is "non-science" in medicine. As can be seen in Table 2, the majority of the (self-selected) participants for this study have degrees in humanities disciplines, with majors in areas such as art, literature, history, journalism, languages, and music. However, two participants (Dianne and Simon) who identified themselves as non-science were psychology graduates, making this identification despite mixed disciplinary backgrounds with undergraduate exposure to scientific content and methods (namely through the disciplines of neuroscience and statistics). Further, one participant (Brad) was a graduate of an engineering degree, while another (Debbie) had studied and worked as a nurse prior to entering medical school. Yet in relation to their sense of identity, both Debbie and Brad considered themselves to be "non-science" and were therefore keen to participate in the study. In Brad's case, the identification as NSB doctor appeared to stem from his struggles with biology and chemistry in the medical course, although in other areas of science he found his engineering background to be quite useful. For example, he approached learning about the lungs and the heart as simply "pressures and pumps," as he put it. For Debbie, the relatively superficial treatment of the sciences in her nursing degree contributed to her sense of being "non-science." The fact that nursing is characterised as a health science in official data (e.g., MDANZ, 2023) clearly has little impact on how doctors see their self-identity. In the context of the medical course, a student like Debbie may *feel* non-science and therefore belong in a study such as this, as could many other doctors with psychology, engineering, and other non-biomedical degrees.

In relation to a medical curriculum heavily focussed on the biomedical sciences, a background featuring a relatively superficial coverage of biomedical content will likely feel like poor preparation for medical school, especially in the company of graduates with much stronger biomedical bases. A similar ambiguity was encountered by Ellaway et al. (2014) in their study of the relative performance of NSB medical students, but as they point out, the terms "science" and "non-science" retain currency with students, teachers, and researchers. Since understanding who is considered (and considers themselves to be) "non-science" and what identifying this way might mean for PIF is at the heart of this study, it was both pragmatically and methodologically useful to retain the inherent ambiguity in the term during the recruitment phase. In effect, the respondents (and non-respondents) to my invitations helped define the concept of "non-science background."

As I explore in the forthcoming chapters, identifying as non-science is fundamentally an *ontological* matter, rather than a clear-cut disciplinary categorisation. Chloe entered medical school with arguably the ideal pre-medical undergraduate degree in biomedicine (with arts for some additional "perspective," as she put it). Yet she still identified herself as "non-science" for this project and proved to be highly articulate in voicing her ambivalence over her professional identity. It is thus clear that we need to tread carefully when assuming who might or might not fit into certain identity categories in a study such as this. By allowing potential participants to opt in, my study, like the 2014

study of Ellaway et al., has avoided pre-emptive exclusion of participants who might regard themselves as functionally "non-science." I argue that this has enabled me to remain truer to the nature of the phenomenon itself. As discussed earlier in this chapter, the PIP framework conceptualises phenomena not as defined by essences, but rather as multiple, partial, and contextual. These characteristics of phenomena apply to the very labels we use to describe them, and to foreclose on who should be considered non-science would clearly affect the way the phenomenon could be explored. This heterogeneity of the NSB doctors' backgrounds is thus an important finding in itself.

Interview format

In keeping with the phenomenological basis of my study and the focus on lived experience, I chose as my primary research method individual in-depth interviews, which I regarded as most generative in terms of eliciting valuable insights and material about my phenomenon. As Seidman (2019) suggests, "at the root of in-depth interviewing is an interest in understanding the lived experience of other people and the meaning they make of that experience" (p. 9). These interviews were conceptualised and implemented as semi-structured, in the sense that there were common focal points for each interview, but the questions were asked flexibly, in terms of language, timing, and tone. Accordingly, several questions related to key aspects of the phenomenon were developed by the researcher, reviewed by the supervisors, piloted with two interviewees otherwise ineligible for my study (a senior NSB doctor who had graduated more than five years previously and a fourth year NSB medical student), and edited and reduced to a set of eight broad interview questions. In addition, in recognition of the potential difficulty of recruiting doctors for even a single interview during the restrictions of the COVID-19 period, it was agreed with my supervisors to conduct just a single interview with each participant, rather than the two or more common in phenomenological research (Vagle, 2018). The final study design, including the interview schedule, consent form, and plain language statement, was approved by the University's Ethics Committee in March 2020. Copies of the three documents are included in Appendices 1, 4, and 5 respectively.

My original plan had been to conduct "walking interviews" with as many of the participants as possible. This method involves the researcher interviewing while walking alongside the participant in a given location. King and Woodroffe (2017) have characterised walking interviews as a "natural fusion of interviewing and participant observation," arguing that they constitute a "powerful and unique method for engaging with space and place, and the important and nuanced meanings, experiences, values, and understanding of individuals in these domains" (p. 1271). They are also held to reduce the power imbalance between interviewer and participant, and encourage more spontaneous conversation (Kinney, 2017). These attributes and rationales seemed particularly useful for my own study, given that I intended to invite junior doctor participants to reflect on and recall affective experiences from their early medical school days. From a philosophical perspective too, I perceived a natural affinity between walking interviews and phenomenology. I wanted, for the initial part of my interview at least, to re-immerse the participants – both physically and affectively – into the context, environment, and experience of their early professional formation in medical school. The idea of using the walking interview method to facilitate the connecting of space, memory, feelings, and reflections in participants (Jones et al., 2008) thus seemed especially apt for the phenomenon I sought

to explore. In so doing, I sought to embrace and apply Vagle's (2018) two "boiled down" maxims about phenomenological methods, namely, that the phenomenon calls for how it should be studied, and that any technique, process, or tool that could illuminate the phenomenon was "fair game" (p. 17).

As it turned out, I managed to conduct only two walking interviews before the pandemic intervened. No further face-to-face interviews were permitted during the data collection phase of my project due to social distancing requirements. All subsequent interviews were thus conducted online. At the time, this seemed like a significant setback, given that I had felt that the two walking interviews I had conducted up to that point had helped me establish strong rapport and elicit rich data from the participants, especially in terms of their affective responses to being back on campus. But I also found that the online interviews had their own particular advantages, as documented in a growing body of methodological research in the area, particularly during and since the Covid pandemic (for example, Boland et al., 2022; Howlett, 2022; Kobakhidze et al., 2021; Saarijärvi et al., 2021). For example, the need for participants to find a quiet and relatively secluded space generally ensured that they were wholly focussed on the interview and on the reflective process prompted by the questions. Practically speaking, online interviewing made recording the conversation considerably easier because, as Howlett (2022) has also noted, in online interviews participants seem to quite quickly "forget" that they are being recorded, which is not always the case with the recording device placed upon the table in face-to-face interviewing. Finally, offering online interviews made participation in the interviews much more feasible for NSB doctors, and I was therefore able to recruit from a larger number and a more geographically dispersed set of medical schools and hospital jurisdictions, rather than just those situated in my home state. In the end, I am inclined to conclude that the cessation of the walking interviews probably impacted my own affective experience of the interviews more than the nature or quality of "raw" material I was able to collect on the phenomenon.

Document analysis: The survival guides

In addition to the interviews, I drew on documentary data relating to the NSB student experience in medical school, identifying and sourcing a particular genre of medical school document commonly referred to as a "survival guide." Written by medical students to help orient and prepare incoming first-year students, these publicly available documents may be considered "semi-authoritative" in the sense that while they derive from an official and sanctioned medical school source (the medical student society), their content is typically un-filtered by the medical schools. This semi-authoritative status allows the medical student authors to write in a candid and informal way that connects directly with incoming students, while still reflecting the experience of medical school. These guides thus offer more intimate portrayals of this experience than formal school documents, which represent the "outward facing" institutional constructions of the medical school. In many ways, the survival guide represents a valuable source for studying the informal or hidden curriculum of medical school, reflecting and embodying – from a phenomenological perspective – the lifeworlds of the medical student. They thus provide a useful complement to the individual doctor interviews, especially as a counter to institutional discourses about how NSB doctors are viewed and how their identities are expected to develop.

Table 3 summarises the survival guides that were accessed and analysed for this study. Most of these guides include comments and advice specifically for NSB students, along with sections for students from alternative pathways into medicine such as mature age and rural students. Some guides also include specific sections directed to science-background students, though for the most part, this group is treated as the default cohort. Together, these two empirical sources (documentary and interview data) have provided rich and diverse material with which to explore and understand the phenomenon of NSB students becoming doctors.

Table 3 *Graduate medical schools with first year orientation guides*

Medical School	**Name of Guide**	**Editions accessed for this study**	**Section specifically addressed to NSB students**
Deakin University	MeDUSA 1st year survival guide	2016–2022	Perspectives: Medicine from a non-science background
Flinders University	FMSS MD1 survival guide	2020–2022	Advice from students (Subsection: Non-science background students)
Griffith University	GUMS survival guide	2019–2022	N/A
University of Notre Dame (Sydney)	MANDUS survival guide	2018–2022	Tips from students (Subsection: On having a non-science background)
University of Queensland	The very unofficial first year guide	2019, 2022	Students without a science background
University of Sydney	Feet first: A guide to incoming students of the Sydney medical program	2015–2017	Being an "NSB" student
University of Western Australia	Journey to medicine (website)	2022	Autobiographical entries by medical students (including from non-science backgrounds)
University of Wollongong	WUMSS fresher guide	2020–2022	Student perspectives

Note. No formal guide is produced by the Australian National University, Macquarie University, the University of Melbourne, or the University of Notre Dame (Fremantle) medical student societies, although each has other forms of orientation material and/or events for incoming students.

Data capture and analysis

As outlined above, all but two of the interviews with junior doctors were conducted and recorded using Zoom videoconferencing software, through the researcher's university account. The two walking interviews were recorded using a digital audio recorder, held by the researcher during the interview. The first six interviews conducted were transcribed manually by the researcher, with the remaining interviews outsourced for transcription and then closely checked by the researcher and edited in accordance with the audio recording of the interview. A verbatim transcription protocol was used for all transcriptions.

For the analysis of the data, I adopted Vagle's (2018) "Whole-Part-Whole" (pp. 110–111) process for analysing phenomenological material. Essentially, this involves an initial read through of the data in order to "get acquainted

with" the material in a broad and holistic sense. To some degree, this was achieved through the transcription process itself, especially for those recordings I personally transcribed, but I found that going through and checking all the commercial transcriptions also helped me to achieve familiarity with the material, its scope, potentially relevant themes, and particularly poignant expressions and articulations relating to the phenomenon.

For the next phase – the "Part" phase – Vagle (2018) recommends a "series of line-by-line readings" (p. 110) of each transcript in turn, involving close reading, note-taking and identification of striking or revealing responses by participants that reflect "initial meanings" (p. 83). I executed this approach using the comment function of my word processing program (Microsoft® Word for Microsoft 365 MSO, Version 2401), which allowed both an in-context review and a collated review of all comments. As I proceeded through each transcript, I also recorded key words and phrases in a separate document and, in this way, commenced building a more thematically oriented collation of participant ideas and articulations about the phenomenon under investigation. In parallel with this process, I kept regular journal notes in a separate document to record interpretations about the analysis process and emergent findings, as well as methodological observations and reflections. As Vagle (2018) notes, this process can be seen as a form of instantiation of the bridling process of the phenomenological researcher (p. 110); I found this a very useful way of "owning" and acknowledging my own assumptions and expectations about the phenomenon.

The next and subsequent close readings involved the process of articulating meanings in the texts based on my previous annotations, highlights, and comments. I accomplished this process, once more using the word processing program, by creating a table with a separate row allocated to each participant and the superordinate themes or patterns of meaning as column headings.[8] I then systematically copied and pasted the relevant verbatim participant text into the table, forming a matrix of the major themes and participants' expressions relating to different aspects of the phenomenon. This stage of the analysis made my own interpretive or hermeneutic work as the phenomenologist-researcher explicit, and I returned to the final "whole" stage by looking for patterns of meaning, providing working labels for each broad theme, and collating and categorising participant articulations into respective cells. This matrix of text was reviewed personally in the context of both the specific interview and the whole corpus of data. Throughout this process, I collaborated with my supervisors to confirm the coherence and relevance of the themes and to collectively understand and interpret the textual meanings and participant insights about the phenomenon. In doing so, I sought to enact the key principle, as articulated by Vagle (2018), of conducting phenomenological inquiry in a cyclical pattern (rather than linearly). This involved constantly revisiting and shifting my focus on and between the original data, the emerging themes, my interpretations in the context of the theories I was working and thinking with,

[8] The decision to continue with a simple word processing program, as opposed to a qualitative-research-specific computer program such as NVivo, was a conscious and deliberate one. Once I commenced the analysis process, I found that conducting phenomenological research, for me, was better served by staying closer to the "texture" and "spirit" of the participant narratives by working "inside" the text and extracting thematic categories manually myself, rather than through the automated and (undoubtedly) more efficient algorithms of customised software. Like Vagle (2018), I share a wariness about the risk of "mechanistic representations" in place of a "deeply embodied crafting" of the text (p. 109).

and “crafting” (Vagle’s term) of the text presenting the phenomenon, all while striving to remain open to new or diverging ideas as they occurred. In sum, I sought to “dwell in the minutiae of data” (Vagle, 2018, p. 116), attempting to “slow down, to pause, to re-examine taken-for-granted assumptions and the idea that we [I] already know this phenomenon” (Vagle, 2018, p. 116).

The above process of analysis initially identified eight broad themes relating to the NSB experience of the medical course, which – after several further iterations of close reading and thematic comparisons – I reduced to four main themes, as depicted in Table 4. These themes have formed the basis of the three results chapters that follow, with the last two themes being merged into one in Chapter 6.

Table 4 *Themes identified through phenomenological analysis of interview material*

Initial themes	**Final themes**
Why medicine?	Being affected/Getting in
Experiences of learning science	Catching up/Fitting in
Epistemologies / Different ways of knowing	
Sense of belonging	
Negotiating identities	Being/Becoming doctors
Value of previous life experience	
Sense of difference	
Views on medicine	Perspectives on the medical profession
Approach to practice	

In parallel with this analysis of interview data, I performed a similar analysis of the medical school survival guides, focussed on identification of the main themes in the sections directed to NSB students. This revealed considerable overlap with the interview data in relation to early NSB students’ experiences of medical school, but also provided fresh insights into the institutional discourses relating to NSB students. These themes are explored in detail in Chapter 5.

Ethical considerations

This study was approved by the University of Melbourne’s Office of Research Ethics and Integrity on 26 February 2021 (ID 2021-20604-14472-3). The main risks I identified involved potential exposure of participants’ identities and considerations about the burden on participants. Regarding the first point, while I undertook to formally and securely store participant data and to use pseudonyms and minimise the disclosure of identifiable features as part of the reporting process, it was acknowledged in the ethics application and plain language statement that, due to the relatively small number of participants involved in the study, it might remain possible for participants’ identity to be disclosed from their comments. Further, the intention to conduct walking interviews in public spaces also meant that

anonymity during the interview process could not be assured, and this was noted in the participant documentation. Participants were also advised, both in writing and as part of the interview process, that they were free to withdraw from the study, and to have any data collected similarly withdrawn, at any time. To date no participant has sought this option, nor were there any adverse events that required reporting to the ethics committee.

In terms of burden, I was acutely aware of the time commitment involved for doctors, especially (in the initial stages of the project) in relation to participating in walking interviews. Accordingly, in consultation with my supervisors, it was decided to conduct a single interview only with participants. Even when it became necessary to shift to online interviews due to COVID-19 restrictions, I maintained the single interview approach, again in recognition of the increased clinical burden on each doctor in the context of the pandemic. As argued earlier in this chapter, the number and sustained engagement of the interviews with NSB doctors, along with the abundant data contained in the medical school survival guides, have ensured an adequate representation of the phenomenon under study.

As part of the application and clearance process, the institutional ethics committee requested further details about how participants would be approached for recruitment purposes, and the location and context of the walking interviews. These details were supplied (and approved) in line with the information provided in the consent forms and plain language statement (see Appendices 4 and 5). In accordance with the request of several medical schools who assisted in the recruitment of NSB junior doctors, no medical school has been specifically identified in this study in relation to any participant. The only medical schools identified are those associated with the survival guides, as these documents are available in the public domain. However, no link is made or implied between these medical schools and the participants of this study. Finally, neither I, nor my supervisors, had a dependent relationship with any of the participants in this study.

Trustworthiness in PIP

I close this methodology chapter with a consideration of the issues of reflexivity and trustworthiness in the context of phenomenological research. While conventionally considered separate issues in qualitative research, the nature of phenomenological research, and especially PIP, invites these topics to be considered as part of the same overall issue concerning the validity of the research process and findings. The question of validity in qualitative methodological research has been and continues to be the subject of considerable debate (Freeman et al., 2007). Traditionally, qualitative inquiry is expected to offer evidence of trustworthiness through criteria such as: credibility (confidence in and plausibility of the research); transferability (relevance to other contexts or settings); dependability (stability of findings over time); confirmability (external reproducibility or validation of findings); and reflexivity (explicit reflection on and acknowledgement of the researcher's own positionality) (Lincoln & Guba, 1985; Korstjens & Moser, 2018). These criteria are commonly addressed through strategies such as prolonged engagement/observation, triangulation, member checking, thick description, audit trails, debriefing, and journalling (Korstjens & Moser, 2018).

In exploring these approaches in the context of PIP, Vagle (2018), along with Freeman et al. (2007), endorses the heterogeneity of validity claims in qualitative research, rather than standardising or prescribing particular approaches. From Vagle's (2018) perspective, it is the *nature* of the engagement that most strongly supports the trustworthiness of phenomenological research:

> As a phenomenological craftsperson, I have found entry into discussions of validity to be marked primarily by a consideration of the researcher's sustained engagement with the phenomenon and the participants who have experienced the phenomenon. This sustained engagement has been described as requiring the researcher to be open and sensitive to the phenomenon under investigation… throughout all phases of the study (p. 72).

To a certain extent, such "sustained engagement" is represented by the very nature of phenomenological research: the focus on the lived experience of different participants in relation to a shared phenomenon; the planning and gathering of material relevant to that phenomenon; the bridling process through which the researcher strives to maintain openness and curiosity but also interpretive restraint in relation to the phenomenon; and in the reflexivity (or in this post-intentional context, post-reflexivity) of the researcher.

Post-intentional phenomenology places particular emphasis on the concept of post-reflexion as part of both the research itself, and as a form of validation of the research. This post-reflexivity is not intended to be a separate add-on to the reporting of the research; rather, it is embedded and evident throughout the research in the way I have approached, conceptualised, conducted, and reflected on this study into the phenomenon of NSB medical students becoming doctors. Relevant statements and manifestations have already been presented on several occasions thus far, including: in the introductory chapter where I situate myself as researcher; in the elaboration of my own methodological evolution from a "natural" positivism to learning, understanding, and embracing the interpretivist paradigm; and in my discussion of how I have sought to implement the phenomenological approach for this study. It is also part of the summing up of the study in the final chapter, where my post-reflexivity guides the aspects of the phenomenon I choose to focus on. Ultimately, it is reflected in the interpretive and analytical work with the phenomenological material in the results chapters that follow, and in which I draw attention to the frames and lenses, theoretical and normative, that impact how I am seeing and understanding the phenomenon.

I now turn to the first of these results chapters, which focuses on the NSB graduates' decision to take up a new career in medicine and the aspirations accompanying the decision.

Chapter 4: Being affected, getting in

> It seems fraught with risk, going back and doing something like that when you didn't necessarily plan to do it all the way along.
>
> –Simon, NSB doctor

> Medicine is not a profession for disaffected architects.
>
> –Comment made by a senior clinical professor during a selection panel meeting at an Australian medical school c.2010)

Introduction

Something happens in the non-science graduates who choose to apply to medicine. At some point after graduation, these young adults come to see medicine as a realistic and highly desirable career, despite their lack of science training. They then go about re-orienting themselves and their lives towards pursuing this new career. In most cases, this would be the first time they seriously considered medicine as a career. Many researchers have asked, "why medicine?" of medical students but, in the case of NSB students, there is an additional, equally important question: "why *then*?" The first part of this chapter focuses on this latter question, in an effort to understand what that "something" is. Following this, I explore the NSB doctors' experience of the selection process for graduate medicine.

The motivation for wanting to become a doctor has been the subject of several studies. These studies have identified various reasons why young adults choose to enter medicine, with a recent systematic review classifying their motivation as scientific, societal, or humanitarian (Goel et al., 2018). The first category refers to intellectual interest in the content and profession; the second to considerations such as prestige, job security, and financial and work conditions; while the third includes more altruistic and idealistic reasons such as service to the community and perceived value of the work (Goel et al., 2018). Other more qualitative studies have identified further motives such as encouragement from family members (McHarg et al., 2007), professional role models (Laurence et al., 2013), and direct experience of illness (Kim et al., 2016). In many cases, the desire to become a doctor was expressed as a lifelong ambition, with many medical students declaring that they had "always wanted to study medicine" (McHarg et al., 2007; Stowers et al., 2019). Given the relative recency of graduate medical courses, much of this literature is necessarily based on undergraduate entry into medicine; that is, on the motivations of school leavers. For such students, by the time they apply for medicine, the idea of this career may have become part of their personal identity, most likely fostered (and in many cases role-modelled) by family and relatives. This will undoubtedly have influenced their choice of subjects at school and, in many cases, even the choice of school.

There are, by contrast, relatively few studies specifically on graduate student motivations for medicine (Kim & Kang, 2007; Kumar et al., 2021; Sulong et al., 2014). According to the annual Medical Schools Outcomes Database

(MDANZ, 2023), the vast majority (approximately 90%) of medical students who enter graduate medical courses in Australia do so after completing a science degree (in either natural, physical, or health sciences). For many of these students, the goal of medicine would have been their primary reason for doing their science degree. Like many school leavers who enter medicine, some of these science graduates have also had their sights set on medicine from a young age but, due to the highly competitive nature of medical selection in Australia, might find themselves having to come into medicine via "the long road," after completion of an undergraduate degree.

NSB applicants are different. Their first degree is very unlikely to have been chosen to position them for entry into medicine, and such medical school aspirants must negotiate the formidable challenge of selection into a high demand course with a limited number of places. Thus the decision to apply for medicine is not taken lightly, and involves a considerable re-orientation of one's career and life journey. Drawing on the phenomenological material elicited through interviews with recently graduated NSB doctors, this chapter explores their experience of deciding on and trying to get into medicine.

The NSB experience – why medicine, why then?

On one level, the interviewed NSB doctors' motives for wanting to enter medicine were consistent with the broader literature on medical student motivations. The data derived from the interviews with NSB junior doctors showed a sense of altruism, the influence or expectations of family, the social cachet or prestige of medicine, and pragmatic motives based around "sensible" career choices, as some of the reasons given for wanting (eventually) to do medicine. However, NSB doctors are different from other medical students in the timing of their decision to pursue medicine. Their conscious choice to pursue a non-bioscience undergraduate course suggests an initial indifference, or at least ambiguity, towards medicine. This makes NSB medical students and their subsequent professional identity formation a somewhat different phenomenon compared with the more mainstream pathways of school leavers and science graduates.

In almost every case, the NSB doctors in this study deliberately passed up the opportunity to apply for and (quite likely) enter medicine as a school leaver. A few acknowledged that medicine had at some point seemed a plausible or even desirable option during their school years but cited an internal hesitation or lack of commitment that led them to choose an alternative course of study. This is in stark contrast with the many school leaver medical students who report a clarity and certainty about wanting to become a doctor from a young age (McHarg et al., 2007; Stowers et al., 2019). In the NSB doctors' case, that early conviction driving a career in medicine was not there, as they freely admitted. Looking back on this period, several recognised their own reluctance to strive as hard as their peers as a reason for not initially aiming for medicine. As one NSB doctor put it: "I considered myself a bit lazy" (Simon). Another similarly spoke of considering medicine while in high school but "settling for" lower marks in order to enjoy life outside school: "I wasn't really fussed with getting straight A's, and I liked doing extra-curricular stuff and just working a job and hanging out with friends" (Ross). Looking back on her own decision point, Annette expressed a

similar ambivalence about medicine. For her, the situation represented more of a genuine dilemma between medicine and an alternate career, rather than a matter of effort:

> I took a gap year before I started my degree to decide whether I wanted to do arts or medicine. I'd been offered a place in both courses, but I chose to do arts. I wasn't really sure if I wanted to do medicine, so I didn't really want to commit to it when I wasn't sure. And during my arts degree, I probably forgot about wanting to do medicine. Then I graduated from my arts degree, and I started working.

The significance of Annette's decision to decline medicine at that point was brought home by Chloe, who faced a similar dilemma between medicine and postgraduate study after completing her undergraduate degree in the humanities. Chloe, though, chose to pursue medicine at that point, citing a sense of fleeting opportunity: "You don't get into medical school twice," she stated. This was an important backdrop to the NSB doctors' initial indifference or resistance to the idea of medicine: the prestige of medicine generally outweighs almost every other course or career, so such a decision would not be made lightly. Whereas countless other school leavers might err on the side of choosing medicine regardless of any doubts, these NSB doctors demonstrated conspicuous autonomy and self-insight in opting not to "automatically" go into medicine. Rather, medicine became a deferred, deeply considered choice for them.

So what changed for these NSB doctors to eventually set them on the path towards medicine, with sufficient conviction and drive to navigate the arduous selection process? Given that the motives that the participants gave for wanting to become doctors are, on the face of it, broadly similar to those of mainstream medical students, the key question is not so much "why?", but "why *then*?" One answer to this appears to involve the role of affect. Affect theory can help us understand more fully the generative experiences of NSB doctors in deciding on a career in medicine and experiencing the process of becoming doctors. Affective elements manifest from the very beginning of the medical career journey, including all the doubts, fears, or aversions that may accompany the early interest and contemplation of a career. This process is traditionally characterised as rational in the above-mentioned literature on motivations, but this view only partially aligns with NSB doctors' accounts of their journeys into medicine. By looking for "moments of affect" in their narratives, we can come to understand better the lived experience of NSB students and doctors and, ultimately, the early development of their medical professional identity. At the same time, approaching these accounts from a phenomenological perspective enables the affective forces that are a significant part of their experience of and commitment to becoming doctors to emerge more readily from the data, especially in the form of the lifeworld existentials of lived body, relation, space, and time.

For many NSB doctors, the affective element of their journey towards medicine was experienced, and narrated, as a vague and unformed idea that never quite goes away – an idea well captured by Wetherell's (2012) characterisation of affect as "simmering." For example, Katrina described the idea of medicine as an idea "in the back of my mind," while for Brad, the idea of medicine gradually emerged and grew almost of its own accord ("snowballed" is the term he used). For Miranda, the idea of medicine emerged as a vague sense of unease with her current career trajectory and life choices:

> I was starting to get a feel of, like, how was I going to use this [Arts] degree? How was I going to use it, in order to make the most of it and do something, get something out of it that I wanted to do?... I think it was around the end of those 18 months that I just started to have this niggling feeling deep inside (*laughter*), that it [her current career] just wasn't quite right. Something wasn't sitting right with me. And I just, I couldn't see myself doing it long term. Or if I could, I had this feeling that it was going to be quite a struggle for me.

The description of the lived body experience as a "niggling feeling deep inside" is a striking rendition of affect here. This affective resonance or attunement eventually led to the cognitive realisation that Miranda wanted to do "more community-based projects" and, from there, medicine became a realistic option. But there was an important lead-up period to this insight, during which Miranda did not know that medicine was her goal, experiencing only an "affective dissonance" (Hemmings, 2012) about her current pathway.

Such experiences of NSB students coming to medicine are quite unlike traditional school leaver accounts of reasons for studying medicine, frequently expressed as a rational and clear-sighted choice based on distinguishable motives, often over a long period of time. In contrast, the path to medicine was typically more complex and uncertain for NSB students. Applying for medicine as a graduate required a more complex and arguably challenging process than for undergraduate courses, which are generally based on school results alone. As such, the decision to apply is not easy for someone already established in an alternative field or profession, as captured by the epigraph to this chapter (Simon). But the idea of medicine lingers or "sticks," even while life seems headed in a different direction. As Ahmed (2010) explains: "Affect is what sticks, or what sustains or preserves the connection between ideas, values, and objects" (p. 29). And so affect sustained the idea of medicine, even when the NSB doctors-to-be were barely cognisant of it, typically becoming conscious in response to a specific event or encounter.

In the case of Kiera, medicine had been experienced, as for others already mentioned, as something "in the back of my mind." As the quote below reveals, for a long while medicine had felt unattainable – "I couldn't get back from there," she noted. It was only when she experienced the idea of medicine *affectively* that it seemed achievable and genuinely desirable:

> I was identified as someone who was very talented in English and Humanities. So I just ended up going on that path and then I couldn't get back from there, so I just went with it. But I always had in the back of my mind that I wanted to – the lifelong dream would have been to be a doctor. I didn't actually think I would do it, or try to do it, but every time I would meet a medical student or a doctor at a party, or just by the way in my professional life, I would always just corner them and talk to them. In the back of my mind I was like, that's me, I could do that, I *should* be doing that. I don't know why, it was just an intuition. I just felt – I don't know. It sounds so corny, but I felt like it was maybe a vocation. It was just whether I was going to do it or not, or try to do it.

For Kiera, chance meetings with people already studying or practicing medicine were strongly affective encounters that elicited simultaneous feelings of disorientation and excitement. By her own admission, Kiera struggled to articulate or explain rationally why she felt drawn to medicine. Even though she referred to medicine as a "lifelong dream," this was not a dream she felt or held onto sufficiently to actively pursue. It is as if the idea of medicine lay

dormant, only forcing itself into her consciousness through lived relationality, when she encountered others already studying or working in medicine. Significantly, these moments weren't experienced as conscious networking opportunities, or a chance to "pick someone's brain" about getting into medicine. Rather, Kiera recognised herself as being almost impelled to engage with the "cornered" student or doctor. In using this term and powerful image, seemingly recognising a certain social gracelessness in such encounters, Kiera alluded to the embodying nature of affect through being "acted upon" by a force much stronger than any cognitive "dreams" of medicine that she may have been harbouring.

Such affective moments were also discernible in other NSB doctors' narratives of coming to medicine, often related as a specific encounter or situation when the idea of medicine burst forth into their world with a surprising clarity and conviction. Contrary to the more mainstream accounts of medicine as a conscious choice or the result of deliberate career planning, many NSB doctors spoke of the idea of medicine as taking hold of *them*. This highlights the lived relationality of the NSB doctors' encounter with medicine. It was not solely an internal decision-making process as traditional psychological framings might suggest; it was also deeply *affective*, often experienced as something that *acted on them*.

We see this especially in the case of Katrina, who recounted how she decided to take time off from her office administration job (following her degree in journalism) to volunteer with a community in a third world country. In this excerpt from her account, we get a sense of how this *something* that moved her towards medicine took the form of a routine communal task:

> I remember one day I was shelling – we had corn and you shelled them by literally just flicking off all the kernels of corn and they grind it and they pulp that. So we had to hand pick it and I remember sitting – it was on a kitchen dirt floor and I remember just picking corn – and I was like, *I could do medicine*… It was a bit scary because I always had the idea in the back of my mind at high school, oh yeah, I could be a doctor but I don't want to spend a decade of my life training, I haven't got a science background and never really thought much of it. Then sitting there I was like, I could actually do this. I called my mum and she looked at all the courses you could do, which is how I got into the diploma of science. So I applied from there, flew back, and started the semester back here.

The detail in her narrative is striking and significant. What might start off like another story of altruistic motivation for medicine – one in which we might expect the narrator to draw a direct link between the conditions of the people she is living amongst and an emerging desire to make a difference to their lives – doesn't eventuate. Instead, Katrina spoke of a profound inner transformation, where the idea of medicine – something she had previously dismissed as unrealistic, not having a science background – suddenly re-emerged as a meaningful and realistic option for her. There is little that seems rational or intellectual in this moment; it is an affective attunement to a context and to a prospective identity, rather than a career "decision point." It seems like the lived body aspect – sitting on the dirt floor, participating in the ritual activity of shelling corn – emerged mostly strongly in Katrina's narrative as her affective moment, a moment of "embodied meaning-making" (Wetherell, 2012, p. 4). Becoming a (NSB) doctor sounds much more like a moment of epiphany than a rational decision for Katrina in this account. Of course, some element of

rationality is present, but it is more like Deleuze's (1968/1994) characterisation of thought, grasped through a "range of affective tones": "Something in the world forces us to think. This something is an object not of recognition but of a fundamental *encounter*" (p. 139). When prompted to talk more about that moment, Katrina again initially emphasised the corporeal aspects of the moment, before moving onto the broader context:

> I was sitting on the floor. I was in a really poor area. There was no running water. You had to go to the well. There were no real toilets. It was like a big drop hole. I was living with people in poverty and education was a huge thing and I guess I thought I have the resources to be able to have any education that I want, so why don't I use that? It was more in the context of where I was living; young girls who don't get education, who get married young, have families young. Then their existence is just surviving…

It was only at this point that Katrina brought in the rational, sociopolitical context of her situation: greater awareness of the impact of poor health on communities, and appreciating her own capacity to make a difference in this area (if not specifically to this community). It is perhaps a not uncommon inspiration story of coming to medicine, but in Katrina's narrative it is only arrived at once the affective experience, the lived body element of that experience, is narrated and re-lived.

It is in the retelling of lived experiences such as this that we come to understand the significance and profound impact of affective moments for NSB doctors turning towards medicine. Such affective attunement makes sense when we consider the "distance" that NSB students need to cover to come to medicine: their path has already diverged well away from the typical and well-trodden road to medicine. Something significant needs to happen to change this, whether it is a sudden jolt (Katrina) or a simmering unease (Kiera). As Wetherell (2012) notes, affect comes "in and out of focus" (p. 12). This affective experience of committing to medicine came through even when NSB doctors, quite naturally, tried to explain their reasons for wanting to do medicine in more typical psychological terms. Miranda initially headed in this direction, before presenting the idea of medicine in a very different register:

> I'd always understood cultural heritage and art to be integral to wellbeing. So I think that what I wanted to get out of my [previous] career was being able to enhance people's wellbeing through the cultural heritage context. And then, suddenly, when I had this idea [of medicine] in my head that maybe I could do that in a much more direct way, I couldn't get past it.

While the alignment of medicine with her own values is perfectly understandable as a motivation for medicine, Miranda experienced this insight not as a breakthrough moment of career clarity, but almost as an obstacle, something she *can't get past*. In effect, medicine chose *her*. Simon too attempted to explain his own turn to medicine in psychological terms, but he also came to recognise that there were external and seemingly ineffable forces at play:

> I don't know exactly why I was so committed at that point. It can't all have been hubris, I guess, based on this other person [a coworker who declared she wanted to do medicine] and how prideful or narcissistic I must have been at the time. I don't know. But something really allowed me to commit at that point.

The externalising of his sense of commitment is really telling here, as is the recourse to, once more in this context of "choosing" medicine, the word *something.* Even as Brad told his story in a logical, almost scientifically causal manner, the sense of being *affected by* medicine still came through:

> I think I wanted something that was going to give me broader experiences rather than just sitting in an office most of the time… I think I wanted something a bit more exciting… I think it was the acute side of medicine that caught me… that acute side of medicine, like being there, being able to come in and help and that would be really exciting, really rewarding.

Once again affect can be found lurking behind the "decision" to do medicine. Brad is *caught by* medicine, rather than medicine being the result of a deliberate rational decision. However else they/we might describe it, the NSB doctors in this study were experiencing an affective, almost "pre-conscious" affinity for medicine. They are acting and being acted upon. And even when a rational explanation was attempted, they frequently resorted to affective allusions to manage the seemingly ineffable element of that experience. Hemmings (2012) captures this phenomenon well when she points out that "in order to know differently we have to feel differently" (p. 150). Every NSB doctor in this study had to feel something change within them before they decided to pursue medicine and, if we listen closely, this affective charge is reflected in their language, its expressive qualities, and tone. Contrary to the medical professor's remark cited as an epigraph to this chapter, NSB doctors, former architects or otherwise, are anything but "dis-affected."

Getting into medicine

The decision to become a doctor, however affectively charged, only brings aspiring students to the point of deciding to *apply* for medicine. They must then negotiate the highly competitive and complex process of getting into medicine. Medical school statements about eligibility and selection processes do more than simply provide necessary information to candidates; they also send a message about who is desirable as a medical student. On face value, the selection process for graduate medical schools appears to be remarkably equitable for NSB students. Taken as a whole, the process seems designed to facilitate the selection of suitable (and suitably high-achieving) applicants, whatever their educational background: GPAs are calculated on *any* Bachelor accredited degree, regardless of disciplinary area; the GAMSAT consists of both humanities- and science-based reasoning sections and a writing section (which arguably provides some degree of advantage for HASS applicants); and for most medical schools, an interview process offers applicants the opportunity to make their case for being admitted into medicine. The official equivalence of disciplinary background for the selection process is clearly conveyed in the GEMSAS Admissions Guide:[9]

[9] GEMSAS refers to the national Graduate Entry Medical Schools Admissions System, managed by the GEMPASS (Graduate Entry Medical Program Application & Selection Service) consortium, currently comprising all but two of the graduate medical schools in Australia. GEMPASS publishes an annual guide for prospective applicants to the medical schools represented in the consortium. These guides are accessible via the GEMSAS website: https://gemsas.edu.au.

> GEMPASS Australia encourages individuals from diverse educational backgrounds who will bring to the profession a variety of talents and interests... It should be emphasised that a science major is not a prerequisite, and that academic excellence in other areas, such as the humanities and social sciences, is encouraged and recognised. (2024, p. 13)

This position is echoed by several medical schools in their own website or admissions documentation. For example:

> There is no preferred bachelor's degree or prerequisite courses for entry to the MChD program. We welcome applicants from a variety of undergraduate backgrounds. (Australian National University, 2024)

> Flinders University encourages individuals from diverse educational backgrounds to apply as you are not required to meet any subject pre-requisites. (Flinders University, 2024)

> Griffith encourages candidates from all degree backgrounds. (Griffith University, 2024)

A particularly positive stance towards NSB applicants can be seen in the eligibility criteria of the Sydney Medical School, which declares:

> We are also striving to increase the diversity of our cohort of medical students. The Sydney MD program does not require an undergraduate degree in biomedical science prior to entry. This is a distinguishing feature of the University of Sydney's MD, and is unlike several medical programs around the world. Since this change occurred, Sydney Medical School has seen an influx of students from diverse educational backgrounds into the MD program including business, law, arts and engineering, complementing the cohort from science and health backgrounds. Students from non-science backgrounds make up approximately 20 percent of the 2020 MD cohort. (University of Sydney, 2020)

Such statements would seem to offer be highly encouraging for NSB applicants, not only in relation to the selection process itself, but also for the way they might expect to be regarded should they get into medicine.

However, such institutional affirmativeness is not universal. Despite using much the same admission process, other graduate medical schools communicate quite different messages about the desirability of non-science applicants. This is commonly conveyed through the specification of subjects applicants are expected to have previously studied as part of their qualifying degree. One medical school, for instance, articulates their policy on NSB applicants as follows:

> There are no preferred bachelor's courses or specific prerequisites; however, there are recommended subjects in order to best prepare for the GAMSAT or MCAT. It is recommended that applicants have undertaken at least: Physics to Year 12 ATAR level (or equivalent); Chemistry to first-year university level (including completion of Year 12 level chemistry); Biology or Human Biology at first-year university level. These subjects are not prerequisite; however, completion of these subjects will help prepare applicants for Medicine or Dentistry studies, as well as for the GAMSAT. (University of Western Australia, 2024)

Although this text is couched in terms of recommendation and helpful advice, the implication is clear – applicants with science backgrounds are preferred. Interestingly, the advice about optimising preparation for GAMSAT (or MCAT[10]) through science subject prerequisites ignores the non-science sections of the tests. Emphasising the science requirements of GAMSAT is effectively a proxy for communicating the science-based preference of the medical course itself. One medical school goes even further in limiting the opportunity for selection of NSB applicants. Despite an initial statement that "It's not mandatory that your undergraduate degree is in a science discipline" (The University of Queensland, 2024a), other sections make it clear that the medical course is designed very much with the science graduate in mind:

> The Doctor of Medicine (MD) program assumes applicants have prior knowledge of cell and tissue biology as well as system physiology. If you're applying for the MD program, you'll need to satisfy prerequisite requirements in these subjects before you enter the program… All applicants, including domestic and international students, need to successfully complete the following prerequisite courses (or equivalent) to progress into UQ's MD program:
>
> 1. Integrative Cell and Tissue Biology
> 2. Systems Physiology.
>
> (The University of Queensland, 2024b)

Here again the official openness of selection is quickly disavowed by the medical school's actual expectations. While technically an NSB applicant *could* find a way to complete these or equivalent prerequisite subjects, they are unlikely to do so as a matter of course. Only students who have already decided upon medicine early in their undergraduate course would think to do so. As a result, very few NSB students would find themselves eligible to meet the subject-specific requirements or "recommendations" of these schools without the need for further post-degree study. Of course, medical schools are at liberty to determine their own selection criteria (subject to course accreditation by the Australian Medical Council), and NSB applicants may apply to other graduate medical schools seemingly more favourably disposed towards them. But these more restrictive eligibility statements and potentially dissuasive language about their status as potential doctors suggest a lingering doubt about the legitimacy of NSB applicants in some quarters, especially when compared to the effusiveness of the other medical schools cited above. This is a far cry from the original discourses about graduate medicine.

[10] MCAT stands for the Medical College Admission Test. It is the North American equivalent of GAMSAT and is accepted in lieu of GAMSAT by most graduate medical schools.

Negotiating the GAMSAT[11]

At first glance, the GAMSAT aligns strongly with the openness and equitability of most graduate medical school statements regarding applicants' disciplinary backgrounds. This test, which has been an ongoing element of selection into graduate medicine in Australia since the first graduate courses commenced in 1995 (Aldous et al., 1997), consists of the following three sections administered under secure invigilated conditions:

> Section 1 (Reasoning in Humanities and Social Sciences), which assesses "skills in the interpretation and understanding of ideas in social and cultural contexts"; Section 2 (Written Communication), which tests candidates' "ability to generate and develop ideas in writing"; and Section 3 (Reasoning in Biological and Physical Sciences), which assesses "reasoning and problem solving within a scientific context… [and] recall and understanding of basic science concepts." (ACER, 2024, p. 3)

An important feature of this test, from the perspective of identifying potential to study medicine, is that it aims to assess reasoning skills rather than knowledge per se (beyond the assumed knowledge for the science section, which is declared as first-year tertiary level biology and chemistry and final year of school level physics). While the test thus retains a hurdle function of ensuring a minimum level of science knowledge, it claims to assess this as *applied reasoning* rather than knowledge recall.

From the perspective of this study, the importance of the GAMSAT is not so much what it assesses but how it positions and is perceived by NSB applicants in the context of their aspiration for medicine. Significantly, the positioning of the science component as just one third of the total test appears to send an important message to would-be NSB applicants that the medical school community recognises that medicine is about more than just science. For Miranda, this meant that getting into medicine felt like a genuine possibility:

> When I first started looking into how do you even get into med school, and I saw that the GAMSAT had those two sections based on humanities [and writing], I was just so relieved and started thinking, wow, this is, this is really, really cool. I just couldn't, I didn't even think that that would be a part of getting into medicine to start with. And it really surprised me.

However, for most of the NSB doctors interviewed for this study, the GAMSAT was still experienced as a major challenge and threat to their newly discovered commitment to medicine. As Gemma recalled:

> It was hard. That was really big. I had to do GAMSAT twice. I only just scraped through with the sciences stuff. That was really tough and was a real barrier. I got a bit of tutoring. And a few friends who I knew who'd got through it before, they helped too. I think I got one mark above the cut score. I barely got through with the science section. Fortunately, I did

[11] The author of this thesis declares his current employment with the Australian Council for Educational Research (ACER), the organisation that currently develops the GAMSAT on behalf of the consortium of graduate medical schools.

> really well on the other two sections. And that was enough [to get me through]... I think my humanities background helped in that sense.

For many NSB doctors, preparing for the GAMSAT entailed a significant upheaval and commitment to an extended period of further study. As Simon related, "I studied for about 12 months, doing about three or four hours a day [of a GAMSAT course] and some other self-directed learning, and using some supplementary GAMSAT materials."

Many NSB applicants, such as Katrina, chose to formally enrol in a science diploma course as part of their preparation for sitting the GAMSAT. Chloe went even further, completing a full three-year biomedical degree after her arts degree to prepare for the science content of GAMSAT and to better qualify herself (in her view) to apply for medicine. Such lived experiences are very different to the apparent equity of the selection process and medical school eligibility statements. "Everybody" may be welcome to apply, but the lived reality for NSB graduates is that doing so will involve at the very least long hours and numerous days of preparation, formal enrolment in a science course for some, and, for many, multiple attempts at sitting the GAMSAT over several years, with associated costs.[12]

Negotiating the GAMSAT was especially demanding for Kiera. Preparing for and thinking about the test dominated her experience of this lifeworld, especially the sense of lived time and relationality:

> GAMSAT was the reason I didn't [apply] earlier, one of the reasons was just fear, like, I just can't do it, there's no way. There's no way I'm smart enough to do the science bit. I just didn't believe that I could actually do it… It was really scary. It was a really scary thing as a woman in her late 20s, and then to tell people I was sitting the GAMSAT exam. Because I wasn't going out. I wasn't socialising. I was spending all my time on this, so I had to eventually tell my friends and family what I was doing and then I was mortified, because once I'd told them then they would ask how I did.

No doubt all applicants feel anxiety and worry about such a high-stakes selection test, but for NSB applicants, the science component amplified the impact. The affective dissonance between the ebullient young adult cornering medical students at parties and the reality of the GAMSAT was stark, and for Kiera, translated into immense anxiety and unrelenting effort:

> To people who are on the outside of my life it looks like everything I've wanted I've been able to get… I've worked so hard for everything, but they assumed that if I wanted to get into medicine that I could do it. That's very flattering, but it wasn't a given at all. I was really, really, really worried [*laughs*] that I would fail.

Looking back years after sitting the exam and getting through to medicine (on her first attempt), Kiera still felt the dread and amazement of getting through the selection process:

> The biggest hurdle for me was the GAMSAT. The GAMSAT was the thing that was going to determine whether I could do medicine or not. Was I going to sit it and was I going to get a good enough score? That was the almost insurmountable

[12] Currently AUD $549 per sitting (ACER, 2024).

> obstacle, which was standing in the way of even trying. It was just so overwhelming… So I had to pass, I had to pass the science and I had to not bomb it. I was like, this is crazy and I didn't have any time to study, because I was working full time. So it was just insane. That is the thing that I can't believe that I did.

Clearly, for the NSB doctors, the GAMSAT was so much more than a test of their academic capacity; it went to the very core of how they saw themselves and how suited they may be for medicine. That is, they experienced the test ontologically as well as epistemologically. Even successful applicants remained long affected by the experience, continuing to carry many of the doubts into the medical course. As Jacqui revealed:

> I felt very… you know, like impostor syndrome. I knew my GAMSAT score… I got in, but I had in the back of my mind I only *just* got in, and everyone else has got these other backgrounds that helps them. So I don't think other people would have noticed, but I felt behind the eight-ball really.

Ultimately, though, most of the NSB doctors looked back on their successful navigation of the GAMSAT with pride and a sense of empowerment, even seeing it as a badge of honour. Miranda admitted that she subsequently felt proud of getting through the GAMSAT, especially on the first attempt, a fact that she was prepared to mention whenever her science-background peers gloated about their performance on the test. In many ways, getting through the GAMSAT provided successful NSB applicants with evidence that they were capable of learning science through sheer effort, even if this meant that the real success lay in using strategic skills to negotiate an unfamiliar discipline area rather than genuine learning. As Katrina explained:

> I really struggled with the science section [of GAMSAT] but I realised it's not about the science that you know. It's about working through logic and basic principles and things like that. You don't need to memorise sciency stuff… I don't think I finished the science section. I really struggled with it, but I managed to make it through, which was nice.

Moreover, no matter how difficult learning science would prove during the medical course itself, for some the hardest part had already been achieved. As Kiera noted:

> As soon as I got into medical school, even though it was really hard, it wasn't that hard [compared to the GAMSAT]. I knew I was going to get through. I knew I was going to pass all the exams. I knew I was more or less smart enough to finish the degree, but getting in, that was like, was I going to get in? How was I going to get in? How was I going to pass this insane exam?

This "insane exam" was a seminal experience for all NSB doctors. It was gruelling and daunting and yet, given that all the NSB doctors interviewed for this study successfully negotiated the hurdle, also epistemologically and ontologically affirming. The affective drive to do medicine took care of itself; *getting in* was the hard part. Despite the official openness of medical schools with regards to previous disciplinary background and the cross-disciplinary structure of the GAMSAT, the intimidating spectre of science still hovered over the whole application process, dominating their lived experience of aspiring for medicine. Yet the NSB doctors interviewed for this study revealed an extraordinary commitment to the sometimes vague but insistent lure of medicine. This affective force drove them to

upend their lives, accept and commit to a gruelling preparation regime to get through the GAMSAT, and make themselves vulnerable both emotionally and intellectually for the sake of becoming doctors. To re-quote Simon from the beginning of this chapter, aspiring for medicine is a project indeed fraught with risk.

Chapter 5: Catching up, fitting in

> From feeling as if my place in med school was some administrative error, I reached the end of first year and realised I had become immersed in the science. I loved this and it made me feel proud.
>
> –Excerpt from Deakin Medical Students' Association (2018), *Your Guide to Surviving Medical School*, p. 16

> I feel like a big part of me doesn't come with me to medical school.
>
> –NSB medical student, cited in Lam et al. (2020), p. 406

Introduction

Successful NSB applicants enter medical school well aware of their divergence from the standard pathway into medicine. While the admission process ensures that all successful applicants will have at least some exposure to the basic sciences, particularly through preparatory study for the GAMSAT test, for most NSB students, this feels insignificant compared to other graduates who enter medicine with formal science qualifications. Given the traditional discourses of professionalism in medicine, which place science knowledge at the heart of what it means to be a doctor, NSB students start medical school with two main challenges: "catching up" to their science graduate peers in terms of science knowledge; and feeling that they "fit in" or belong in the medical cohort. This period of their formation is experienced, and discursively constructed, as cognitively challenging, physically exhausting, and affectively dissonant. In this chapter, I draw particularly on practice theory (including the notion of community of practice, or CoP) to analyse and interpret the phenomenological material gathered through interviews with NSB doctors and document analysis of medical student survival guides. I use this approach to explore and understand the learning and socialisation experiences of NSB doctors, which form part of their professional identity formation.

Welcome to medicine

The first day of the new academic year at medical school is a joyous spectacle. There is an intense buzz of anticipation and excitement as hundreds of new medical students gather in and around the medical building for their introductory lecture, which will welcome the cohort and begin the week of orientation sessions and activities. For students enrolled in graduate medical programs, even though the university experience itself is not new, the beginning of their medical course marks a significant personal and professional milestone. It is, after all, the result of at least three years of undergraduate study, an intense period of GAMSAT preparation, successful performance in medical

school interviews, and what must seem like an interminable wait to receive their medical school offer. While getting into medical school represents a significant achievement for all students, it is perhaps particularly momentous for the NSB student, for whom getting into medicine has involved the additional challenges and endeavours discussed in the previous chapter.

The NSB doctors in this study were acutely aware that they were different to the rest of the cohort. Lyn, describing her feelings on the first day of medical school, said:

> I was super nervous, because I was like, I'm going to be this awkward mature age student. I don't have a science background and I'm going to just stick out like a sore thumb…. Everyone's going to think I'm so weird.

These feelings of potential marginalisation were further reinforced for Lyn when it came to relating with the cohort through formal classes: "At the beginning of the first tutorial the tutor asked, what background did we come from? And it was Science, Science, Science, Science, Science, Science. And I'm like, 'Arts'." A sense of belonging to one's desired community is an important element of situated learning; as Iverson (2011) states, "the formation of a CoP as a community is not simply an entity, but also a source of identity that is enacted in the process of knowing" (pp. 43–44). Thus, communities of practice can also narrow options for learners, both epistemologically and ontologically, constraining them to accept normalised practices and identities. We shall see examples of this shortly in relation to NSB students' experience with the curriculum.

However, at least at the very beginning of medical school, NSB students were also actively making their own judgements about their peers and how *they* fit into the medical cohort. Chloe recalled her impressions of her first day vividly:

> The thing that I remember is that everybody looked really boring. Everybody looked like… nobody looked particularly creative. I mean, [this is just] sartorial judgments, right? Everybody was wearing suits and ties or nice boring business coats, and I was like, shit, what have I gotten myself into?... Then I remember looking around the courtyard and seeing this one other person who was dressed as a bit of a hippie. And I was like, oh, *that* person, I can be friends with *that* person.

It is worth remembering that, like all NSB medical students, Chloe was part of a graduate cohort, so her fellow medical students were at least of a similar age. They are not school leavers. Like all newcomers to a community of practice, Chloe was looking to see where she fit and initially "latched on" to someone who appeared to at least share her own "sartorial judgement". This example serves as a reminder that, as much as the NSB students wanted to belong to the wider medical cohort, they still brought with them their previous identities, which can also serve as a means of belonging. Chloe did eventually manage to find "her people" in medical school, and in the following quote gives us a glimpse of the hidden diversity of graduate medical student cohorts behind the appearance of homogeneity:

> I made friends with the non-science people and I made friends with people who had interesting and diverse backgrounds themselves. My friends were a former art conservationist, the hippie Russian immigrant, the single mum of three… That

was my crew, because we all had these diverse backgrounds that were different and interesting and divergent from a lot of the "come straight from science grad, maybe still live at home, predominantly white people" (*laughter*).

Miranda, reflecting on her time in medical school, similarly felt somewhat isolated amongst people who did not necessarily share her own political perspectives and social values:

> There were definitely moments when I felt a bit out of touch with what everyone else's general opinions were, especially in terms of things like mental health, being non-judgmental, and accepting of minority groups. I felt like I was a bit more open minded than the majority of the cohort… We had this cultural sensitivity week, and I was quite confronted by the ignorance of some of the medical students who had never thought about the impact of European invasion on Aboriginal people, or didn't appreciate how important it was for them to learn that in order to be a doctor… In my social circles outside of medicine, I'm surrounded by left wing, alternative types of people who live and breathe this kind of stuff. So yeah… it made me feel a bit isolated sometimes. It was certainly confronting.

The perspectives of Chloe and Miranda (and other interviewed NSB doctors) suggest that being an NSB student involved more than just lacking knowledge of science; it could also signify a very different outlook on life compared with mainstream medical students. As the medical student cited in the second epigraph to this chapter discloses, this can lead to "compartmentalising" (Monrouxe, 2010, p. 42) one's identity. For NSB students, this facet of the medical school experience must be confronted and negotiated as part of the PIF process.

Positioning the NSB student

From an institutional perspective, such ontological challenges are typically secondary to the NSB students' need to make good their defining lack of science. The disclosure of students' previous backgrounds, as recounted by Lyn, is common practice in graduate medicine, especially in the small group learning contexts in medicine that are widely reflected in the problem-based learning (PBL) approach (Wood, 2003). Students work on the weekly clinical cases or "problems" together, typically in the first year of the medical course, and it therefore helps to know the disciplinary strengths of fellow students. Of course, this places the NSB student at somewhat of a disadvantage, as these cases are typically designed to address learning objectives predominantly oriented towards the biosciences. Here, for example, Simon remembered how he came to be designated his role in the PBL group:

> Within the PBL group, everyone was manoeuvred into roles. Some people were quieter, or more or less artistic for drawing on the whiteboard… So that would be me drawing on the whiteboard, and someone else who was perhaps very good at science, having come from a biomedical science background, maybe giving a really detailed analysis of the interaction of genes and expression, or something like that.

Finding one's place in the PBL class was based on the extent and type of science knowledge one could bring. For science-background students, this meant either being able to draw on previously learned knowledge or having the academic foundations to be able to readily co-construct this knowledge with fellow students during the PBL classes.

For the NSB student, this was a significant point of difference often experienced as isolating and sometimes quite humbling, at least in the early part of the course. Katrina's retelling of this period offers a salient example:

> I was really excited [starting the course]. I hadn't studied for a while, though study had consumed my life for so many years, so it felt kind of nice to use your brain again. But my first week was really hard and I really, really struggled in my first week of medicine. We had these small groups, PBL groups. I remember we had to talk about learning objectives in groups and no one else was from a non-science or healthcare background. They were paramedics, there was a vet, there was lots of science students that had gone from high school science and then done biomedical sciences, and then did a natural progression to study medicine. So I was really overwhelmed because people were using words that I've never heard before like "systole" and "diastole" and "ventricles"... I didn't even know the heart had four chambers! It was very overwhelming.

There is a stark contrast between the initial excitement of beginning medicine and the sense of exclusion and of being "overwhelmed" by the knowledge shared and owned by everybody else in the group. The observation of the "natural progression" from biomedical sciences to medicine is telling – from a curriculum perspective, this is precisely how it seemed to incoming NSB students. In comparison, their own journey into medicine felt much less natural or even legitimate.

Officially, at least, this is not how the medical schools represent the NSB student in public statements about eligibility criteria. As outlined in the previous chapter, most schools characterise a non-science background pathway as an equally acceptable and legitimate pathway into medicine to the traditional science-based pathway. In the main, applications from NSB graduates are explicitly encouraged. This welcoming approach to student selection is also reinforced by the medical student society survival guides, which explicitly celebrate the diversity of the cohort and represent this as a particular asset of graduate courses, as can be seen in the following examples.

> The members of the Medical Students' Association of Notre Dame (MSAND) are many and varied. We have undergraduate degrees spanning pharmacy, physiotherapy, nursing, biomedical sciences, law, commerce, fine arts, engineering and many more. Many of your peers will have had successful prior careers, some will have children, and many will have lived in different states and indeed, different countries. This diversity is celebrated, and our tight-knit community relishes the many talents and passions that extend well beyond the medical sphere. The strength of our student body is that we celebrate our differences and in so doing, place an important emphasis on who people are, not what they know, their academic background, or where they're from. (Notre Dame Fremantle student association welcome letter, 2022)

> The presence of non-science students in the [medical school] is a real treat. In a sea of biomedical science graduates, studying alongside flautists, activists, lawyers, philosophers, journalists, teachers, and the odd washed-up consultant keeps life interesting. Know that you can do this, and in the year above you have lots of people who maintained their sanity/life/relationships, raised children, worked, and got through first year medicine. (Sydney Medical School Survival Guide, 2017, p. 52 (Leah))

Thus, the incoming NSB student might take some comfort in knowing that, notwithstanding the "sea of biomedical science graduates," their diversity is welcomed and they are seen to be an intrinsic part of a heterogeneous graduate student cohort. When we look more closely at these guides though, the picture becomes more equivocal. For example, in the sections of the survival guides directed specifically to the science-background students, there is also a noticeable difference in tone alongside the celebration of diversity:

> Your cohort will have wonderful people from various backgrounds: pharmacy, physiotherapy, nursing, psychology, dentistry, and even non-science backgrounds. Not only are these people incredibly fun and friendly, they are also armed with a wealth of knowledge and experience. You may know intricate biological process, but others may have amazing knowledge of anatomy, pharmacology, the hospital system, and even social skills that will help you build rapport with others. (Deakin Medical School Survival Guide, 2020, p. 27 (Gabriel))

Bearing in mind that these passages are available to all incoming students, science and non-science, there is important signalling happening here. Amid the celebratory descriptions of a diverse cohort, there remains a certain ambiguity regarding the place of the NSB students. The qualifier "even," used twice in relation to NSB students, suggests a subgroup of students whose presence in the cohort, while celebrated on a social level ("wonderful people," "fun," and "friendly"), prompts rather faint praise in comparison to students with "amazing" and "intricate" knowledge. In this light, the passages directed to the NSB students themselves take on a somewhat different meaning, where their presence offers a sense of novelty that "is a real treat." This positioning, it turns out, is reinforced and accentuated in other sections written by (and for) NSB students themselves:

> Congratulations on making it into medicine at Deakin. If you're anything like I was, you'll be feeling equal parts ecstatic and apprehensive right now. You may be wondering whether you deserve to be here, or whether or not you'll be able to keep up. Remember that the admissions panel chose you for a reason. Trust in their decision – you've proved yourself to them in your undergraduate degree, on the GAMSAT, and in your interview. (Deakin Medical School Survival Guide, 2021, p. 21 (Kieran))

Despite the sound advice and reassurance to trust in the selection process, which all incoming NSB students have successfully negotiated, this welcome message also conveys a sense of anomaly about the place of the NSB student in the medical course. If the new NSB students weren't wondering about their own legitimacy in the medical course before this, they are now. One after another, previous NSB first-year students share their own personal stories of doubt and disbelief about their place in the medical course:

> The biggest thing I struggled with at the beginning of first year, coming from a non-science background, was the feeling that my place in the course was accidental. It was hard to convince myself that I was meant to be here because those with science backgrounds seemed so effortless in their study, already fluent in the language of science, drawing on their previous degree to answer questions I could barely interpret. In spite of making wonderful friends and repeatedly being told that we were set up to thrive, not fail, I felt terrified that I was on the brink of being taken to the side and told that it was time to pack up and go home because medicine wasn't right for me. (Deakin Medical School Survival Guide, 2018, p. 16 (Meg))

The comparison with the science-background students reminds us (and the NSB students) of the unenviable position in which they find themselves: confronting the reality of learning in a new disciplinary area, one that the majority of their peers have previously been exposed to, if not mastered. The representation of NSB students in the survival guides sends somewhat mixed signals. On the one hand, NSB students do form part of a "wonderfully" varied cohort and they do bring specific and unique skills. But as is often the case, a binary implies a hierarchy. The diversity that NSB students help create may be valued more symbolically than materially; speculatively, it is more rhetorical than real. This de-valuing figured significantly in NSB students' sense of preparedness for and experience of the taught curriculum.

Deficit and indistinguishability

In contrast to the apparent celebration of diversity and heterogeneity of the graduate student cohort, there is a strong presence in the survival guides of a deficit discourse in relation to NSB students. This can be seen in: the lowered expectations of achievement in the course (managing one's expectations in terms of academic performance is a common subtheme in the guides); the frequent references to negative affective states NSB students can expect to experience (such as "coping," "surviving," feeling "overwhelmed," "freaking out"); and most strikingly, the constant reference in the guides (and, as we shall see, in the NSB doctors' own accounts) to the need to "catch up" to their science-background peers. NSB students are constantly reminded of their knowledge deficit in science in comparison to their science-background peers. For example:

> Being from a non-science background has its own unique challenges; naturally the learning curve is steeper and arguably, more study will be needed to keep your head above water due to the lower baseline knowledge. [Notre Dame Sydney Medical School Survival Guide, 2018, p. 13 (Chris))

> Your exam marks may be lower than usual for you at first – NSBs effectively have twice (or more) as much to learn as SBs, it will take time to catch up. (Sydney Medical School Survival Guide, 2015, p. 20 (Joel))

> It can be a shock to the system when you come from a non-science background, to suddenly feel like you're slower and more confused than everyone else in the class. You're going to be spending your first year of Medicine basically learning a whole new language, while everyone else who has already studied science builds upon their prior knowledge… I felt pretty stupid asking basic questions about the Krebs Cycle and then still not understanding it when people patiently explained it to me. This stopped me from asking more questions because I didn't want to slow down PBL or "let down the team." (Notre Dame Sydney Medical School Survival Guide, 2020, p. 25 (Poppy))

This deficit defines NSB students both discursively and formally. The celebrated diversity that characterises the introductory passages of these guides, as well as the medical schools' public statements about NSB applicants, quickly gives way to more binary descriptions of the cohort, science versus non-science. And this difference is accepted and reproduced by the NSB students themselves, as captured in the phrase quoted in the epigraph to Chapter 1 and the title of this thesis: "They call us NSBs." The notions of deficiency and catching up therefore define the NSB students'

early experience of medical school. As can be seen from the above quotes, the survival guides are candid about both the expectation that NSB students will need to "catch up" and the affective impact of making good this deficit or lack.

Mainstream science-based medical students receive very different messages in the survival guides. They are reminded of their natural advantage, and that studying medicine will be more of a process of "refreshing" and strengthening their knowledge base rather than new and difficult learning. For them, medicine is familiar territory:

> Medical science is one of the best backgrounds to have going into MD1 – back yourself and share your knowledge with others; they will repay you later with their own backgrounds!... Don't miss the opportunities you'll get to refresh the basics – make a strong foundation because you'll be continually building on it (Flinders Medical School Survival Guide, 2020, p. 38 (Elise))

> Having previously done science, a lot of the content may be familiar. There are many people in the year who have never heard of meiosis or an action potential, so teach them! Make some friends with non-science students and utilise their lateral thinking and their questions to affirm your own knowledge. The best way to know that you fully understand a concept is to teach it others. (Notre Dame Sydney Medical School Survival Guide, 2020, p. 27 (Luke))

Instead of being cautioned about the difficulties of studying medicine, their greatest challenge, it appears, will be to avoid complacency. Moreover, they are encouraged to help NSB students through peer teaching, which would be a charitable notion were it not for the rationale that this will help affirm their own technical knowledge and understanding. The tropes circulating in these survival texts suggest privilege on the part of science-background students. They are positioned as less "peripheral" than their NSB colleagues on the trajectory towards full participation.

The obvious corollary of NSB students' intrinsic knowledge deficit is the requirement to catch up to the rest of the cohort, and the survival guides help set this expectation. NSB students are represented as highly capable learners who can expect to successfully achieve this, if they work hard and manage to cope with the stress and self-doubts. Such hard work is their pathway to epistemological equality:

> The pace can be overwhelming; however, by the end of [the first block] and the beginning of your second block, the academic differences between people from science and non-science backgrounds will have all but disappeared. (Deakin Medical School Survival Guide, 2021, p. 21 (Kieran))

> It can be a challenge initially for students from a non-science background to keep up, but we usually find *they are on par with (or ahead of!)* the other students by the end of first year. (Flinders Medical Student Society – Prospective Student FAQs)

The sections of the survival guides directed at the science-background students support this view:

> Having a science background under your belt is so beneficial, but you will find that everyone tends to catch up fairly quick and by the middle of the year, most people are at roughly the same level. (Notre Dame Medical School Survival Guide, 2018, p. 28 (Yousef))

Tellingly, the NSB doctors interviewed for this study concurred with these views. When asked whether they felt there were any differences between themselves and science-background doctors at the current stage of their medical career (shortly after graduation), most confidently asserted that by the time they got to the clinical years of training (usually from third year), they believed that any such differences were minimal, as the following comments indicate:

> I think by the time you get to fourth year, probably like third or fourth year, whether or not you've done a science degree, is probably irrelevant by that stage. (Lyn)

> I think after the third year it's hard to tell whether you're from a science or a non-science background because the non-science background [student] catches up in terms of knowledge. So I think you wouldn't be able to pick them from third or fourth year, the last two years of medical school. I think it's fairly equal. (Katrina)

> [By] the end of fourth year, everything kind of evened out. At the start, there were the people like me or the people who had done law or something else that were probably a little bit behind…. [But] it all kind of just came out in the wash and didn't really make a difference by the end. (Brad)

Such perceptions are obviously very reassuring to both the NSB students and the medical schools. Reading these accounts of eventual equivalence and no doubt hearing these views circulating around the medical school provides important encouragement and belief in the NSB "project." And of course, they echo the consensus in the literature about NSB performance. However, these accounts do not speak to the *lived experience* of the NSB students in reaching this point of apparent indistinguishability with their science-background peers.

The reality of the NSB students' experience of medicine during this "catching up" phase is difficult and relentless. Both the survival guides and interviews with NSB doctors made it clear that this process required a gruelling regime of study, personal sacrifice and a perpetual sense of feeling overwhelmed. As Annette explained, while the need to catch up was an accepted reality for the NSB students, the broader demands of life make the process more challenging:

> In my case, I don't think I did that catch up very well. I had a lot of other things going on in my personal life in those first 11 weeks, which basically meant that I didn't really dedicate to my studies at all. I did consider deferring the year – I wouldn't have just quit – but I didn't really commit to it until maybe five weeks in. So, my catch up was not ideal...

In focussing on the lived time aspect of the experience – her delayed actions, the possibility of deferral, the sense of slowness – Annette conveyed the affective and embodied impact of this process; that is, the feelings attached to not doing "catch up very well." Knowing (cognition) is a complex and multifaceted endeavour subject to feeling states and everyday life demands – "a lot of other things going on" – that a phenomenological approach to data brings to view. Returning to the same notion of survival that characterises the guides, Meg related:

> I had to work really hard, all the time. Over and over, students are told to create a healthy study-life balance. This didn't really apply to me. For me, surviving first year at the beginning entailed studying so much and so hard that sometimes I

> forgot to pee. This is not necessarily the healthiest or recommended approach. It was also difficult to sustain. (Deakin Medical School Survival Guide, 2018, p. 16)

For Meg, it is the lived body aspects that are recalled most strongly here. She contrasts the wholesome messages of balance and self-care that constituted more general discourses of being a medical student with the reality of the NSB student's experience of catching up to the rest of the cohort. Annette's and Meg's perspectives resonate with the first-year experience of the other NSB doctors interviewed for this study. Time and again, the NSB doctors recalled and articulated the affective, cognitive, and physical realities of learning science, not just from scratch, but within a curriculum designed for students who have already mastered the field. For Lyn, walking through the medical school building (effectively her "lived space" during the course) as part of our interview triggered strong memories of the anxiety and exhaustion she felt at the time:

> I'm getting these feelings of, like, nerves all over again. But also, the exhaustion… In first year, we used to use these tute rooms to study in between lectures, and they had beds in them, examination beds. And I would sometimes crawl – everyone would be studying – and I would just, like, fall on top of the bed after our morning lecture and just have a little nap, while the others were all studying.

Annette recalled similar times of exhaustion, heightened by the fact that most of her peers were oblivious to the particular challenges she had to face as an NSB student:

> I remember when they introduced renal medicine. I was exhausted, and at one point, I just put my head down on the table to rest, because we had a break between lectures. And I could hear the girls behind me talking and saying, "Oh, are you going to stay for the next lecture?" "No, I don't really want to. A bit boring, isn't it?" And they're like, "yeah, I know. It's all just revision, and I already did it." And I'm like, "Oh, I hate you. This whole three hours for you is skippable, not because you're tired like I am, but because you know it so well that you don't need to be here."

Clearly catching up takes a significant toll on NSB students on all levels of their lived experience of the medical course. Even when they spoke about the experience as an intellectual or mental burden, the embodied nature of the experience is not far away, as Miranda described in the following quote:

> The science aspects of the course material were extremely challenging. There'd be nights where I would just go home and cry, because it was so hard, and I'd just sit at my desk and couldn't understand why I didn't understand it. And so I think the emotional toll that took on me was really hard. And I don't think that the people from science backgrounds could really understand that.

Miranda poignantly draws attention to the emotional isolation of catching up, as well as the cognitive challenges. The contrast with the experience of science-background medical students was an ever-present reality for the NSB students. There were clearly two very different experiences of the medical school going on. The science-background students experienced a curriculum that played to their strengths and allowed for the privilege of formalised revision and skipping classes, while the NSB cohort was positioned to continually work hard and assiduously

to overcome their academic deficit, with significant consequences for their health, affective states, and lived experience of the course. Katrina's experience of her first week of medical school was representative:

> I failed the first week, and that was such a shock and it made all these feelings flood back, like maybe I can't do this, maybe I'm not meant to do this. There was a social event planned that weekend for the new students. The senior students above us mentor us and it was a camping weekend away. It was this fun time where you have a few drinks, you learn a few skills and you get mentored by the students above you. But I was like, I can't go to this thing because I have to study all weekend because I failed my first ever test. I failed.

In these recollections, Katrina initially drew attention to the affective aspects of this early "failure" as a medical student (if a realistic evaluation of her science knowledge at that point can legitimately be called failure). However, the wider consequences of the need to catch up emerged in this passage, particularly on her lived relationality with the rest of the cohort: while "mainstream" medical students were being mentored, learning new skills, and having fun, the NSB student was more likely to be back in their room "catching up" and having ontological doubts about their place in the course ("maybe I can't do this, maybe I'm not meant to do this"). It is hard to escape the conclusion that the expectation of catching up in terms of learning science in such a short amount of time is both unreasonable and potentially harmful. As Kiera reflected at one point of the interview:

> It's like I'm re-living the trauma [*laughs*] of sitting in the lecture theatre. Suddenly it's like coming to and being like, "Where am I? What's going on? I missed the last 20 minutes" [*laughs*]… I think I'm over it now, because I think I'm now fully buying into the fact that nothing that I learnt in those lecture halls makes me a good doctor today.

We see in these accounts a reality for NSB students that differs significantly from the institutional accounts of successful catching up and eventual indistinguishability with the rest of the medical student cohort. And yet, it is clear that the NSB students themselves "buy into" this discourse, at least in the early phase of the course, as evidenced by the NSB student narratives in both the survival guides and participant interviews. NSB students are steadfastly committed to the idea of catching up, affectively as well as intellectually, even to their own apparent detriment at times. At the medical school level, the expectation of indistinguishability appears to be normalised through both cohort and faculty discourses (and even the research literature to a large extent), producing an amalgamation of affective, epistemological, social, and political elements to form an institutional *assemblage* (Deleuze & Guattari, 1980/1987). Its prominence and annual repetition in the survival guides almost has a mantra-like quality to it, as if it has become an article of faith within the institutions themselves. In many ways, it *is* an expression of faith for the institutions – faith in the decision to open up medical school selection to non-science graduates, and faith in the capacity of NSB students to make good their intrinsic "deficit." It is little wonder then that the NSB students appear to be so attached to the idea of becoming indistinguishable; it has become, as Ahmed (2004) puts it, an "affective economy":

> In such affective economies, emotions do things, and they align individuals with communities – or bodily space with social space – through the very intensity of their attachments. Rather than seeing emotions as psychological dispositions, we

> need to consider how they work, in concrete and particular ways, to mediate the relationship between the psychic and the social, and between the individual and the collective. (p. 119)

This passage offers important insight into how the NSB students might experience the institutional expectation of indistinguishability. Just as they are acted upon in deciding to pursue medicine, so too are NSB students acted upon, through affective attachment, to pursue and believe in the ideal of indistinguishability. But the personal cost of striving for this in terms of the wellbeing and lived experience of NSB students is seldom addressed publicly. Such affective attachments have another side, which Berlant has poignantly termed "cruel optimism" (2011) – "when something you desire is actually an obstacle to your own flourishing" (p. 1). Thus, not only is learning the science academically challenging in itself for NSB students, the desire for and expectation of indistinguishability creates further difficulties on an affective level.

Learning science

From a pedagogical perspective, the enormity of the task of learning science content in a short time and on a base of limited knowledge should not be too difficult to foresee. The challenge this poses for NSB students is vividly captured by a metaphor commonly heard in connection with learning science in medical school, as cited, for example, in one of the survival guides: "The course has a pretty enormous science-based workload, and at times lecturers and clinicians refer to it as *drinking water through a firehose*" (WUMSS, 2021, p. 12 [Martin]; emphasis added). The firehose metaphor alludes to both the volume and rate at which NSB students must acquire the science content of the medical course, conveying not only the magnitude of the task, but seemingly also the futility of it. No matter how much information a student takes in, there is always more to come. This prompts the question of whether such relentless memorisation of science is actually necessary, especially when the reforms that led to the formation of graduate schools had foreshadowed a reduction in the factual information that medical students would be expected to memorise (Shanley, 1992). Current-day availability of this knowledge through mobile electronic devices also challenges the necessity and extent of learning such knowledge by rote. Why, then, do the medical courses set up this expectation, not only formally through teaching and assessment but discursively through the notions of deficit and indistinguishability, when NSB students have been knowingly selected without a science background and their contribution to the diversity of the cohort so openly celebrated? I take up these and other issues relating to the status and place of science in the medical curriculum in the discussion chapter. But suffice to say that it is not just the amount of science content that presents a significant challenge for NSB students, but also how the material is presented and taught. One survival guide contains this telling account by an NSB student who struggled to accommodate the different idea of "learning" which this entailed:

> I came into the MD course equipped with a background in theoretical mathematics and quantitative finance... I found it initially difficult to cope with the overwhelming amount of volume, and then being able to communicate the information to those with different levels of health literacy… I had initially tried to replicate what gave me much success in the quantitative sciences, only to realise it did not work in medicine, in part when I realised I had to actually memorise things. (Sydney Medical School Survival Guide, 2022 (Jack))

It is revealing that Jack initially felt himself suitably "equipped" coming into medicine, only to discover that his previous discipline's approach to learning would not serve him well. What Jack alludes to here is the "transmission" model of teaching. As Dan Pratt (2016) has documented, this approach has been commonly associated with medical education, reflecting a particular view of knowledge and teaching:

> It is based on the belief that a relatively stable body of knowledge and/or procedures can be efficiently transmitted to learners. The primary focus is on efficient and accurate delivery of that body of knowledge to learners. Thus, teachers with this as their dominant perspective feel obliged to adequately cover the content, regardless of time constraints (p. 8).

This is a similar approach to teaching to what Lave and Wenger (1991) critique as "internalization" – the idea that learners internalise knowledge through an "unproblematic process of absorbing the given, as a matter of transmission and assimilation" (p. 47). This is exactly what the firehose metaphor of teaching represents: transmission and imbibing (and subsequent regurgitation). All medical students must face this, but it appeared particularly difficult and epistemologically foreign to many of the NSB doctors, especially those who came from humanities disciplines with pedagogies espousing more discursive and dialogic approaches to knowledge construction and creation. In a recent commentary on attrition in medicine, for example, it was reported that an NSB student decided to quit their medical degree precisely because of medicine's pedagogical approach: "I was used to the humanities and a certain style of critical thinking… There was a certain culture mismatch" (Glauser, 2019, p. E174). For Jacqui, an arts graduate and recently graduated NSB doctor interviewed for this study, the difference between learning in medicine and arts was similarly disorienting:

> There's such a difference in the way arts is taught and the way sciences is taught. There's a lot of nuance and grey area in the arts, and you're encouraged to question and people can have different opinions. You back it up... But medicine felt quite rigid. There's facts, it's all very content heavy. The lectures are not inspiring, in general, and quite dense… just a completely different way of doing it. You go and you learn all this stuff in the lecture, and revise it, but you don't get inspired by it to go away and do extra. Just a different culture of teaching. I suppose I got used to it, but I never really enjoyed it.

Not only was medicine's culture of teaching unfamiliar to Jacqui, it was disengaging. Most of the NSB doctors interviewed for this study identified this aspect of the curriculum as a particular difficulty for them, sometimes more so than the actual content itself. Ross was adamant about this:

> I certainly didn't have any trouble academically. The only thing I felt a little bit behind on, especially early on, was the anatomy. Mostly students had already done a formal anatomy course [as undergraduates], so they were more revising, where I was doing it for the first time, so I had to spend a lot more time just brute force memorising stuff.

The phrase "brute force memorising stuff" is an apt way of describing medicine's "signature pedagogy," as Shulman (2005) has called it. Rote learning, according to Shulman, is one of medicine's "characteristic forms of teaching and learning" (2005, p. 52). For most NSB students, this intensive approach to teaching/learning necessitates

a significant adjustment to their previous learning style. Lyn summarised her experience of learning in medicine in this quote:

> Studying in medicine is a lot of rote learning, which is very different to arts. Because arts is all about critical thinking about a certain concept of medicine; medical learning was literally like: this is a lecture, you listen to it, and you remember it word for word. Whereas I was convinced that that was not how you should study medicine, and that that was not what was going to make you a better doctor… [But] by the end, I was like, ok, I'm going to listen word for word to every lecture, and this is how I pass.

Lyn thus had to make a conscious decision to "give in" to a counterintuitive style of learning in order to successfully get through her training. It went against her own beliefs about what she felt would make her a better doctor but, in medicine, she discovered, memorisation is foundational.

Not all NSB doctors managed this process as pragmatically as Lyn and Ross, or as philosophically as Jacqui. Rhys, an older NSB doctor interviewed for this study who had spent several years in academia, found medicine's pedagogical style very difficult to adapt to. When prompted to talk about his first day in the course, his sense of exasperation and incredulity was clear:

> [Researcher] Do you remember your first day in the medical course?
>
> [Rhys] I hated the whole fucking thing.
>
> [Researcher] Right. Tell me a bit more about that.
>
> [Rhys] … I guess the first hard thing was sitting in a lecture hall with lecturers who just talk. I came across very few good lecturers: reading powerpoint slides, just talking, not teaching, just talking, talking, talking. There are some very fine teachers on YouTube. It's an art that's a result of dedication and interest in the material. Maybe it requires experience having difficulty learning that brings about the best teachers, I don't know…

After giving some examples of what a more engaging, dialogic style of lecturing might look like, Rhys concluded: "I felt like I was being spoken at. Just words... and I thought, we're supposed to just sit here and remember this? I couldn't get it. Couldn't get it." In the end, this aspect of the medical course almost defeated him. Asked if he thought his peers shared his view of the teaching in the course, he responded:

> Well it's funny, because sometimes you would ask someone in a moment [about the quality of teaching], and a lot of people would roll their eyes and say, yeah, it was just shit… But we went through the facade, and, you know, I got into a lot of trouble in my third year. And I'll be truthful, I failed my final year of medicine, I had to repeat it. I had a couple of meltdowns, where I was just exasperated. And I just thought, this is ridiculous… I'm not good at… um… self-regulation. I've become better. So I should have regulated myself, but I didn't… So learning was difficult.

We are a long way now from debates just about pedagogical methods. We are once more dealing with the affective as much as the cognitive. For Rhys, medicine's way of teaching triggered intense questioning about his own

difficulties learning under a didactic, transmissive pedagogy, a difficulty heightened by the apparent collusion of the student body. As I discuss in Chapter 7, Rhys' reference to his "failure" of self-regulation highlights the Foucauldian notion of "technology of the self," as a governing discourse of medical schools. In one way or another, this sense of affective and cognitive dissonance in relation to the teaching of science content was experienced by all NSB doctors interviewed for this study. Of course, it is not only the NSB students who must contend with this content-dense and transmissive style of teaching, and it is something that science-background students also occasionally remark upon in the survival guides:

> The medical course is structured very differently to how your average undergrad coursework is structured, and this means you need be adaptable in your style of learning. Your general bread and butter science concepts will translate well, but the sheer volume of content you need to learn and how you are assessed on it (it isn't really difficult per se, just a lot!) makes your known and trusted methods not always the most effective. (Notre Dame Sydney Medical School Survival Guide, 2022, p. 41 (Vanessa))

This sense of confident capability and familiarity ("bread and butter") is starkly different to the experiences of the NSB students. In the above quote, knowledge is stable ("concepts will translate well") and the idea that this content needs to be internalised and then reproduced (in assessments) seems unproblematic. It is only the "sheer volume" that presents the challenge. NSB students must not only manage the sheer volume but also adapt to this unfamiliar, and in most cases unnatural, pedagogy from the moment they enter medical school. One of the key insights that both affect theory and practice theory bring to this issue is the notion that learning is much more than just a cognitive processing activity – it cannot be separated from the emotional, social, or ontological aspects of lived experience. Yet this is exactly how the teaching of science presents the task to medical students, with no apparent concessions for the "catching up" of NSB students. All they have to do is study, unrelentingly.

The firehose metaphor tells us a great deal about how lecturers view science in the medical curriculum and how they believe it should be taught. The purpose of education (at least at this stage of medical training) is to passively absorb information, memorise it, and regurgitate it on demand. Crucially, though, the information is largely revision for mainstream students, a distinction to which faculty often seemed oblivious. As Lyn recalled:

> [In my medical school] most students did the pre-requisite subjects because they did biomed or science [at the same university]. A lot of the lecturers were actually the same lecturers. And they always prefaced with "You guys probably already know this, but I'm going to run through it quickly."

"You guys" are obviously the science-background students, and they "already know this" because the medical curriculum is designed that way. Such careless parenthetic comments reflect a situation in which the NSB students are rendered invisible, adding to their already marginal status and affective dissonance.

The NSB doctors sometimes drew on the idea of "impostor syndrome" to express this sense of dissonance. We saw in the previous chapter how Jacqui used the term in relation to her GAMSAT score and feeling like she had only just made it into medicine, while Kiera, reflecting on her time in the medical course, revealed:

> I've always felt like a big impostor. I've always felt, and I still feel like… I worry that I am missing obvious things that I'm supposed to know. I'm worried that I've connected the dots in the wrong way, but I'm too embarrassed to ask questions, because I think that they're so basic.

Impostor syndrome has been defined as "the internal experience of feeling like a fraud and doubting the validity of one's own achievements" (Chodoff et al., 2023, p. 1), and, it turns out, is quite common in the medical profession overall (Chen, 2020; Chodoff et al., 2023; Franchi & Russell-Sewell, 2022). Indeed, medicine has been termed a "breeding ground for impostor syndrome" (Khan, 2021, p. 1). Previously understood as an essentially psychological phenomenon associated with individual traits such as neuroticism and perfectionism, more recent research conceptualises impostor syndrome as an "affective experience rooted in a host of environmental and social contexts" (Chodoff et al., 2023, p. 2). Thus, while impostor syndrome should not be seen as an experience specific to NSB students, an affective account of the phenomenon does fit with the NSB students' overall experience of medical school. Therefore, the propensity for feeling like an impostor that comes with being a medical student in general is likely heightened by institutional discourses and practices that increase NSB students' sense of ontological marginalisation and uncertainty. This raises questions about how applicable and achievable the concept of legitimate peripheral participation, as a cornerstone of PIF theory, might be for NSB students.

Legitimate peripheral participation and NSB students

When they arrive at medical school, NSB students are ambivalently situated in relation to the larger cohort. They are clearly part of the cohort in the sense that they have gone through the same selection processes as everybody else at their medical school: a solid GPA in their undergraduate degree, competitive scores in the GAMSAT, and strong performance in the interview component. There has been no special pathway for them, they have earnt their place, as their preceding NSB peers are at pains to point out in the survival guides. At the same time though, they are defined as different and deficient by the very term "NSB." While this term is intended to be an academic descriptor, it ultimately takes on a much larger significance, reflecting norms, expectations, and what is valued in medicine.

Within the formal learning spaces, NSB students are thus configured or set on a particular path. In a course where science-background students are not only the norm but also the default learners, NSB students accept their marginal roles in PBL tutorials as the only form of legitimate participation available to them while they are attempting to catch up. As discussed in Chapter 2, this notion is a key element of the PIF process in medicine. As Lave and Wenger (1991) note, "the form that the legitimacy of participation takes is a defining characteristic of ways of belonging, and is therefore not only a crucial condition for learning, but a constitutive element of its content" (p. 35). Further, they write:

> In our usage, peripherality is also a positive term, whose most salient conceptual antonyms are unrelatedness or irrelevance to ongoing activity. The partial participation of newcomers is by no means "disconnected" from the practice of interest. Furthermore, it is also a dynamic concept. In this sense, peripherality, when it is enabled, suggests an opening, a way of gaining access to sources for understanding through growing involvement. (p. 37)

This captures well the dilemma faced by NSB students in the medical curriculum. A sense of legitimate peripheral participation is apparently essential for the formation of their professional identity, but so much about their lived experience of that curriculum makes finding their "legitimacy of participation" problematic: the transmissive approach to teaching science; fact-laden, rapidly delivered didactic lectures; their apparent invisibility to lecturers within a majority science-background cohort; and of course their very deficit-based characterisation. The dominant place of science in the medical curriculum makes finding a legitimate role within the learning environment, at least while "catching up," incredibly difficult for NSB students. This applies both epistemologically, in the sense that their previous ways of knowing and learning are rendered irrelevant, and ontologically, in the sense that they are (apparently) less equipped to follow the sanctioned legitimately peripheral path to PIF. As Vågan (2011) reminds us, "learning is a process of becoming... [and] knowledge and identity constitute each other at the time of learning, as opposed to traditional accounts that distinguish between the two" (p. 44). The passage to becoming doctor for NSB students is thus doubly difficult, for not only are they confronted by the challenge of learning science as novices, their professional identity formation process is simultaneously disrupted.

This is what makes the PBL classroom environment so crucial. The collaborative and self-directed nature of the learning potentially opens up a space for NSB students to participate meaningfully in the collective learning process, if the learning objectives are sufficiently broad in scope. But where such classes become essentially "re-enactments" of science knowledge and hegemony, their place in such classes can become an ambiguous and delicate process of *negotiation,* to echo Lave and Wenger's (1991) notion of learning as a social practice that is both situated and negotiated. While they are supposedly progressing towards indistinguishability, NSB students need to find meaningful ways of contributing to their tutorial group that do not compromise the progress and learning (ultimately reified as academic marks) of the rest of the group. As Poppy admitted in the Notre Dame survival guide remark cited earlier, she was wary of "slowing down" her group with her many questions (another sense in which lived curricular time is experienced differently for NSB students). To their credit, most NSB students *do* seem to eventually find a way of working meaningfully with the PBL group. Here, Meg turned her initial sense of disconnectedness into an asset for the group, and herself:

> Asking questions, constantly, really helped me. At first I felt ridiculous asking other students to explain what they meant by some scientific term they had just used, but it would often turn out that they had learned it in their undergraduate degree, and in fact they enjoyed refreshing their memory and applying it to the problem at hand. In this way, I became an expert question-asker, until slowly, by the end of the year, I was able to answer some of the questions myself. (Deakin Medical School Survival Guide, 2018, p. 16 (Meg))

The NSB doctors acknowledged and accepted their inevitable peripherality in the course and sought a meaningful role among their peers. This might be the expert question-asker that Meg grew into (doubtless an important skill for a doctor), or the designated whiteboard illustrator role that Simon found for himself, until such time as they were able to contribute to the group learning process more directly, as when Meg proudly declared that she could answer some questions herself. As Lave and Wenger (1991) point out, learning is part of the process of increasing

participation in a community of practice and is an "evolving, continuously renewed set of relations" (p. 50). Further, as Buckley et al. note (2019), novices within a community of practice learn to "signal [their] increasing membership of the community through their actions, behaviours, and language" (p. 763). As the authors go on to explain, through such signalling, novices move "from the periphery of a practice community to a socially sanctioned central responsibility and legitimacy" (p.763). Whatever the shortcomings of their design and/or implementation, the PBL classes at least allow for such signalling and evolving to occur.

Challenging the deficit discourse

We have seen how NSB students are positioned institutionally as having a defining deficit in relation to their foundational knowledge when they enter the course, but that, with individual hard work and collective learning with their peers, they can expect to catch up to the rest of the cohort by the time they commence the clinical phase of their training. The attainment of this degree of equivalence is regarded, by the medical schools and the NSB students alike, as a major and essential achievement in their learning and in the context of their PIF. There are, however, aspects of the NSB experience within medical school that do not necessarily align with this narrative. While most NSB doctors do subscribe to the belief that they eventually end up equivalent in terms of medical competence, they also see themselves and their experience as medical students as decidedly *distinguishable* in several ways. A key theme, present in both the survival guides and the interviews, is the idea that their science naivety brings freshness and excitement to their study of medicine. This sentiment is captured well in the following passage:

> Stay excited and curious! You're so lucky to be encountering medical science for the first time – it will be exciting and wondrous to you in a way that it won't be for people who've been studying it for years. Try to let that interest and excitement drive your study, rather than stress about passing your exams. It's a much more sustainable, much more enjoyable way to get through all the content, and I think that it actually helps you retain all the information better, too. (Notre Dame Sydney Medical School Survival Guide, 2018, p. 12 (Georgia))

Such excitement is presented as a distinct advantage that has both emotional and academic benefits. In contrast with their science-background peers, for whom little of the content in first year seems new and who even appear to be "bored" at times with the material, the NSB students bring a sense of wonder to the study of science, which they can leverage to help them get through the required learning.

Similarly, the NSB doctors also regarded the challenges and intense application required to learn science from scratch as valuable transferable skills. They believed that through this process they developed a strong study ethic and good learning habits for the later part of the course when their learning moved to clinical placements, while many of their science-background peers had been "coasting" through the science phase of the course. They viewed this with a sense of pride in their commitment and diligence, as captured by Meg in the epigraph to this chapter. As she subsequently said:

> It was heartbreaking to study so hard and still get low-average marks… But it meant that by the end of first semester, I had established a seriously strong work ethic so that when semester two began, I had a routine and rhythm to my study that I was able to enjoy and sustain. [Deakin Medical School Survival Guide, 2018, p. 16 (Meg))

Moreover, the NSB doctors could also draw on their previous disciplinary learning to bring a different perspective and skill set into medicine. As one NSB student wrote in her medical school's survival guide:

> My previous degree helped me a lot with organisation and time management – essential for staying on top of the course load for medicine. It also really helped with communication skills, which are important for patient engagement in your clinical skills classes and on placement. (University of Wollongong Medical School Survival Guide, 2022, p. 13)

In the context of the dominant position of science in the medical curriculum, such skills at this point may seem small consolation. But from an ontological perspective, these ideas helped counter the pervasive deficit discourse NSB students were subject to when they entered medicine. Such perspectives assert the NSB students' sense as highly capable learners, with alternative knowledges and identities a form of "cultural capital" (Bourdieu, 1997) distinct from the more epistemologically aligned advantages of science-background students. As Edgerton and Roberts (2014) outline, cultural capital can include "adaptive cultural and social competencies such as familiarity with relevant institutional contexts, processes, and expectations, possession of relevant intellectual and social skills… and a more 'strategic conception of agency'" (p. 196). NSB students thus regarded themselves as possessing highly relevant and distinctive qualities that contributed to how they constructed their identities as doctors.

Moreover, this perspective was commonly accompanied by a realistic pragmatism about the true extent of their scientific knowledge. As Annette explained:

> I think that there are things that I'm probably still lacking, which others have better understandings of. But we all have slightly different things and their skills or their knowledge will help them in some areas, whereas my skills and my knowledge will help me in another area, and then I'll be better than them at other things. So it's kind of equally as deserving. Although I wouldn't necessarily want to go head-to-head in a Haematology quiz, because they would win.

Leonie expressed a similar view:

> I was never going to walk into first and second year and get HDs. But that's not really the point… The point is that I can learn the work. I'm not going to be able to compete to the level where someone has done four years full time study on the same thing.

Such reflections are a marked contrast from the NSB doctors' assertions of equivalence at other points of their narratives. Here we can see NSB students pushing back against that discourse from a position of (alternative) strength. Having accepted and aspired to the ideal of indistinguishability earlier in the course, the NSB doctors looked back on that phase of training almost with a sense of bewilderment: How could they have been expected to compete, Miranda pointed out, with students who "lived and breathed science, and whose parents forced them to do times tables while they were in the car"? But as the above comments show, such pragmatism was commonly accompanied by assertions

of their own particular strengths, other knowledge, and skills, including the capability of being able to learn the science *adequately*. They could "learn the work" as Leonie put it. Annette's claim of "equally deserving" is thus a profoundly important statement; from a PIF perspective, it is a significant counter to the deficit discourses and science-based marginalising that NSB students faced in the early years of medical training. As attractive and reassuring as the discourse of indistinguishability may be, the NSB students can be seen to hold onto a sense of PIF that doesn't require letting go entirely of previous learning or identities. As Packer and Goicoechea (2000) suggest, "learning involves not only becoming a member of a community, not only constructing knowledge at various levels of expertise as a participant, but also taking a stand on the culture of one's community" (p. 228).

NSB students thus represented themselves as being very active in the construction of their professional identities. While they accepted the expectation of catching up, and in some contexts claimed to achieve this, in other contexts they were prepared to admit, almost *sottovoce*, that they never truly "catch up" in terms of science knowledge. There is no contradiction here, just the intrinsic and natural variability of identity in the becoming of doctors. Moreover, that concession was quickly augmented with claims of relative advantage when it came to the actual practice of medicine. This sense of having knowledge, skills, and attitudes – and affective affinities – that helped NSB doctors develop their own sense of capability and worth as medical students is thus a key part of their professional identity formation, emerging most strongly when they spoke about their experiences during the clinical years of the medical course, as I explore in the next chapter.

Chapter 6: Negotiating identities, becoming doctors

> [Advice to prospective NSB students] Think long and hard. You will change at your core. And part of that change is really painful. Because it's about identity, and things that are deeply personal.
>
> –Chloe, NSB doctor

> I don't think I'm ever going to be just a normal kind of doctor.
>
> –Miranda, NSB doctor

Introduction

In the previous two chapters, I explored the experiences of NSB doctors as they aspired towards medicine and then, once accepted into their medical course, strived to "catch up" and "fit in" with the predominantly science-background cohort. In this chapter, I focus attention on the lived experience of the NSB doctors in relation to their developing identity as doctors. This period marks the defining transition from medical student to junior doctor. I explore this process of "becoming doctor" largely through the interview material co-constructed with the NSB doctors, and especially the later questions relating to their evolving identities, sense of belonging in the medical profession, approach to clinical practice, and their views on the profession of medicine. As suggested by the opening quotes to this chapter, their identity as doctors figures prominently in the NSB doctors' thoughts on entering clinical practice. As interview participants, the NSB doctors were highly engaged and articulate narrators of their experience in becoming doctors, as they reflected on their identity formation, their thoughts about the medical profession, their approach to practice, and their future aspirations.

In exploring this data, I continue to draw on the theoretical frameworks informing the study as a whole, namely affect theory, practice theory, and becoming. These theoretical orientations have helped sensitise me to the ways in which the phenomenon of PIF manifests as situated, variable, and constantly evolving or, as Vagle (2022) puts it, "shaped and reshaped and produced over time" (paragraph 6). And in keeping with the tenets of the phenomenological approach to research, I strive to foreground and present the NSB doctors' reflections on their lived experience in their own words as much as possible. As Vagle (2018) observes, sometimes it is important to "get out of the text's way" (p. 168) in phenomenological research. Indeed, as I explore in this chapter, at times we can see the NSB doctors in the very process of negotiating their identity as they speak. The data relevant to this chapter are gathered under two broad themes, namely: *Negotiating identities,* and *Practicing medicine.*

Negotiating identities

NSB doctors undergo intense identity work even as they enter the profession as qualified doctors. This identity work is an ever-present feature of their experience of their medical training, particularly as NSB students find themselves positioned as marginal participants in the medical course, constantly reminded of their knowledge-deficit and the imperative to catch up to their science-background peers. The NSB doctors in this study also had to work through the ontological challenges of re-negotiating their previous identities as accomplished professionals or workers in other fields, in a medical school environment where those identities no longer counted for much. Kiera, for example, reflected on her previous work in event management, and how differently she felt as a medical student:

> I learned more being in the hospital and I felt more confident, but it is still sometimes really hard being a student. You feel like you're an annoyance, or you're a burden, all those feelings, which are not fun to have in your 30s when you've had a job where you were really important, and then suddenly you're, like, getting coffees for people. It's weird. It's a weird sort of transition… [it's] just that awful comedown of having been super competent at something and then being so bad at something and it's going to take years for me to be good at it.

This need to "start again," not only in terms of acquiring new skills but also reshaping one's identity, was a significant additional burden for NSB doctors – especially while the medical school's focus was on their knowledge acquisition. While catching up academically may have been an institutional priority, Kiera is more affected by the decreased capacity and confidence that becoming a medical student involves. The PIF of NSB doctors requires considerable and complex negotiation – it is clearly more than a matter of making up a knowledge deficit and fitting in with a more academically-aligned cohort. The NSB doctors' PIF has a sting in it.

For some NSB students, though, the identity work required on this front may not be quite as challenging, especially where the "epistemological distance" between the previous profession and medicine is relatively small. Brad, for instance, previously worked as an engineer, and while there is a considerable difference in foundation disciplines between engineering and medicine, there is a common underlying epistemology that enabled Brad to make connections between the fields:

> I guess engineering is very systematic in terms of working through a problem. I could kind of apply those principles. It helped, because it gave me a bit of a structure… Learning about the lungs and the heart in terms of just pressures and pumps and things like that. I was pretty fine with it, whereas other people struggled a bit more. Logically, I'd be like, "Well if this happens here, then this would be the result here." Whereas other people just had to memorise that because they hadn't dealt with it before and so couldn't work out the steps in it.

Brad's prior learning afforded him the benefit – luxury, other NSB students might say – of actually looking for parallels with his previous profession and striving to understand the new content. Most NSB students have little option but to learn the material by rote, firehose-style. Debbie, a former nurse who entered medical school after several years of nursing, also experienced the change in her professionally identity as "pretty easy," where the main challenge, she recounted, was remembering to introduce herself as a medical student instead of as a nurse. She attributed this

smooth transition to previous familiarity with some of the (bio)scientific content (albeit minimal, in her view), and more so with the working environment:

> I think another advantage of nursing is you have an idea already about how the hospital runs and how the hospital works, and how certain things fit into it. Because I remember when we were studying and people would really agonise about a specific point and I'd be like "oh, you know, realistically it doesn't really matter. Someone else deals with that etc, you know." So I think it helped me form a more realistic viewpoint of what I would actually potentially need to know as a doctor.

For Debbie, her prior knowledge of heath care practice also constituted a form of cultural capital, bringing a perspective on knowledge that could afford much more of an advantage than any knowledge of foundation disciplines per se. Debbie knew where to focus her learning inasmuch as she already knew how things were done in a hospital environment. This knowledge also proved a considerable advantage for her ontologically. Her awareness of medical professional identity had already been shaped by her previous experience as a nurse, certainly in part. She still needed to actively *construct* her medical identity, but for her, this transition did not appear daunting. In both of these cases, practice theory sheds light on what each doctor-to-be might have brought with them to medical school that assisted in their PIF. It wasn't knowledge, despite the overlap in some content and, more significantly, epistemologies. Rather, it was a set of "practice repertoires" (Wenger, 1998) that facilitated the learning and identity construction process: seeking understanding, appreciating transferable principles, understanding knowledge as bound to practice, and knowing the distribution of roles and activities in the workplace. Orienting themselves to the "acting like a doctor" aspect of PIF, Brad and Debbie could draw on embodied capabilities such as these to assist their transition and identity (re)construction.

The identity formation process was arguably more complex for those NSB doctors from the arts, humanities, or social sciences. Former creative artist Chloe offered a poignant perspective on her experience of forming her professional identity as a doctor:

> My identity shift, on paper, becoming a doctor, has been a painful process, and one that I've had to really reflect on with friends who remain in the Arts. And there have been a lot of times where I have felt in a liminal space, like I don't belong to either discipline. The thing about being an artist is, if you're not practicing, others don't see you as an artist. And so stepping away from a creative practice in that world, really invalidated my sense of identity as an artist. And I wasn't yet a doctor. So – who was I?

Chloe's use of the phrase "on paper" is curious, as though the theoretical shift (how she saw herself) was more difficult than the reality (how she was viewed within the medical school). The choice of verb tense is important, with the use of the present perfect signifying the continuation of the affective dimension of this experience. It might be noted too that Chloe's "identity shift" was a matter of ongoing discussion and reflection within the community of practice she referred to as "friends who remain in the Arts." Significant influences on how this shift is made thus derive from outside medicine, indicating ongoing affective attachments to other fields.

We get a fuller sense of Chloe's ontological dilemma as she elaborated on the previous quote:

> I think, as artists in particular, our career is really spiritually aligned with our identities, maybe more so than perhaps someone who's an accountant. So, for me, that made the identity shift more painful. That said [*laughing*], if an accountant wanted to become a doctor, I'd say go for it. If it was someone who was an artist, I would say think about the type of people that you like to surround yourself with, because odds are, that's important to you, and that will change a lot if you become a doctor.

In Chloe's case, the distance between her previous identity and becoming a doctor was far greater than for Brad or Debbie. Art is apparently as far as one can get ontologically (or 'spiritually' to use Chloe's term) from medicine. But Chloe's artist identity was not only bound up with what she did, but also who she associated or "surrounded herself" with. Here too, practice theory sheds light, confirming the importance of *relationality* as a key aspect of PIF. Belonging to the profession of the arts, being an artist when amongst artist friends, in some sense continues. Ties are not cut, and this profession is not left behind.

The importance of relationality for the NSB doctors' identity formation was a central theme in the NSB accounts of becoming doctor. It was referenced in casual comments by several participants about their peers. Katrina referred to medical students as her "nerdy soulmates," among whom she started feeling more "normal" compared to her fellow undergraduate students. Lyn spoke of feeling like a "fish out of water" when she commenced her internship, struggling to find "her people" in medicine. And as we have seen, for Chloe, who she surrounded herself with was of vital importance. Miranda also highlighted the relational aspect of identity when she reflected on her own journey to medicine compared with her peers:

> I always felt like I've had to work really hard to get to where I am. And coming from more of a disadvantaged socioeconomic background has fed into that. And I think that there were times during the course where there was – even though [medical schools] can celebrate bringing lots of people with different backgrounds together in a cohort – it's still based on a lot of privilege. So that's been confronting.

The above comments point to a genuine tension when identities cross social as well as professional boundaries. In some cases, a non-science background acts as a proxy for class differences, providing yet another ontological challenge for NSB doctors. This could also be seen in the way NSB doctors managed their personal and professional identities in public (non-professional) settings, which – on the surface at least – may not appear to be related to class. For Gemma, her NSB status appeared to make her particularly sensitive about other people's assumptions:

> I definitely [feel I have] a more diverse identity. I often find I'll go out and I'll almost try and avoid mentioning that I'm a doctor because I feel like if I say I'm a doctor, people have very particular assumptions about what kind of person you're going to be. And that doesn't necessarily feel like it fits with what I want to talk about at a party… I'm sure there are plenty of people who don't primarily identify as doctors [either]. But I think there are probably a lot of people where

> that's been the main goal in their life and that also then takes up most of their time… I think there would be a lot of people that see themselves primarily as doctors.

Such identity management takes considerable self-monitoring and "performing." At times, the continual juggling of identities could leave the NSB doctors a little uncertain, as suggested by Annette's initially hesitant response to the question of whether she felt she identified as a doctor in the same way as her science-background peers:

> Yeah, for sure... I mean, I don't… wait, no, in some ways, maybe not. In that… I identify fully as being a doctor, [but] I think that there are some people who identify maybe more than fully as being a doctor.

Both Annette and Gemma saw their own identities as doctor as somewhat different to those for whom being a doctor seemed to dominate their lives and identities; in other words, doctors who over-identify with medicine. This was in contrast with NSB doctors, who, Annette suggests, had an alternative identity before medicine. This sense of an alternative identity available to NSB doctors, formed through their pre-medical years engaged in other activities (and practices), proved to be a key influence in how they saw their identity formation, and figured prominently in the context of their developing medical professional identity. What was constructed by the medical school (and medical student body) as a significant deficit – the absence of training in science – was re-interpreted as a distinguishing feature, one that could set them apart from mainstream doctors. Brad, for instance, deployed his previous professional identity strategically, drawing attention to previous competencies, which he re-fashioned as relevant to his work as a medical professional:

> For job applications, there's the questions you have to fill out beforehand, like, "Describe why you're good at communication or teamwork?"… I will use the engineering as a bit of background… as different experience and for communication, working with different teams and different types of people, in different environments.

Lyn similarly valued her previous background as both a distinguishing feature compared to mainstream doctors and an enduring influence on her sense of identity:

> I don't think I would hide my arts background anymore to patients or to seniors or whatever. Because I'm very proud of it… I write a lot about my background of a Bachelor of Arts and how that's grounded how I approach my medicine. And I find that to be quite strong in my identity and how I define myself as a doctor. It's a point of interest and point of differentiation on CVs.

I explore later in this chapter what it might mean to "ground" one's approach to medicine through previous work and identity. At this point, however, I want to focus on Lyn's initial disclosure. Clearly, there were times during medical school when the NSB doctors felt quite vulnerable about disclosing their backgrounds. This went much deeper than the obvious knowledge deficit, which at least could be remedied through hard work. Their NSB status, on the other hand, might seem permanent in certain circumstances or to certain people, such as senior members of the profession. The perceived need to hide their background suggests a lingering prejudice about NSB doctors. The comment about disaffected architects that opens Chapter 4 is, I suggest, a telling example of such prejudice.

The situation is very different by the time the NSB doctors have graduated. Reflecting on her own occasional hiding of her NSB identity, Miranda described how that same identity could be constructed as a strength, as a badge of honour, and, just as Lyn asserts, as a defining quality of who they are:

> Sometimes I would withhold [my NSB]… I remember doing the surgical rotations, where I'd just be with surgeons that were quite abrupt and the typical sort of surgeon persona…. I think I've got a good radar for picking up when it's safe to share stuff like that… But then there's been times where I've kind of fiercely brought up that I have a non-science background, because I feel proud of it, and proud that I was able to get into medicine and that I studied for the GAMSAT by myself and passed it on the first attempt.

Other NSB doctors were even more exuberant in their (re)claiming of their pre-medical identities. Chloe, who voiced significant doubts about the extent to which she might still be legitimately seen as an artist, nevertheless declared that she would bring up her previous work "in celebratory fashion" whenever the opportunity arose. Similarly for Jacqui, her pre-medical Arts degree signified a valued broadening and fulfilling experience, one that she still carried with her well after completion:

> I just loved doing [Arts]. It was so interesting. I'm very glad I've done it… I feel quite happy I've had that experience of just learning all these interesting things, reading all these books I would never have read. Just a great education, analytical skills, and writing skills.

For Jacqui, the idea of a "great education" seemed to include both the vocational/professional (skills) and the conventionally academic (texts) – "reading all these books." Far more than a point of interest, then, these doctors' non-science backgrounds were being constructed as a continuing and integral part of their current doctor identity.

Resisting indistinguishability

This (re)integrated sense of identity emerged as a prominent source of differentiation for NSB doctors with respect to their mainstream peers. Even while the NSB doctors were establishing themselves in their medical careers, they retained a strong sense of distinctiveness in terms of their professional identity. This was captured by Miranda's and Leonie's comments in the opening of this chapter, the former doubting she will ever be a "normal doctor," the latter seeing herself as a "different type of practitioner." Chloe similarly held onto this defining feature throughout her medical training, explaining that she saw her arts background as allowing her to "bring a different perspective" to medicine. Gemma too, saw herself as somewhat of an outsider in the profession, as "a little bit different." For Miranda, such differences were occasionally even discernible in other NSB students:

> Sometimes I'll be chatting to a doctor that I haven't met before, and I'll just get a notion that they think a bit differently. And we'll work out that we both have a non-science background… I find that really interesting.

The continuing attachment (and apparent detectability) of their non-science background presents an important contrast with medical school expectations of indistinguishability. While this notion provided reassurance

during the early years of medical training, forming a consistent and prominent theme in the survival guide literature and even echoed to some extent by some NSB doctors themselves, when prompted to discuss their current practice, the NSB doctors were more likely to question and challenge its applicability to their evolving doctor identities. These assertions of difference play into the wider context of medical education and professional identity formation; as many scholars have pointed out (e.g. Beagan, 2000; Frost & Regehr, 2013), there exist other strong discourses of homogeneity or standardisation within medicine (as I take up in the next chapter), aimed at producing "socially-neutral physicians" (Beagan, 2000, p. 1253). The expectation of indistinguishability, far from being specific to NSB students, appears to apply across the board to all medical students, potentially resulting in a single dominant identity in terms of what it might mean to think, act, and feel like a doctor. This kind of homogeneity is arguably already discernible in the prevailing model of PIF.

The NSB doctors were prepared to accept a constructed homogenised identity, up to a point. Sometimes they were even complicit in creating this, as can be seen in the previously noted instances where some sought to hide their NSB status from senior consultants who they perceived to be unsympathetic to their unconventional backgrounds. On an academic level, at least, most NSB doctors were adamant that they were essentially equivalent to their science-background peers. As Kiera asserted:

> [If] you put my marks in amongst all the other marks of students who have done a science degree, you're not going to be able to pick out my marks as the marks of the person who did an Arts degree. I'm going to have just as much of a chance of getting into whatever college I want to. So we've proven, we've proven that we can do it, [laughs] even non-scientific idiots like me.

But these assertions were more than compensatory claims of academic equivalence; at these moments, the NSB doctors were manifestly buying into the indistinguishability discourse (notwithstanding the self-deprecatory "non-scientific idiots," which actually seems here to be more of a subtle reproach to the deficit discourses and biased perspectives of medical schools). Lyn made a similar claim, conceding the initial difference (the "catching up" of the previous chapter) but then asserting end-of-course equivalence:

> I think the only year [that having a NSB] really matters is the first year. Because there's such a heavy emphasis on science, like the pure hard basic sciences. But after that, you kind of lose that emphasis and the emphasis is more on clinical medicine. And I think everyone kind of blends together after that.

Not being able to be "told apart" and "blending together" are precisely what medical schools expect of medical students, as reflected in the various standardising discourses.

However, for many of the NSB doctors interviewed for this study, such notions of standardisation came to feel like more than just a knowledge requirement, and the notions of celebration of diversity and heterogeneity presented in the previous chapter seemed rather hollow. As Simon noted, somewhat gently, "there were times when [celebrating our diverse backgrounds] became a bit more like lip service." Jacqui put it more bluntly:

> I feel like you are meant to be indistinguishable… It's almost like they try and strip you of your personality and your individuality. You're made to do things a certain way… It felt very much like, once you're in, you're all the same, we'll make you all the same.

For Kiera, such enforced homogeneity reflected a fundamental disinclination of medical schools to truly and meaningfully incorporate NSB students into their curricula:

> I think the [medical] courses are designed for a certain type of student with a certain type of background and then it's easier for them to assume knowledge than to try and encourage diversity in the student population. They may say it's a priority to get people from diverse backgrounds and they may do so on paper, but I don't actually think they care... I think they just want people who are going to pass and students who are going to pay.

Ultimately, according to the NSB doctors' at least, the medical schools are not looking for diversity among their graduates. As Rhys said:

> If you're like me, you're going to find [medicine] exceedingly difficult and frustrating. And if you're not like me, like a regular cookie cutter person, you're still going to find it frustrating, but less so... If you're good at falling into line, and you're not a bit strange, this is the job for you.

Faced with these conflicting discourses, many of the NSB doctors adopted certain strategies and discourses of their own to counter and resist these homogenising forces.

One such discourse can be seen through the NSB doctors' assertions of distinctiveness in comparison with undergraduate-trained medical students. The NSB doctors often referred to the considerable difference between their own life experience as graduates and/or workers and that of school leavers entering undergraduate medicine. Due to their minimal "real world" experience, the NSB doctors argued, school leavers struggle with many aspects of learning as a medical student, especially in the clinical training part of the curriculum. The following comment by Kiera, speaking from the perspective of an intern in her mid-thirties, captured the tone of many of these comparisons:

> We've got a little medical student. He must be only 20, he's a second year undergraduate and we've got some of the doctors trying to teach him about heart block and how to read CTs, and this is his very first placement. I'm like – "just go and talk to some patients, go and learn how to introduce yourself to a patient." Because he was like – "how do I go and ask this person to see them?" I'm like – "go in and say, 'I'm [X]. I'm a medical student. Do you mind if I spend a few minutes talking to you and examining you?'" They'll either say yes or no and just practice saying that. Don't worry about CTs.

While Kiera's comment can also perhaps be read as a criticism of the doctors' teaching priorities so early in the clinical placement, it was primarily a rebuke of the student's helplessness and lack of initiative. It reveals that, for Kiera, time spent with the patient, practicing the verbal and other practice repertoires that are central to a relational profession such as medicine, is more important, at least at this point of training, than learning to interpret clinical investigations. Practice theory explicitly recognises this aspect of professional learning as the "recognisable sayings

and doings" of practice (Bearman et al., 2021, p. 639). From Kiera's perspective, NSB doctors were especially, perhaps even "naturally," oriented to learning such practices.

Leonie made a similar point but – with a few more years as a doctor under her belt – was able to be a little more generous in her assessment of her undergraduate-trained medical colleagues:

> You can really tell the difference between those that come through graduate entry versus undergraduate entry. That was quite remarkable… being, like, okay when you don't know something and being able to ask for help and having just a bit more life skills… It's partly age, partly that [we] are used to being able to critically look at the situation and synthesise information and make a weighted decision. Rather than being perhaps slightly more protocol-guideline driven.

Not being strictly protocol driven turned out to be a significant part of NSB doctors' construction of their medical identity. As Leonie pointed out, NSB doctors were able to draw on their life and work experiences to be more critical and adaptive in their clinical practice.

The NSB doctors' critique of undergraduate doctors also puts focus on the way these students came into medicine. As Katrina explained, their journey was "like a train that has one stop here, and then you get off at this stop and you get all this stuff and this part is just undergraduate. Your world is a lot smaller." From the NSB perspective, the seemingly linear trajectory ("like a train") of the typical school leaver doctor formed a stark contrast to their own more circuitous but considered journey into medicine, a journey that, as graduated doctors, they could now own and celebrate as part of their many-sided medical professional identity. Katrina also drew on the train metaphor as she contrasted her own very different pathway into medicine:

> My non-science background [is an advantage], because I wasn't burned out before I even started. I experienced the world, I did new things, I dabbled in some things that I knew I didn't want to do. So then when I finally started to do medicine it was like, this is my passion. I'm not *railroaded* because my parents have done it and I'm expected to do it. I've done science and it's just what you do. I've experienced life and explored life and now this is what I want to do.

Thus, the NSB doctors re-positioned themselves as possessing different and relevant capacities beyond scientific knowledge. NSB doctors argued that they bring tolerance of uncertainty and a critical perspective, along with a confident relationality with and understanding of patients, which school leavers (initially at least) lack and which cannot be achieved through book learning alone. Such attributes are commonly lauded in professionalism discourses. This was an important corrective within NSB doctors' own narratives to the deficit-based discourses of medical school, and another form of resistance against the expectations of becoming indistinguishable.

Such contrasts with their eventual peers can be seen as narrative constructions that play a key part of their own PIF. To the NSB doctors, real-world experience more than compensated for any knowledge deficiencies they brought with them into – and out of – the medical course, as Katrina and Kiera explained:

> The communication part of medicine was really easy for me. I really enjoyed that because you're talking to people and you take a history and it's just like doing an interview. So once I [completed] the bookwork of science I could just apply my natural people interpersonal skills and it just made this beautiful melding of skills. (Katrina)

> I felt like I could navigate [clinical placements] a lot easier than maybe someone younger than me who had never had a job… I felt like I came into my own a bit. I was winning no prizes for clinical knowledge, but the patients liked me and I found I connected really well with them and I got on well with the doctors. (Kiera)

Compared to their experience in the classrooms of medical school (the "bookwork of science"), clinically based training offered more favourable learning conditions for the NSB students. They managed this transition relatively smoothly, where so many medical students seem to struggle (Malau-Aduli et al., 2020); they established good working relationships with colleagues, patients and supervisors; and they were empowered to integrate their knowledge and practical skills ("beautiful melding of skills") as the pedagogical discourses anticipate (Ginzburg et al., 2015). They "come into their own" as Kiera put it, and their defining (science) knowledge limitations do not seem to matter so much. The NSB doctors thus came to see themselves and to celebrate their very *distinguishability*, as experienced and adaptable learners and practitioners. These realisations formed a critical part of the NSB doctor's PIF.

Repositioning science in medicine

Part of this identity construction, and resistance to standardisation discourses, also reveals itself in the way that the NSB doctors speak about the place of science in medical practice. While the NSB doctors are proud of their achievement in mastering science sufficiently to pass their medical course, and while they accept science as undeniably foundational to clinical practice, once they enter the clinical world they come to question its dominant position in medicine. Reflecting on the science she learned as a medical student, Dianne observed:

> I think as the course progressed, I [realised] that not knowing that level of science didn't affect my decisions on the ground. My clinical reasoning was fine, it was just a lot of the minutiae of the science that I didn't understand. Like, I still don't understand DNA. I just don't… I can't conceptualise it. But then I don't really need it.

Similarly, Annette questioned why medical students are made to memorise so much science, given the way medicine is actually practiced:

> Nobody knows, in the hospital, what something is. Everybody looks it up. Nobody remembers all the scores, or these systems, everyone just looks it up. And you end up actually just using Google. So then instead of teaching all of the sciences, which in 10 years is outdated – like we were made to memorise and learn chemotherapy regimes, with special names like R-CHOP, E-TOP, all this stuff… those things in five years are not going to be what they're using. So there's no point in learning them.

Allowing for some hyperbole here, Annette makes a valid point, alluding to contemporary debates about the role of the internet and, more recently, artificial intelligence, in not only the practice of medicine but also the professional identity of doctors (Bajwa et al., 2021; Jussupow et al., 2022). If all the foundational scientific facts are

now available at your fingertips, why waste time and energy having to memorising it? Clinical practice itself changes according to this view. As Simon explains, "for a doctor to look something up quickly, even on Google, to inform which direction they go in for medication, for example, I think that's actually just part and parcel of current practice." Such reflections on the place of (science) knowledge in contemporary practice are important pedagogical matters, and feature prominently in the NSB doctors' lived experience of medical training. As Kiera reflected:

> Nothing that I learnt in those lecture halls makes me a good doctor today. Even though it's really important to have a foundational knowledge of basic science to be a good doctor, the level of detail that we were going into at that point so early in my career, that's not what's making me connect with a patient that I saw today.

This presents a sharp contrast with dominant notions of medicine-as-science. As Katrina expressed it, for the NSB doctors, science is "just what you do," not a marker of clinical competence. This is a salient echo of Dall'Alba's (2009a) contrast between what one does and who one is becoming. Science may be an integral part of the medical profession but, unlike many of their science-background peers, for whom practicing medicine could be experienced as an *extension* of their scientific identity (Goel et al., 2018; Kumar et al., 2021), for NSB doctors it formed a relatively small part of their own professional identity. As Leonie summarised, seeing a valuable lesson in the recent pandemic:

> Sometimes it's more than just the science. We've been in this situation with COVID for the last two years and [while] there is definitely a medical science component to what's happening, there's also this other economic, social, real human risk… And I think that idea of critical thinking beyond just your specialty is the critical thinking that you get from not just doing science. From doing reflections. From doing something else. From having experience in the world.

Leonie captured an important part of NSB doctors' construction of their medical practice – they were "not just doing science." Far from being a deficit, a non-science background, with all the additional analytical skills and life experience that it brings, was reconstructed as a fundamental part of the NSB doctors' evolving and *distinctive* professional identity, which afforded a particular capacity to practice medicine critically, contextually, and judiciously. In other words, practicing with phronesis, as described in the quote from Montgomery (2006) cited in Chapter 1. Through these reflections on the place of science in their training and clinical practice, the NSB doctors not only re-situated the deficit discourse they had been subject to during their medical training, they also conveyed an approach to clinical practice that accords with contemporary medical scholarship (e.g., Boudreau et al., 2024; Kaldjian et al., 2023).

Practicing medicine

The NSB doctors thus actively constructed a view of medical practice in which not having studied science prior to commencing a course in medicine not only became irrelevant, but could be seen as a professional virtue in itself, an important element of how they practiced medicine and a distinctive part of their identity as doctor. This included bringing to medicine a broader life and practical experience from their previous study and work, as well as being able to situate science in perspective. In doing so, the NSB doctors constructed their practical and relational skills as a strong

influence on the way they practice medicine. As Leonie explained, by way of elaboration on her claim of being a different type of practitioner: "[I have] a better understanding of where people are coming from," and as Katrina put it: "I'm very empathetic and it's very easy for me to imagine what it would be like in someone else's shoes, because I've seen a lot and done different things. I can empathise with different life circumstances."

NSB doctors commonly position themselves as especially skilled in building rapport and empathy with patients, commonly attributing this to their broader life experience and/or previous disciplinary practices. For the NSB doctors, this relational capacity constitutes a key part of their identity as doctors. As Kiera explained, it was this aspect of medicine in which she felt she thrived: "When I'm with a patient I feel like myself. I feel confident… I'm at the height of my powers!" Such rapport and empathy, as the literature tells us (Halpern, 2001; Hojat, 2016), has a direct impact on patient care. Gemma regarded this attribute of NSB doctors as particularly salient in settings perceived as difficult or undesirable by typical medical students. Recounting a clinical placement she had with a GP who was a methadone prescriber, Gemma noted that many of her (mainstream) peers had found working with drug users particularly challenging and confronting, and some were quite judgemental about them. In contrast, Gemma had enjoyed the clinical placement and found it particularly rewarding, adding:

> I think [my non-science background helps me] be a bit more forgiving of someone who might be a challenging patient because you have a little bit more of a critical perspective of the structures and systems that might have meant that that person ended up in that position or something like that. I think that's something that I've worked hard to try and bring that some others maybe didn't.

This acceptance of patient background and circumstances was particularly emphasised by the NSB doctors. Like Gemma, Chloe highlighted her own capacity to manage diversity in patients more comfortably than many of her peers:

> I think I brought a little bit of diversity of life experience as well, because I hadn't come through the mill of undergrad science in the same way that others had…. travel, substance use, communicating in different languages or with people from different communities… I have friends who are sex workers, and that blew some kids' minds.

But for Chloe, it was the patients *as people* that especially moved her as a doctor, something that she felt she carried with her into medicine from her previous career and experiences:

> I've always been very interested in people's stories, which is I think why theatre and the arts were a part of my world for so long. And medicine's full of stories, every encounter with a patient is spilling a story and finding out where the rest of that narrative will go. And will you tread that path together? And who else would become involved? And who are the part players? And, you know, what's our "arc" here? I find that really interesting.

Chloe's reference to the shared "narrative arc" suggests a particularly humanities-oriented way of approaching and working with patients.[13] Clearly, the epistemology of her previous work in the creative arts continued to influence her clinical practice. Speaking of her attraction to the specialties of psychiatry and palliative care, Chloe explained how her narrative focus influenced her practice:

> I think when you have more time to give your patients, you can just really sit and listen and bathe in their stories and their experiences and get a really good idea of their biopsychosocial story. Then, of course, your view of them and their story, and your work with them, and your treatment of patients like that, is generally going to become more nuanced, because they're more three-dimensional.

A similar perspective was described by Jacqui, again emphasising the importance of lived time in such encounters:

> Sometimes I made a connection with a patient. And because I was a student, I had more time… I could sit and chat to them, and get to know them. And that was probably more of interest to me than the specific weird medical problem they had… It's really the person I'm interested in, their life, rather than necessarily the specific medical condition.

There is a striking consistency in these accounts of medical practice by the NSB doctors with the concept of patient-centred care[14] in medicine. This approach highlights the relational aspect of medicine by: encouraging shared decision-making between doctor and patient; viewing and treating the patient holistically, respectfully, and as more than just their disease; and working closely with the patient's family or chosen supporters to deliver the most appropriate care for them (NEJM Catalyst, 2017). The NSB doctors appear to be particularly receptive to this approach as practitioners, supporting the research cited in Chapter 2 (Harding et al., 2022; Hirshfield et al., 2019). Beyond enacting the principles of patient-centred care, the NSB doctors also gave important clues about their emerging identities as doctors in relation to the type of medicine and specialty areas they aspired to practice in. Lyn, for example, was very clear about the importance to her of working with "vulnerable and culturally diverse populations," explaining:

> I think the ability to have a social impact is what excites me when I think about what kind of areas I want to work in. I want to work in migrant or refugee health, stuff like that. Just knowing that I can have an impact with this vocation is very exciting.

For others, their ideal form of practice involved creating a kind of hybrid of their own particular interests or orientation to medicine. Miranda, for example, spoke of aspiring to one day draw on her previous professional work in heritage conservation as part of her medical practice:

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[13] It is worth noting that there is an entire field of research dedicated to narrative medicine, including the works of Charon (2006) and Marini (2016).

[14] Sometimes rendered as "person-centred care" in other health care contexts to promote a more holistic perspective of the person, outside their role as patient.

> I imagine being able to go out and work in rural or remote communities and do some preventive health using cultural materials. That would just be ideal. That's the sort of thing that I can picture and to do that I would need to keep a knowledge of conservation and cultural safety and community.

This theme of melding their identities as doctor to previous work figured strongly in the NSB doctors' talk of future practice. As Miranda alluded to at the end of the above quote, holding on to her previous identities and knowledge while developing her medical professional identity was an important professional aspiration:

> I think my dream is to be able to cling on to my non-science background and skills in the arts and humanities and my knowledge in that area for as long as I can, and even use that in the future… It would be really amazing, I think, if I could sort of marry the two in the future, in a kind of creative career in medicine.

Chloe similarly linked her ideal clinical practice to her previous professional identity and community:

> I have this wild idea that I'll become some kind of spunky arts GP that will just bulk bill[15] all the artists who come through my door, because I know how difficult medical problems are and prevalent among the arts community and how no-one has any money.

The NSB doctors continued to value their non-science disciplines and/or professions as a continuing source of knowledge, understanding, and identity construction. Several NSB doctors mentioned the ongoing importance of books and literature in their lives. We have already seen Jacqui's comment about loving doing her Arts degree, and Kiera also expressed the wish to embed books into her vision of practicing medicine, albeit with an overtly more therapeutic intent:

> My 10-year plan would be to open a GP practice/bookshop/café, and then the waiting area would be adjoining the bookshop, so that when I'm running really late, because I let people talk for too long, people could browse the bookshop. When I see people I'm going to recommend books that I think would be helpful to what they're going through and then they can go and buy them from the bookshop and then have a coffee.

While perhaps not quite as socialist a vision as Chloe's aspiration to bulk bill the artist community, the continuing relevance and valuing of her pre-medical learning is clear, and a further example of how the NSB doctors construct themselves as different.

We saw in the previous chapter that many of the NSB doctors were realistic enough to recognise that their science knowledge remained inferior compared to the rest of the cohort, notwithstanding the confident expressions of eventual equivalence circulating around the medical schools. Subsequent reflections by the NSB doctors revealed

[15] Bulk billing in the Australian context refers to when medical practitioners accept the government's prescribed fee for medical services, so that patients do not need to pay any further costs for their care. Practitioners then bill the government directly for the service. Many medical practitioners choose to exercise their right to charge patients a higher fee for their services, with patients paying the difference between the government rebate and the doctor's scheduled fee.

how this could impact on their PIF, including their choice of specialty. Dianne explained this in terms of how she came to be training as a psychiatrist:

> I'd always felt like I wouldn't be able to do anything too sciency as a doctor… There was that feeling that I couldn't be a [psychiatrist] because I thought that was… too sciency, you know, very pharmacology heavy… It nearly influenced my specialty choice, but I think I overcame it because I had the encouragement from mentors and seniors.

Dianne's mention of the important role of her mentors and seniors aligns with the claims of PIF theory in terms of the importance of role models and highlights how these influences are, appropriately, more formative than base knowledge. Jacqui has similarly remained self-conscious about her level of science knowledge: "I still [have doubts]… some of that goes back to not coming from a science background, feeling like the odd one out, feeling like you're behind everyone else all the time." Nonetheless, as we have seen, Jacqui's decision to become a GP was more positively formed by her patient-centred philosophy than driven by concerns about the state of her science knowledge.

Yet, at the same time, most of the NSB doctors backed themselves in terms of their capacity to learn whatever knowledge or skills they needed to. Katrina and Leonie spoke proudly of this capacity in the following excerpts:

> I like anaesthetics. Procedural work used to scare me, again being from a non-science background, it's all very technical. Anaesthetics is a lot of needles and scans, ultrasound scans and using your hands to do things… I was just used to writing and that's what I would do. So procedures came across as scary because I'd never been exposed to doing that. But now I really love it and I've worked really hard to immerse myself in uncomfortable experiences to make them better. (Katrina)

> If I was doing pathology, I'd have to do a lot more study. I think I could do it, I don't have doubts about that. But I would have to revisit some of those basic sciences again…. And if I wanted to do surgery, I could do surgery. But I don't want to. (Leonie)

These sentiments align with what we have already seen in the NSB doctors – a formidable intellectual and affective capacity to apply themselves to non-familiar domains of knowledge or skills. Despite a lingering sense of knowledge inferiority in some, on the whole the status of their science knowledge played relatively little part in the NSB doctors' future specialist career choices. Rather, they might say, it is experiences prior to medicine and their intuitive embracing of a patient-centred approach to medical practice that influenced their decisions or intentions to pursue relatively under-subscribed specialties, work with challenging populations and/or in under-serviced areas, and seek to develop creative approaches to medicine, consonant with their evolving distinctive professional identities.

Critique of the medical profession

Thus far we have seen a picture emerge of how the NSB doctors actively constructed their professional identities as: highly competent clinicians and communicators; broad-minded and adaptable thinkers; relationally focussed practitioners; choosing to work in areas that align with their social and philosophical values; and striving to integrate their previous identities and activities with their future medical practice. They unashamedly distinguished

themselves from undergraduate-trained doctors, and while they acknowledged the necessity of a science foundation they situated it very much in the service of patient-centred care. Throughout this chapter, we have also seen that the NSB doctors were prepared to critique their own training, including selection policies, curriculum design, pedagogies, rhetorical stances, and – arguably most of all – the discourse of indistinguishability with its double-edged function of encouragement and standardisation. Not surprisingly, then, the NSB doctors were also prepared to critique the profession itself and the system in which they are expected to work. They typically did this from a strong axiological perspective, through which they saw the practice of medicine failing to live up to its avowed principles, and sometimes to their own values and emerging identities.

NSB doctors occupy an ambiguous position within medical school – they are both insiders and outsiders, accepted and celebrated as part of a diverse and mature graduate cohort, all the while being positioned as having a knowledge deficit and constantly reminded of the need to catch up. The NSB doctors in this study could and often did "toggle" between their possible identities as doctors: equivalent vs different; idealistic vs pragmatic; science-capable vs science-limited. This experience clearly influenced their evolving professional identity, sensitising them to tensions and inconsistencies within the medical course, to which others may be more oblivious. In some ways they are the medical schools' 'canaries in the coalmine' when it comes to PIF – a useful characteristic in a profession that ostensibly values and practices collective self-regulation (White, 2014; Wilkinson et al., 2009). But this can also position some NSB doctors as "troublesome" during medical school. As Chloe recounted, in her case it was questioning the pedagogical approach on one particular clinical placement that attracted attention:

> [Speaking out] has had interesting repercussions... In my surgical rotation, I spoke up about group dynamics with a bit of sociology and found myself in the Deputy Head of Surgery's office, [who said], "Why do you have a problem with the way we run things?" [*laughs*]… I wasn't in trouble or anything, it was just a conversation. But I tried to have a conversation about behavioural semiotics and how trust is a social contract, not "I tell you to trust me, and you do it."

This appeal to a different paradigm of education is further demonstration of how the NSB students' previous learning experiences continued to inform their way of seeing and interacting with the medical world. Lyn related a similar anecdote from a clinical placement as a third-year student, when her supervisor made a comment against gender quotas (for male doctors) in the obstetrics training program. Somewhat boldly, Lyn challenged the supervisor's reasoning on the matter, "politely" she pointed out, although to no avail. Lyn then went away and did a "mini lit review," as she put it, and presented some of the evidence around the topic to her supervisor, impressing him with her diligence but still not changing his mind on the matter. Lyn interpreted this as an example of drawing on the critical reasoning skills that she developed through her arts degree. At the end of her clinical placement, she gave the supervisor a copy of *To Kill a Mockingbird* as a token of appreciation. When I asked Lyn why she had chosen that particular book, Lyn explained:

> Because I thought he was very well meaning, but just valued different approaches to reach the same end… Atticus Finch, obviously, he's a guy who's trying to do the right thing for his clients. And I regarded this obstetrician as trying to do the

> right thing for his clients as well, so I wanted to recognise that but also maybe say, there's not just one way to do it. Maybe reflect on Atticus Finch's way of doing it? (*laughs*) I don't know…

Here, Lyn can be seen enacting her previous way of knowing and understanding the world, not only through an initial recourse to a review of the published evidence on a topic (which, after all, is not specifically a humanities approach to knowledge), but more laterally and symbolically through literature. From the perspective of an arts graduate, the vast font of literature offers an invaluable library of exemplars and multiple perspectives and potentially a powerful (and affective) counterpart to rational argument. Much like Kiera's plan to recommend appropriate books to her patients through her envisioned GP/bookshop clinic, or Jacqui's celebration of all the wonderful books she had read through her arts degree, Lyn's anecdote shows how the NSB doctors carried with them into medicine alternative knowledges and perspectives, which they frequently and seamlessly (it would seem) integrate into their practices as medical students and doctors. Moreover, given Lyn's earlier comments about choosing when to hide or reveal herself as an NSB student or doctor, the giving of a book seems like a very significant act on her part. While ostensibly part of their good-natured argument, in reality, Lyn was perhaps showing him 'who she was', ontologically, through one of the defining "tools of her trade" – literature. This anecdote is in stark contrast with the student in the study by Lam et al. (2020), who professed that "a big part of me doesn't come with me to medical school" (p. 406). Lyn, on the other hand, was publicly claiming her particular professional identity as an NSB doctor.

Challenging the system, whether through argument or symbolic gifts, was obviously not the preserve of NSB students alone, but as Gemma reflected, it did sometimes feel like there was a direct link between this tendency and their status as NSB students:

> I think that definitely stayed with me about the people in my cohort, people who tended to be kicking up a fuss about various things. There was certainly an overrepresentation of people with non-science backgrounds amongst those people… Just advocating on things and critiquing systems and institutions and all that stuff.

As Gemma goes on to say, this was not necessarily seen as a problem by the medical schools. Her own medical school openly stated that they were "looking for people who [were] interested in social justice," and she recalled many times when debate on these matters was welcomed. But for Gemma, critiquing the system was also a key part of her own disciplinary identity prior to medicine: "I think if an arts degree teaches you to do one thing, it's to criticise everything and criticise institutions in particular." The "system" often figured in the criticism of the NSB doctors, particularly when it was seen to conflict with ideals of practice. Miranda spoke of feeling "crushed by the system," Jacqui of being expected to "slot into this big machine," Lyn of medical students' individuality being metaphorically "beaten out" of them. Once more, Gemma was quite outspoken about this aspect of medicine:

> The challenge that I've come up against, and I know a lot of friends have come up against, is just the sense of, you're a very, very, very, very small cog in a very, very, very big machine. And [you] don't really have a great deal of autonomy in terms of how you practise as a clinician and how you use your time, or what kind of doctor you get to be on a day-to-day basis.

But none of the NSB doctors sounded defeatist about this harsh reality. Frustrated, definitely, but in most cases they remained positive about the prospects of finding, or rather, creating, a particular place for themselves within medicine.

Perhaps Rhys came closest to a sense of despair at times about the culture of medicine and, given his propensity for frankness and his somewhat different experience as an NSB student and doctor, it is worth spending a bit longer on his perspectives. We have already seen (in the previous chapter) Rhys critique the quality of teaching in medical school and try to negotiate his way through a system and process that sought to impose a standardised identity (the "cookie-cutter"), which he struggled to accept. Finding similar expectations in clinical practice, we get a clear sense of his exasperation, in this case attracting disapproval for taking too long with patients:

> It's funny, they always emphasise, just talk to the patient and look at the patient to make sure there's nothing going on. That's what I was always doing. [*Laughs*] I was always talking to the patient… So I was always doing too much of that, and too much of talking to the family and too much getting to, you know... So that's not the right model… [Doctors who follow protocol], they're the ones that just kick arse, they're the "best" doctors. But of course the patients don't always think that.

Rhys here drew attention to another friction in medical discourses, between the tenets of patient-centred care (requiring time with patients) and the necessary efficiencies of the healthcare system. Typically for Rhys, it was not a tension he was able to navigate easily, being "not good at self-regulation." Rhys thus came to question whether his understanding of being a good doctor was compatible with what the institutions wanted or needed:

> If I was looking back as an interviewer, I wouldn't have accepted me into medicine. I'm not a good doctor, by today's standards… I'll put that a different way… Some of my supervisors like me, because I'm very good with patients. I give them time, and I'm interested in them. And patients like that too. But admin are about speed and efficiency, *and* being good with the patients. But first of all, let's do things by the book. I'm fine with doing things by the book, but I need to think about it.

Far from "not being a good doctor," Rhys reflects once more the NSB doctor relational-focus and axiological alignment with the principles of patient-centred care. And this was apparently acknowledged by both supervisors and patients. Yet this appeared to clash with the efficiency and technical protocol-driven practices ("by the book") of the monolithic health system (that is, "admin"). Rhys' ultimate act of resistance, perhaps, was to buck the conventional professional pursuit of advancement and specialisation, carving out a more "horizontal" career as a locum doctor across different health services:

> I've got 13 weeks of work, there's so much work, it's great… The medical degree has given me *exactly* what I want. I can go anywhere, anytime. I had 10 months off last year. [I have] the ability to support myself, modestly, and to do so with a minimal commitment to any one place, or any one employer at any given time. I can see myself doing this for the rest of my life.

Rhys has thus constructed his professional identity as very much that of outsider, critiquing the profession's surrender to neoliberal practices and protocols for medical practice, while echoing the profession's own discourses related to patient-centred care. Thus, like many of his NSB peers, Rhys rejected the discourse of standardisation in favour of an alternative career and identity which he described as "irregular":

> Because of my older age, I'm better at pacing myself… So, I can think to myself, I feel secure in my idea of myself as trying to just be, to really master the stuff I've learned to this point. Of course, when you're in proximity to a specialist, it can be frustrating or breed feelings of inadequacy or resentment. [But] I don't have to work too hard to let those things go... It'd be worse if I was [working] in that environment, then I'd feel like everyone else, "I've got to push myself to be the best," "I've got to push myself to do this"... So I'm probably better off doing it this way and not feeling those feelings of inadequacy. Not comparing myself because I'm just doing something that's irregular.

It can sometimes be a fine line between individuality and unprofessional behaviour, but with his clinical focus squarely on what is best for the patient, even at the cost of taking on the system or his own wellbeing, Rhys seemed to manage this challenge admirably and professionally.

Medicine is notorious for being a profession with extraordinary and often excessive demands and expectations of its members (Riley, 2004). Doctors are expected to identify very strongly with the profession, arguably to the exclusion of other public identities. We have already seen several of the NSB doctors in this study call out some of their peers for over-identifying as doctors, and several of the NSB doctors, besides Rhys, spoke of overtly resisting this expectation. Kiera openly tried to resist the intense nature of medicine, remaining clear-headed about her own goals and what she expected to get out of the profession:

> There's all this stupid rhetoric around medicine and what you have to give to it and what you have to sacrifice to it and how all-consuming it is, how the only way to get ahead is to be immersed in it… I just think that's absolute bullshit now, for what I want to do with my career. It's not right and it's not what's going to make me a good doctor.

Similarly, Jacqui spoke of the affective dissonances created by the circulating discourses of medicine as a vocation, and how this idea threatened to challenge her other identities:

> I often feel a bit resentful of the attitudes in medicine that are, like, this is a vocation… um, I'm like, it might just be a job for me! Like, it's not, [*laughter*] it's not *that* important, you know. Maybe for me, it's *just* a job. I'm going to do other things as well. I've got kids now, and I've done other things. But it felt like it was pushed, like you're sort of an elite, or you're part of this special profession. I didn't like that kind of idea.

So too did Chloe muse at one point that she felt her own sense of identity was "still not clinched." Such notions of medicine as "just a job," or uncertain identification with the medical profession, are uncommon. Medicine as a vocation has been a long-cherished idea, tied up in broader notions of professionalism, but also in the special and elite status of the medical profession in particular. The word means, after all, a "calling." Doctors frequently talk about profound moments of insight when the significance of this calling dawns on them (e.g., Hayter, 2016), and challenges

to the status quo in medical workforce disputes are commonly rebuffed by appeals to the vocation ideal (Morgan, 2023). So labelling medicine as just a job is a significant act of resistance for a doctor, in many ways challenging the traditional power and prestige of medicine. Rhys especially captured this perspective:

> [In medicine], people treat you so fucking well, you know, and they have lots of myths. And doctors tell themselves all kinds of self-congratulatory myths as well… I'm good. I help people… Like, it's a fucking job… Really, it's something that is kind of an emblem that we take upon ourselves, because it feels so good... But really, it's just a regular job… All you're doing is writing a fucking script and thinking of a couple of algorithms. It's really all it is.

These examples and insights into the PIF of the NSB doctors pose important questions for our understanding of PIF in medical students and doctors. In particular, what do we make of such resistance to normative expectations, criticisms of the medical profession, and ontological reservations expressed by the NSB doctors interviewed for this study? Do they suggest a weaker professional identity in these doctors, potentially because of their alternative academic backgrounds and pathways into medicine? Or do these experiences and perspectives point to limitations in the PIF construct itself, which construes identity formation as fundamentally linear and converging on a standardised version of a doctor? I will explore this issue in the next chapter as part of a broader discussion of the empirical data presented in these three chapters.

Chapter 7: Discussion

Introduction

The opening up of medical school for graduate students from non-science backgrounds marked a significant innovation in medical training in Australia. Not only has this decision helped to bring medicine within the reach of aspiring doctors who come to realise their vocation later in life, but it has also contributed to the diversity of the medical student cohort. To date, however, as we have seen, this phenomenon has received relatively little attention in medical education scholarship, especially in relation to PIF. The aim of this research study was to explore and understand the lived experience of NSB doctors from the initial decision to become a doctor, through medical school, and into early practice as a junior doctor, especially through the prism of their PIF. The empirical data relating to this exploration, drawn from interviews with recently graduated NSB junior doctors and document analysis and conducted through the methodology of phenomenological inquiry, has been presented and analysed in the preceding three chapters.

In this chapter, I recap and explore more fully the key insights and implications of this data, relating these to current medical education scholarship and theoretical concepts of affect, practice theory, PIF, and becoming. In keeping with the phenomenological approach of this study, I aim to illuminate the phenomenon of NSB doctors' lived experiences of becoming doctor in a way that reflects the guiding research questions, but is not necessarily bound by them. Exploring the phenomenon of the lived experience of NSB doctors has led to the emergence of several unanticipated themes, or "lines of flight" in the Deleuzian-influenced philosophy of PIP, which I draw out and reflect upon in this chapter. I conclude by exploring more deeply the arguments and considerations for explicitly adopting a discourse of becoming in relation to medical students' PIF. Later, in the concluding chapter to the thesis, I summarise the key insights and implications of this study for medical education and the NSB experience of becoming doctors.

As I explored in Chapter 4, the NSB students' initial impulse to become a doctor can arise from very different triggers or circumstances. But a common thread is the sense of an attraction or impulse *outside* of themselves, which I have characterised as an affective intensity or attunement. That is, medicine as an *idea* is insufficient. As we saw, many of the interviewed NSB doctors acknowledged that medicine had been on their radar, so to speak, prior to eventually choosing their non-science degree, but for various reasons this idea was not sufficient to choose to *become* a doctor. The idea needs an affective force to initiate the turn to medicine; as Lydahl et al. (2021) have expressed it, "affect connotes attachment and movement" (p. 516). Picking up on a term used by both the NSB doctors themselves and the affect theory literature, I referred to this affective force as a *something*. The specific details of this something change but there is always affect behind it. It is this affective moment that sets most NSB doctors apart in terms of becoming doctors. Their decision to pursue medicine is both relatively "late" and a conspicuous divergence from their previous educational or career trajectory. The affective impulse and force underlying the "something" explains the

"why then" and the resulting steadfast commitment to becoming a doctor thereafter. Kathleen Stewart's (2007) description of "ordinary affects" seems particularly relevant here:

> Ordinary affects are the varied, surging capacities to affect and to be affected that give everyday life the quality of a continual motion of relations, scenes, contingencies, and emergences. They're things that happen. They happen in impulses, sensations, expectations, daydreams, encounters, and habits of relating, in strategies and their failures, in forms of persuasion, contagion, and compulsion, in modes of attention, attachment, and agency, and in public and social worlds of all kinds that catch people up in something that feels like *something.* (pp. 1–2)

Here, too, the language of affect theorists is echoed in the NSB doctors' choice of words: Brad also described himself as "caught" by medicine, in describing the "something" more that he was looking for. These affective experiences and accounts are not quite captured by traditional psychological framings of internal decisions; affect is as much external, a "fundamental encounter," as Deleuze (1968/1994) expressed it, or the "varied surging capacities to affect and be affected" in Stewart's (2007, pp.1-2) terms. Other affect theorists suggest that "affect connotes embodiment and relation" (Latimer & Miele, 2013, p. 8); this is poignantly captured by Katrina in her narrative about how she suddenly felt she could commit to medicine while shelling corn as part of her overseas community work. Much of the literature on medical student motivations for medicine portrays becoming a doctor as a deliberate process based on rational considerations. However, the NSB doctors' narratives suggest that they can experience their vocation as much physically as cognitively. The commitment to aspire to medicine seems to take hold *of them* – they are *affected* – rather than being the result of a conscious and considered decision. Thinking with and through affect helps bring to the fore the intensity and embodied attachment of NSB doctors as they commence their turn towards medicine. This, I suggest, is what the NSB doctors mean when they refer to "something" moving them to pursue medicine: it is the workings of affect.

Experience of science in the medical curriculum

The NSB doctors (as students) are confronted with the reality of coming to grips with science well before they enter the medical course; in fact, from the moment they decide to apply, in the form of the GAMSAT. For many NSB doctors, sitting this exam was experienced as the "hardest part" of medicine. This highlights the importance of an admissions test in the selection process, not just for establishing disciplinary competence, but also in the messages it sends to would-be applicants. Notwithstanding the auspiciousness of medical schools' published eligibility criteria and the breadth of the GAMSAT components, the GAMSAT still presents a formidable science hurdle, and thus mobilises a discourse of scientific knowledgeability and deficit for applicants that will set the tone for their experience in medical school. Science overshadows the NSB experience even before the course begins.

Once in the course, science continues to dominate the NSB students' experience of medicine – not just in the volume of unfamiliar biomedical content that must be learned, but also in coming to terms with a new way of knowing and learning, where transmission, imbibing, and repetition of facts is the signature pedagogy of that part of the curriculum. For many NSB students, this epistemological practice was experienced as more challenging than learning

the science itself – Lyn ("I'm going to listen word for word to every lecture, and this is how I pass") and Rhys ("reading powerpoint slides, just talking, not teaching, just talking, talking, talking") were particularly articulate about this. But the impact of the sheer amount of science content was also a common theme for most of the NSB doctors – requiring "brute force memorising" as Simon put it. Reflecting on that period of their education as now-qualified doctors, several of the NSB doctors argued that that level of rote-learned detail seemed irrelevant to their current practice – partly because of an apparent and undue emphasis on science knowledge for its own sake, but especially when such information is now digitally available and easily accessed in the workplace, as "part and parcel of current practice" as Simon pointed out. This challenge to the amount of science content that medical students are made to learn is not unique to NSB doctors. Similar critiques have been made by clinicians, medical educators and medical students alike. For example, a common trope regarding science learning in medicine is the pointlessness of learning the Krebs cycle.[16] Beloved by many scientists and seemingly regarded as a rite of passage in medical school (hence the reference to the cycle in the epigraph to Chapter 1), this topic requires considerable effort in memorisation, for little apparent clinical benefit. As one academic clinician has pointed out:

> Each and every one of my patients has a Krebs cycle, but I'm often struck by the imbalance between how important this was in our medical education, and how freakishly infrequently it comes into play in the clinical care we provide. (Pelzman, 2019, para 11)

More formally, a prestigious educational report in the US context noted that "students struggling with factual overload may adopt learning strategies such as rote memorization that are inimical to scientific reasoning and inquiry" (Cooke et al., 2010, p. 77), thus highlighting the epistemological consequences of typical medical school approaches to teaching science. Tellingly, interviews with medical students (in general, not just NSB students) have uncovered similar perspectives. In a recent study of medical students' perceptions of their (undergraduate) learning environment, for example, Schei et al. (2018) found that criticisms of their medical course included disconnected knowledge, poor pedagogy, and a lack of critical thinking (pp. 3–4). While this "critical discourse" was somewhat balanced by an "apologetic discourse," which expressed a certain trust in the system to appropriately prepare them for clinical practice, the authors noted that their findings add to a generalised critique of contemporary medical curricula, decrying a "narrow technical focus without broader contextual understanding" (p. 5). More significantly, they argued, referring to medical students in general: "The pedagogy and learning environment described by the informants may be suspected of contributing to impoverished critical thinking, naïve objectivism and deficient understanding both of biomedical science and of how clinicians use knowledge" (p. 6). Thus, NSB doctors are certainly not alone in questioning the impact of their science learning as part of their own learning experiences and identity formation.

This critique of the place and effects of science in the medical curriculum recalls Schön's (1987) notion of "technical rationality," in which a profession's fundamental knowledge base, of which scientific knowledge is the

[16] As an educator in a medical school, I heard this same complaint many times from clinical educators during curriculum meetings.

"prototype" (p. 23), is used to define the profession's claim to expertise and practice. Technical knowledge and instrumental problem-solving are seen to be the primary means of addressing the practical issues dealt with by a profession, and thus come to dominate the educational practices of that profession (Neumann, 2000; Salminen-Karlsson & Golay, 2022). We saw in Chapter 5 how the predominance of science in the medical curriculum went hand-in-hand with transmissive and "internalising" approaches to teaching (Lave & Wenger, 1991), in contrast with more recent practice-based understandings of knowledge and its place in professional practice and curricula. From the perspective of these practice-based understandings, knowledge is not an object to be internalised or possessed, ready to be reproduced on demand, but rather an *activity* and a *process* situated in time and space (Gherardi, 2009). For this reason, practice theorists use language and concepts such as "knowledgeability" (Lave, 2019) and "knowledgeable doing" (Gherardi, 2019) to highlight the crucial difference between traditional (and "transmittable") conceptions of knowledge and more embodied and relational conceptions, which reflect a "mutual constitution" (Feldman & Worline, 2016, p. 3–4) of professional knowledge and activity. As Jean Lave (2019) has recently written:

> To speak of "knowledgeability" rather than "knowledge" implies that, whatever it is, knowledge is always partial and only partially in persons-in-practice. "Knowledge" in practice is not reducible to something distinct from its locations and its active situated production. It is not knowledge that produces social life or *is* social life but rather (a fundamental tenet of theories of praxis) it is the making and doing of social life that produces changing knowledgeabilities as part of ongoing practice. (p. 141)

Thus, knowledge in this sense, *as* and *in* practice, cannot simply be transmitted through didactic techniques, or internalised through self-regulation and brute force memorisation. Such knowledgeability is intimately bound up with how professionals practice: it is thus not only situated and contextual, but essentially inseparable from practice, or *entangled*. As Dall'Alba (2009a) has argued:

> While knowledge and skills are important, they are insufficient for embodying and enacting skilful professional practice, as well as for the process of becoming, that learning such practice entails. Knowledge and skills are gained in order to contribute to this process of becoming; epistemology is in the service of ontology. (p. 54)

Practice theory thus problematises the conception of knowledge as separate to practice, and this is echoed in the NSB doctors' own reflections on science in medicine. As we saw, many of the NSB doctors interviewed seemed dismissive of their received ideas of the role and usefulness of science in practice: for example, Dianne argued that her inferior knowledge of science "didn't affect my decisions on the ground," and Kiera, hyperbolically no doubt, noted that nothing she learnt in the lecture halls "makes me a good doctor today." This is more than the well-documented "forgetting" of previously learned knowledge after medical school (D'Eon, 2006; Swanson et al., 1996); rather, these are clear value judgements about the place of science in the curriculum and in clinical practice. These views may seem odd given that NSB students worked so hard to learn (or at least memorise) the mass of scientific content presented to them in their medical training, especially when they are at other times justifiably proud about this achievement. What they are in fact doing, I argue, is critiquing a view of (scientific) knowledge as "solid, nonreactive, and transmittable" (Lave, 2019, p. 141). Instead, NSB doctors position science as valuable only insofar as it enables

appropriate clinical practice and patient care. And, we should add, their PIF, for these concerns of the NSB doctors are as much ontological as epistemological. As Nicolini (2013) observes, "practices are… meaning-making, identity-forming, and order-producing activities" (p. 7).

To be fair, medical education has already recognised and attempted to respond to these curricular and pedagogical critiques. For example, the "SPICES" model approach to reforming the medical curriculum (Harden et al., 1984) – standing for Student-centred approaches, Problem-based learning, Integrated curricula, Community-based contexts, Electives, and a more Systematic approach to student learning experiences – represents an early recognition of many of the limitations of traditional, transmissive approaches to medical education. Furthermore, one of the espoused intentions of problem-based learning (PBL) was to enable the co-construction of knowledge in realistic contexts (Barrows & Tamblyn, 1980). However, despite the commendable intent of medical curriculum designers, in many medical schools the expected reduction of memorisation of scientific facts did not occur. As one medical educator has put it, "we continue to assess our students on what factoids they can recall, rather than what they can find out" (O'Brien et al., 2019, p. 18).

With the nature of science knowledge still conceptualised as fundamentally self-contained and transmittable, PBL tutorials can remain a difficult space for students to navigate and find meaningful peripheral participation in. As Simon recounted, he became the whiteboard illustrator, while those with previous backgrounds in the sciences provided their "really detailed" analyses. Despite the collaborative, constructivist, and clinically applied foundations of PBL, non-science knowledge and factors are still routinely marginalised, in the pursuit of acquiring those "factoids," as governed by the prevailing system of assessment. As one medical student has observed: "[There is] so much emphasis on learning the physiology, and the pathology, and the pharmacology, that [social issues are] often forgotten, and I think it could be a strength of PBL if those kind of discussions were had" (quoted in Macleod, 2011, p. 820). Even in the face of well-intentioned pedagogical reform, science knowledge remains the currency of the medical school and dominates the early experience and identity formation of NSB doctors. Such an outcome has aptly been described as "reform without change" (Bloom, 1988).

The wider implications for NSB students go well beyond the epistemological challenges and expectations of learning science to the same level as their science-background peers. While such expectations may seem to be a demanding but ultimately assuring belief about incoming NSB students, the evidence from the interviews with the NSB doctors points to a deeper and affective impact. Recall Rhys, who found the unidirectional "talking, talking, talking" by lecturers infuriatingly un-educational, but who in the end turned this incapacity back onto himself – "I should have regulated myself, but I didn't… So learning was difficult." Foucault's (1988) concept of governmentality seems relevant here; memorisation can be seen as another technology of the self, as a means of regulating the self to serve the avowed purposes of the institution and profession. Moreover, the idea of indistinguishability itself can be seen as a governing discourse in the medical curriculum, aimed specifically at the NSB students but with potentially negative consequences – as Kiera reminds us when she feels like she is "re-living the trauma" of early medical school. Meanwhile, the largely repetitive and consolidatory nature of science-based knowledge is also a form of "technology

of the self," by which science-background students produce and reinforce their own self-understandings. Thus, seeking to become indistinguishable from the rest of the cohort is much more than just "catching up" on science knowledge, it involves a certain ontological dissonance. While the place of science and its teaching in the medical curriculum – and its utility in clinical practice – is an important debate in medical education more broadly, it is particularly crucial for NSB students. In the next section, I explore how institutional framings of PIF further affect and compound the way such "technologising" practices impact on NSB students.

Institutional constructions of PIF in relation to NSB students

The way the medical institutions and profession construct what it means to be, and how one becomes, a doctor clearly influences the way the process is experienced by medical students. In the case of NSB students, the experience includes an additional layer of institutional discourse related specifically to their knowledge deficit in science. Primarily, this is experienced by NSB students through the idea and aspiration of indistinguishability with respect to the rest of the cohort. This fundamental expectation is promulgated by the student body and faculty alike, with previous NSB students consistently and encouragingly taking up this discourse in the survival guides. Given that there is some foundation for this belief within medical education scholarship, where the general consensus points to eventual similarity of academic achievement by the end of the medical course, if not earlier, then the aspiration of indistinguishability would seem very appropriate and useful for all parties.

However, as I foreshadowed in the previous chapter, there exist other discourses in medicine that complicate the situation for NSB students, namely, the broader expectation of professional uniformity as a desirable outcome of medical training. Beagan (2000) has documented such "pressure toward homogeneity" (p. 1255) through interviews with medical students, revealing institutional perspectives of the ideal medical graduate as "socially-neutral," with a certain "uniformity of values, attitudes and future practice styles" – producing "essentially identical people," as one student expressed it (p. 1255). As another student from Beagan's (2000) study elaborated:

> We're pushed to be the same person. And I think that probably we're more alike now than when we started… The things that made us real individuals when we started, like our outside interests and our outside experiences, are removed, kind of. And you're given a substitute set of experiences that are all exactly the same. (p. 1257)

Beagan argued that this process of "homogenisation" not only impacts the formation of medical students' professional identity, but also extends to how they see patients, namely, that *their* personal and social differences are likewise largely irrelevant. Taylor (2003) has referred to this pattern of thinking as a "culture of no culture," highlighting medicine's tendency to "systematically discount" the personal and cultural elements of a patient's narrative, in favour of the "essential" and depersonalised medical aspects of their condition (p. 558). More recently, the study by Frost and Regehr (2013) explored another version of this standardisation discourse in medicine and the way it exists in parallel with a counter discourse of diversity. The standardisation discourse was particularly discernible in the medical education literature on PIF, in frameworks for professional development, and in certain curricular approaches such as competency-based education. This version of standardisation was seen to emphasise uniformity, consistency, and

commonalities among medical students and practitioners; in particular, the authors argue, such a discourse is used to "concretely define what is core or essential to being a physician – what every physician should be, what each should be able to do, and what knowledge and skills each should master" (p. 1571). Conversely, the discourse of diversity was seen to emphasise "respect for and the value of individual students and their unique life experiences, educational backgrounds, and identities" (p. 1571). Such conflicting discourses, the authors claim, are commonly mobilised during the process of selection for medical school; prospective medical students are "urged to illustrate what makes them unique and sets them apart from other applicants," while at the same time "demonstrate how, if admitted, they have the potential to become like their peers and colleagues, and eventually *indistinguishable* members of the profession" (Frost & Regehr, 2013, p. 1573, emphasis added). As the authors conclude, "these discourses of standardization and diversity send conflicting messages to medical students about what it means to be a physician and how to become one" (p. 1573).

We have seen these same conflicting discourses exemplified in the data collected for this study: in the way that medical schools officially "welcome" and "encourage" applications from non-science background students while framing them within a deficit discourse; in the medical student society survival guides that explicitly celebrate the diversity of the cohort including the presence of NSB students while emphasising the requirement and expectation to "catch up" to the rest of the cohort; and in the narratives of the NSB doctors themselves, who celebrate their own sense of difference while also wanting to be considered legitimate participants in the medical course and profession. Drawing on social constructionist theories of identity, Frost and Regehr (2013) suggest that students tend to negotiate these tensions in three main ways: by adopting a more standardised identity; by developing an "alternative" identity; or by forging a hybrid identity. The former response typically involves "letting go" of parts of their personal identity (i.e., the diversity element) in order to successfully conform to medicine's expectations of PIF, foregoing their pre-medicine skills, interests or talents – as poignantly captured by the medical student in the study by Lam et al. (2020) who declared that "part of me doesn't come with me to medical school" (p. 406). In contrast, other students cling to their previous identity, "distancing themselves from the norm and resisting and rejecting messages associated with the discourse of standardization" (Frost & Regehr, 2013, p. 1574). Rhys appears to exemplify this response in his conscious choice of an "irregular" career as a serial locum doctor. Finally, in the "hybrid identity" approach, students (or doctors) "selectively borrow aspects from each discourse to construct an identity that allows them to (mostly) fit the standard while retaining enough of themselves that they do not feel lost" (Frost & Regehr, 2013, p. 1574).

Frost and Regehr (2013) noted that this hybrid response was "far less prevalent within the medical education literature" (p. 1574), but only, I suggest, because so little of the PIF literature (at the time of their writing) had focussed on medical students and doctors from alternative backgrounds or minoritised identities. With the appearance of these kinds of studies in the past ten years or so (e.g., Ahmed et al., 2024; Lam et al., 2020; Volpe et al., 2019; Wyatt et al., 2021a; 2021b), such hybrid identities cease to appear so exceptional. As we saw in Chapter 6, many of the NSB doctors in this study were confidently forming (or "melding" to quote Katrina) just such hybrid identities – Miranda with her wish to work in remote communities using cultural materials for preventative health; Chloe and her desire to service

the artist community; and Kiera and her GP practice/bookshop/café. More subtly, the NSB doctors who spoke of working in areas that strongly aligned with their personal values might also be seen as forming "hybrid" or at least "axiologically informed" professional identities; Lyn's desire to make an impact with vulnerable and culturally diverse populations is a good example. Of course, such identities and practice choices are not limited to NSB doctors alone, and just as Frost and Regehr's (2013) study was a broad-based investigation into medical culture as a whole and not focussed on any particular cohort, so too would the practice of many science-background doctors be influenced by their own (personal) values and alternative value systems. (As noted at the outset, this study was not set up as a comparative investigation.) But as we have seen, the NSB doctors' lived experience as medical students is characterised by constant encounters and reminders of their marginal position within the medical cohort; affective and ontological dissonance is never far from the NSB student lifeworld and thus, such hybrid identity formation takes on added significance in their case.

As Frost and Regehr (2013) summarise, "the discourse of standardization strives for homogeneity, fundamental sameness, and a limited range of possibilities. It conveys the sense that there is a single uniform way of being a competent, professional physician" (p. 1572). This echoes the critique I have ventured in previous chapters about the dominant PIF model in medical education. The central aspects of the PIF model, namely the explicit characterisation of the student identity journey from legitimate peripheral participation to full participation within the (mainstream) community of practice, the model depicting identity formation as a convergent, staged process, and the culmination in the endpoint of "being a doctor," also suggest a "single uniform way" of forming a professional identity. Like the discourses of standardisation, the PIF model can counter, and potentially erase, alternative pathways or forms of identity. Similarly, while the discourse of indistinguishability may be framed in the context of epistemology, as a necessary corrective for an intrinsic knowledge deficit, it is manifestly experienced by NSB students as a much more pervasive discourse. As Jacqui reflected poignantly about her experience of medical school: "I feel like you are meant to be indistinguishable," and it is clear that she did not mean academically. But in the context of medical school discourses that tend towards homogeneity and standardisation, the notion of academic equivalence can rapidly slide into the expectation of ontological uniformity.

As we have seen, the NSB medical students initially embrace and commit to the promise of indistinguishability. The reflections of the junior doctors interviewed for this study echo the folklore of the classrooms and collective stories of the survival guides that, with hard work and dedication, they too will catch up to their science-background peers and exit the medical program as fully-fledged members of the medical community, their non-science background undetectable to outsiders. Yet several of the NSB doctors subsequently expressed scepticism about this expectation, pointing, quite logically, to the vast difference between their "crash-course" experience of learning science in one year and their peers' in-depth knowledge and immersion in the area, "living and breathing science" as Miranda put it. Despite the apparent equivalence "on paper" (that is, through formal assessments), as suggested by the bulk of the research literature, and their own expressed pride in what they were able to achieve during the catching up phase of

their training, many NSB students graduate with the private realisation that they are never going to match their peers with undergraduate degrees in science.

One could thus argue that the notion of eventual indistinguishability in medical school serves primarily as a necessary fiction, or "cover story" (Clandinin & Connelly, 1995), promulgated by the medical institution (and to some extent the NSB students themselves), in order to, one might speculate, provide hope and reassurance for the demanding and onerous early phase of the medical course, as well as to preserve its reputation and belief in the efficacy of its training and ultimately, the competence of its graduates. It might be tempting to view such a story as beneficial all round, but to do so would be to overlook the physical and emotional toll that such an expectation creates in the lifeworld of the NSB student. Every NSB doctor interviewed for this study spoke of the physical, mental, and/or emotional burden of catching up, while the survival guides are just as revealing about this aspect of NSB life. Recall Meg, who wrote of having to work "really hard, all the time," forgetting to go to the toilet, and noting wryly how this expected (if not quite enforced) lifestyle clashed with the "healthy study-life balance" with which the medical school harangued ("over and over," Meg recounts) the medical students. Like the science lecturers referring to "you guys," such advice on wellbeing could only be applicable to those who didn't need to study during most of their waking hours.

Such unrealistic expectations risk inflicting a form of epistemic injustice (Fricker, 2007; Percival et al., 2024) – that is, a form of "unjust dismissal of the epistemic contributions of marginalised knowers" (Nikolaidis, 2023, p. 842) – on NSB students. This influential concept in education research has recently started circulating in medical education (Luong et al., 2024; Percival et al., 2024), where it has been described as occurring when "legitimate knowers are discredited based on their social identity" (Percival et al., 2024, p. 497). It has been applied in particular to shed light on patient-doctor encounters, the experience of women and minoritised clinicians, and, in the education context, principally to the experiences of underperforming learners and of learners from historically excluded groups, including on the basis of gender, sexuality, race, and age (Percival et al., 2024). Encounters in these contexts can result in "epistemic harm," the "injurious effects and consequences" that stem from experiencing epistemic injustice (Luong et al., 2024, p. 2). I similarly argue that the NSB students are in effect marginalised as knowers since their previous learning and ways of knowing appear to count for little in the world of medical school. And as Zembylas (2022) argues, epistemic injustice is also affective injustice:

> affective wrongs are not separated from the epistemic but rather are embedded in them… [T]o unfairly dismiss the epistemic contribution of marginalized individuals and groups… is to simultaneously unduly reject the affective value of their contribution. (p. 706)

This type of "epistemic-affective injustice" (Zembylas' term) seems to underlie many of the NSB doctors' reflections about learning science. While the NSB students might have been expected to know that this was going to be a difficult and demanding process, the added element of being positioned as marginalised knowers/feelers was likely less foreseeable. In many ways this phase of the medical course marks a low point in the NSB doctors' reflections on their lived experience of becoming doctors.

The extent to which this concept might apply to a marginalised group based on disciplinary background is, of course, open to argument. The fact that NSB students are recognised as knowledge-deficient in science is not in itself an epistemic injustice; the need to learn science from scratch is a legitimate and known requirement for incoming NSB students, which they consciously accept when applying to and accepting a place in medical school. However, being expected to reach equivalence with their science-background peers is another matter entirely, as is being judged by supervisors as intrinsically less competent (or legitimate, if one is a "disaffected architect") because of their non-science background. In such an environment, it is no wonder that the NSB doctors might choose to strategically hide their background in certain "unsafe" clinical learning contexts.

And yet, to their credit, the NSB doctors still manage to work their situation within medicine productively. What the NSB doctors lack epistemologically, they maintain, is made up for by what they bring in terms of broader and clinically applicable capacities, such as interpersonal skills, work ethic, and broader life experience. As Leonie stated, she "can learn the work," while, for Annette, the NSB doctors are "equally deserving." This is equivalence of a different kind, but importantly, it is not indistinguishability. Rather, in an ironic twist on that discourse, it is the *mainstream* science-background medical students who turn out to be most at risk of appearing indistinguishable. As another doctor in Beagan's (2000) study reflected, "I think the training tends to streamline and produce sort of a cookie cutter as you come out the end" (p. 1257). The connection to Rhys' use of the same metaphor (Chapter 6), where he expressed his disdain for the expectation of conformity and sameness in medical students by the medical schools, is significant. You need to be good at "falling into line" he claims, a "regular cookie cutter person" – an expectation he himself struggled to manage. And we saw other NSB doctors express similar views: specifically, Jacqui, who claimed that "they try and strip you of your personality and your individuality" and Kiera, who states that the medical course was clearly designed for "a certain type of student with a certain type of background," exposing the shallowness of the outward-facing celebration of diversity. In marshalling these critiques of their medical course, the NSB doctors can be seen to actively resist the expectation of a standardised medical student identity. Once more, Packer and Goicoechea (2000) capture this form of resistance well:

> To be posited by the public practices of a community is not all it is to be human, and it is not enough. Human being is always positing as well as posited – always pushing beyond the identity conferred by a community of practice. People actively strive to come to terms with the practices of their community, adopting an attitude, taking a stand on the way membership of a community has positioned them. As they do this their activity acts on that community, reproducing it or transforming it. (p. 234)

Nor are the NSB doctors the only student subgroup who adopt such a position: research into the experience of first-in-family higher education students has similarly identified assertions of a distinct identity and multiples sources of capital (O'Shea, 2016), as well as collective resistance to the institution's expectations of homogeneity (Brosnan et al., 2016; Southgate et al., 2017). These data and research threads suggest a much more complex response to becoming a medical student for NSB students than the current model of PIF seems to suggest. While initially accepting the deficit discourse and embracing the challenge of catching up, the NSB students gradually come to re-

position themselves with respect to their identity formation, holding on (in various ways) to their previous disciplinary or professional identity, questioning the expectation of homogeneity with the rest of the cohort, adopting more strength-based discourses regarding their own clinically relevant attributes), and forming their own sense of professional identity based on good doctoring, particularly reflecting the principles of patient-centred care and phronesis.

The good doctor from the NSB perspective

The idea of the "good doctor" is a prevalent idea in medical literature (e.g., Bennett et al., 2017; Collier, 2012; Fones et al., 1998; Maudsley et al., 2007; Stergiopoulos & Martimianakis, 2023; Whitehead, 2011). Beyond the "shopping list" of desirable attributes that much of this literature produces on the topic – competence, communication skills, empathy, professionalism, altruism, continuing professional development, and so on – this concept plays a significant part in informing decisions about student selection, the medical curriculum, professional identities, and social responsibilities of clinicians (Stergiopoulos & Martimianakis, 2023; Whitehead, 2011). The concept also emerges as a key influence on the NSB doctors' thoughts on their own identity formation and, in particular, ideas about their own clinical practice, even without specially referencing the phrase (although they do this often enough too, as seen in previous quotes from Kiera and Rhys). I alluded to many of these reflections in Chapter 6, as part of presenting data relating to the NSB doctors' reflections in the context of how they considered they currently practiced as doctors or aspired to practice. In that context, I highlighted how the NSB doctors presented themselves as: having a strong focus on relating to and caring for patients; using practical judgement and thoughtfulness in the application of medical knowledge (as opposed to protocol-driven approaches); and having a propensity to critique the medical profession when it did not seem to support these values and goals. In other words, established key principles in medical practice and professionalism, such as patient-centred care, professional self-regulation, and phronesis, all figure prominently in their views of being a good doctor.

In Chapter 2, I discussed empirical research in medical education that noted an association in medical students from a non-science background with the principles of patient-centred care. This practice has been described as "revolutionary" (Epstein & Street, 2011), in the sense that patient-centred care enshrines a "deep respect for patients as unique living beings, and the obligation to care for them on their terms" (p. 100). It is also an "important signal" about medical professionalism (Hilton, 2008, p. 355). The principles of patient-centred medicine seem to shine through the NSB doctors' thoughts about what matters in medicine and how they aspire to practice. Chloe's description of her deep interest in patients as people, each with unique stories, and how she embraces the opportunity to "just really sit and listen and bathe" with respect to these stories and with the aim of a more "nuanced" treatment, is an excellent example of patient-centred care. Similarly: Jacqui's declaration that getting to know the patient was of more interest to her than the specific medical condition; Katrina feeling "at the height of her powers" when she's with her patients; Gemma embracing the challenge of working with drug users without judgement; and Rhys' bewildered realisations

that his teachers' exhortations to "just talk to the patient" were apparently not to be taken literally, all reflect in their own way a deep commitment to the philosophy of patient-centred care. [17]

We perhaps get a better idea of just how significant these declarations of patient-centredness are when we see what the opposite can look like, under the pressure of the "realities" of the health care system, or just the misguided expectations of some clinical educators. A Harvard medical student, reflecting on the expectations of his supervisors in regard to patients, relates:

> They don't want to hear the story of the person. They want to hear the edited version... You're not there to just talk with people and learn about their lives and nurture them. You're not there for that. You're a professional and you're trained in interpreting phenomenological descriptions of behaviour into physiologic and pathophysiologic processes. So there's the sense of if you try to tell people really the story of someone, they'd be angry; they'd be annoyed at you because you're missing the point. (Good, 1993, p. 78)

This clash between biomedical and more human or patient-centred approaches is a common topic in education literature. For example, in her book *Learning to be Professionals*, Dall'Alba (2009a) refers to the former as a "decontextualising" of disease from the patient's lifeworld (p. 97) and presents several rich accounts of medical students at the Karolinska Institute working through these very tensions. In the context of practice dominated by biomedical discourses, the principles and values of patient-centred care might well seem revolutionary; in fact, some scholars view its enactment as a part of a critical-emancipatory (after Habermas) thread in medical professionalism (Links et al., 2019). But the NSB doctors speak of these principles and values as if they are natural extensions of their affective relations with medicine, of their own sense of capability based on their previous learning and/or experiences, and perhaps also of their well-honed resistance to standardisation discourses in medicine.

Connected to this idea of patient-centred care is the concept of *phronesis*, an Aristotelian concept that emphasises good judgement and practical wisdom over theoretical knowledge (*episteme*) and technical know-how (*techne*) (Kinsella & Pitman, 2012). This is a particularly important idea in medicine, and has been characterised epistemologically as an approach which is "grounded in hermeneutic explorations of the illness experience, the clinical encounter, and clinical understanding" (Boudreau et al., 2024, p. 166). It has strong connections with practice theory, in which context Nicolini (2013) has described it as "action informed by knowledgeable value-driven deliberations" (p. 26). Thus, phronesis is both axiological and epistemological, and is frequently used as a contrast to formulaic or protocol-driven approaches to clinical practice. As Sellman (2012) describes it, phronesis goes beyond "mere routine application of technically derived protocols or algorithmic responses to the complex issues facing practitioners in their everyday work environments" (p. 115). As Sellman explains further:

[17] Dall'Alba (2023) proposes a similar capacity in health professional education and practice which she calls "responsive attunement." This concept explicitly includes patient-centred care among other important healthcare-related attributes, and in many ways also appears similar to the contextual judgment process of phronesis.

> Despite the development of protocols, decision-making trees, and various algorithms to guide practice-based decisions, science (and the technical rationality that underpins these developments) is unlikely to equal let alone replace the human judgement necessary to make the best decision in any individual instance. (p. 120)

This is precisely the point that some of the NSB doctors sought to make in describing their own approach to practice – as exemplified by Rhys' protests about health systems' insistence that everything has to be "by the book" and his need to "think about it" when treating patients, and Leonie's description of undergraduate-trained doctors as "more protocol-guideline driven." Once more, as in the case of patient-centred medicine, these doctors are not evoking phronesis as a learned concept or trope, rather, it comes from their own "first principles" of what matters in their practice as doctors and in their conceptions of professional identity. Indeed, phronesis, as the "capacity to make sound judgements," has been described as the "hallmark of a professional" (Higgs, 2012, p. 79). Further, Sellman's (2012) allusion to Schön's critique of technical rationality highlights how the notion of phronesis can be mobilised as a counter-discourse to the discourses circulating in both science and managerialism regarding the efficacy of clinical effectiveness. The NSB doctors provide strikingly corroborative evidence of the importance of phronesis in their conceptions of practice: Leonie in noting that "sometimes it's more than science" when it comes to being a good doctor; Gemma in "critiquing systems and institutions"; and Rhys in resisting the prioritising of "speed and efficiency" that he attributes to the administration of the health systems. It is therefore not surprising that the NSB doctors should gravitate to or naturally align themselves with phronesis as a guiding philosophy of practice.

While these critiques may be read as an expression of disappointment in the institutions or a sense of disenfranchisement with the profession, they may also reflect the very spirit of scrutiny and professional accountability that characterise professionalism (Cohen, 2006). Critique comprises one of the knowledge resources that NSB students commonly bring to medical education and is not necessarily negative. Certainly, their embodiment of patient-centred care and phronesis shows that, whatever challenges, extra burdens, and ontological dilemmas they experience, these students do "get there" as doctors. Despite their resistance to standardisation discourses, their critique of science in the curriculum, scepticism about depictions of medicine as a vocation, and perceived shortcomings of "the system," the NSB doctors can be seen to arrive at what the literature regards as the standard of a good doctor. Or, I should say, they do not arrive as such, but rather, they continue their process of *becoming* that kind of doctor.

PIF as a becoming

As we have seen, a fundamental goal of the current PIF model is that medical students come to "think, act and feel like a doctor." This tends to be treated unproblematically in the literature, without any apparent recognition of the force or implication of the singular noun, namely, that there is a standardised and singular version of a doctor. Defining PIF as convergence with such an ideal runs the risk of advocating an implicitly hegemonic notion of doctor, in contrast with contemporary understandings of the multifaceted and dynamic nature of identity formation and professional becoming. Further, there is an intrinsic ambiguity in the "feeling" component that is rarely addressed when teachers or researchers evoke this phrase. In the context of PIF, it seems natural to interpret "feel like a doctor"

as shorthand for how one *identifies as a doctor*. But the verb "feel" can also refer to affect and emotions, and in this sense, it seems necessary to ask, "how exactly should a doctor feel?" As already noted, this is a relatively neglected aspect of medical education (McNaughton, 2013). Additionally, traditional accounts of medical professionalism tended to view emotion and empathy as undesirable in clinical medicine, preferring equanimity and "clinical detachment" (Halpern, 2001; Ofri, 2013). While such views are increasingly at odds with more contemporary views of the role of empathy and compassion in medicine (Halpern, 2001; Hojat, 2016; Jeffrey, 2021), the tacit ambiguity around the notion of "feeling like a doctor" risks consigning such important debates to the realm of the hidden curriculum.

Another way in which the current conception of PIF is at odds with other educational theorists' views of identity formation is the notion that the PIF process involves a fixed endpoint, at which stage a medical student might be declared to finally and definitively *be* a doctor. We have seen in Chapter 2 how this notion of *being* is embedded into the highly influential Miller's Pyramid of student competence (Cruess et al., 2016), where PIF is finally achieved when a student can "consistently demonstrate the attitudes, values, and behaviours expected of one who has come to 'think, act, and feel like a physician'" (p. 181). This focus on *being* has been justified on the basis that, in terms of professional practice, "what one is" is more important than "what one does" (Hafferty, 2009, as cited in Cruess et al., 2016). Teaching and assessing for this "competence" is thus seen as a "sounder basis for the consistent presence of professional behaviour" (Cruess et al., 2016, p. 181) than focussing on clinical skills alone.

The findings of the current study challenge this view of being as the definitive endpoint of PIF. Primarily, the teleological nature of identity formation in the PIF model is problematic. Whether intentional or not, the model represents identity formation as an essentially linear process, which ends in a homogeneous identity that can be formally recognised as achieved; that is, in terms of "what one is". However, given that identity formation involves ongoing construction and negotiation, it would seem unrealistic and premature to define a point at which that process has come to a final state. Even the proponents' concessions about "occasional times of regression" noted in the previous chapter suggest a fundamental *telos* or linear movement towards a prescribed endpoint. Such notions of uniformity, linearity, and fixed endpoint of professional identity seem no longer tenable in contemporary medical education, especially given the experience of marginalised students and/or doctors (McKimm & Wilkinson, 2015; Trevino & Poitevien, 2021; Volpe et al., 2019; 2021; Wooten et al., 2023; Wyatt et al., 2020; 2021a; 2021b; 2022). Nor do they appear to account well for the experience of NSB students reported in the literature (Ahmed et al., 2024; Lam et al., 2016), or indeed the NSB doctors interviewed for this study. As Veen and de la Croix (2023) have argued, modelling the process of identity formation through "is" introduces the risk of representationalism, potentially reducing a complex ontological phenomenon to a narrow set of prescribed, and institutionally sanctioned, external behaviours.

As we have seen through the narrations and reflections of the NSB doctors, professional identity is in fact commonly recounted as a non-linear process, constantly forming/reforming. We saw how otherwise committed and passionate NSB doctors such as Jacqui, Kiera, and Rhys could actively resist an "all-consuming" identification with medicine, and how Chloe, who had clear aspirations of how she wished to practice medicine and service the artist

community, could nonetheless declare that her own self-concept of being a doctor is "still not clinched." Under a model of PIF which emphasises a linear trajectory and convergent notion of medical identity, such expressions might be interpreted as reflecting an ill-formed or 'weak' professional identity. Given that a weak professional identity is regarded in the literature as an underlying cause of professional issues such as burnout, teamwork problems, poor resilience, or stress (Barnhoorn et al., 2022; Li et al., 2022; Rees & Monrouxe, 2018), such expressions might well be cause for concern. However, viewing PIF through the lens of *becoming* offers an alternative perspective. Becoming implies a *process* of identity formation rather than a final state. As Dall'Alba (2009b) elaborates: "when we take account of ontology, professional education is *reconfigured as a process of becoming*; an unfolding and transformation of the self over time" (p. 43, emphasis added). Becoming is thus an explicitly ontological phenomenon, one which is as an integral part of professional education and practice, and which may be seen in students' "transformational relationships with knowledge, teachers and other students," as Nieminen and Yang express it (2024, p. 1037). Such becoming does not conform to staged models of professional development, as Dall'Alba (2009b) once more highlights:

> Contrary to what prevalent models of professional development would have us believe, this process [of becoming] is unlikely to occur in a predetermined or linear sequence… but rather to follow a range of possible development trajectories… This unfolding is open-ended and always incomplete. (p. 43)

Dall'Alba, of course, is alluding here to the novice to expert models popularised by writers such as Dreyfus and Dreyfus (1986), but her critique is highly applicable to the current model of PIF. The notion of becoming as an "unfolding," as "open-ended" and "always incomplete," is an important corrective and productive augmenting of the current model of PIF in medicine.

This application of becoming has been taken up alongside practice theory as a way of exploring the nature of professional learning. In the edited volume entitled *"Becoming" a professional: An interdisciplinary analysis of professional learning* (Scanlon, 2011), for instance, Scanlon explains the concept of becoming as entailing a view of identity formation that is emergent and lifelong, an "ever changing phenomenon, never fully realised, always in the process of becoming other" (p. 14). Echoing similar insights from practice theory, Scanlon argues that professional becoming "cannot be reduced to the acquisition of knowledge and skills within formal educational environments which are then enacted in a professional workplace" (p. 14). The concept of becoming thus serves the purpose of bringing to the fore the ontological aspects of professional education, beyond knowledge, skills, and competence. As Wenger (1998) notes: "because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming" (p. 215). This is an important corrective to competency-based approaches to medical training which might be seen as playing down the ontological aspects in favour of an overtly skills-based approach. As Jarvis-Selinger et al. (2012) argue, a model of PIF which incorporates the notion of becoming (as well as being) helps counter two inherent problems of competency-based training, namely: "the tendency to atomize and fix what is essentially a dynamic and evolutionary process of becoming a physician and, second, the tendency to focus on minimally acceptable levels of 'competence' as an indication of readiness to practice" (p. 1189).

The findings of this study align with the ontological and processual conceptualising of PIF that becoming provides, in contrast with the more instrumental and epistemological focus characteristic of competency-based approaches in medical education, and, as I have argued above, narrow interpretations of PIF as linear and convergent. The findings also reflect the underlying methodology of this study, post-intentional phenomenology (PIP), which, in line with its post-structural foundation, conceives of "knowledge, being, and becoming as situated, partial, unstable, and endlessly deferred" (Clifden & Vagle, 2020, p. 38). Thus, researchers working with the PIP approach frequently resort to the notion of becoming to explain their *own* methodological practice. As the above authors go on to say: "Post-intentional phenomenology is not one thing – it is many. In fact, it is as many as there are qualitative inquirers who take it up. It is, by its very nature, a malleable ontology-methodology in a constant state of becoming' (p. 36). This philosophical position aligns with the way that post-structural thought has been taken up by many educational scholars, and to some extent by medical education researchers, to produce a particularly nuanced and comprehensive reconceptualising of becoming, offering further insight and perspectives towards an expanded understanding of the PIF process.

The notion of becoming is central to the works and intellectual tradition of Deleuze (and his collaborator Guattari[18]) and is closely connected to his views about difference and identity. According to Holland (2013), Deleuze insisted that "difference and becoming should have priority over identity and being" (p. 2). For Stagoll (2010), the concepts of "becoming" and "difference" can be described as the cornerstones of Deleuze's ontology, serving as "antidotes to what [Deleuze] considers to be the western tradition's predominant and unjustifiable focus upon being and identity" (p. 25). Thus, "becoming" has been described as Deleuze's response to "being" and the notion of a fixed identity (Pekerman, 2017). In contrast to being, which "assumes an unchanging position," becoming, Pekerman argues, posits "identity as an experience, a process of moving with, understanding, changing and being changed by people, opinions, events and so on" (p. 318). There are clear similarities here with the concept of affect, especially as conceptualised (and cited earlier) in Stewart's notion of "ordinary affects."

These ideas – resisting notions of a fixed identity for a more fluid conception – resonate with the distinctions drawn above by educational theorists between being and becoming in relation to the PIF process. The Deleuzian view of becoming further challenges the conceptualising of PIF as a staged and teleological process. As Stagoll (2010) argues: "Rather than a product, final or interim, becoming is the very dynamism of change, situated between heterogeneous terms and tending towards no particular goal or end-state" (p. 26). In this view, becoming is synonymous with identity formation itself, as an ongoing, dynamic, and heterogeneous process. This is why it can be described (somewhat cryptically) as "tending towards no particular goal or end-state"; not because it is without direction or purpose, but because the formative changes that characterise PIF are not pre-determined or teleological. Rather, PIF is formed and

[18] For simplicity, I will henceforth refer to this tradition as "Deleuzian," by which term I intend to include Guattari's thought and contribution to Deleuze's philosophy, where relevant.

re-formed by the experiences and events that, in the context of this study, make up medical training. Through the lens of becoming, these experiences and events, whilst influential and constitutive, are not, or cannot be, programmed or encoded to produce a certain kind of doctor. As Cristancho and Fenwick (2015) argue, such becoming is about "continuous change… not change towards a particular something that is already imagined, such as an 'expert' or a particular standard of practice… becoming does not have an endpoint" (p. 128). Sotirin (2011) expresses the same point very succinctly: "Becoming is always in the middle and in-between" (p. 118). These explications help us understand why attempts to demarcate or, as Jarvis-Selinger et al. (2012) write, "atomise and fix" the PIF process through specification of competencies, fall short of the reality and lived experience of the process.

The Deleuzian concept of the rhizome (Deleuze & Guattari, 1980/1987) can help illuminate how becoming is being conceptualised in these passages. The rhizome, in its botanical sense, is an underground stem of a plant that grows horizontally, through a network of roots, stems, and nodes; these nodes can then produce new roots and shoots, which can emerge above ground. When used metaphorically in educational contexts, the rhizome is typically used to refer to non-hierarchical and non-linear approaches to learning, in contrast with traditional arboreal or tree-like organisation of knowledge and learning (Bleakley, 2014; Holmes & Gastaldo, 2004; Mackness et al., 2016). For example, a key characteristic of a rhizome is its decentred and distributed nature – there are multiple points of entry, or rather exit, in terms of new roots and shoots. A rhizomatic view of education thus highlights a decentred, interconnected, multidimensional and fluid approach to learning and becoming. Such a view of education is often applied to professional learning, in a manner not dissimilar to the way the term "organic" is used to suggest a process or approach that has no defined entry, mid- or end-point, as opposed to the hierarchical and linear nature of traditional school-based learning (Scanlon et al., 2022). As Scanlon (2011) notes,

> when we conceptualise professional identity as "becoming", we highlight the evolutionary, processural [sic] nature of developing a professional self. It is an iterative concept that eschews notions of arrival and end-point achievement of expertise. (p. 14)

Further, the rhizome metaphor, as an alternative to the arborescent structure of most organised knowledge systems, offers a "line of flight" that challenges many of our assumptions as educators working in positivist frameworks. We intrinsically believe, for example, that it should be possible to "lay out" the appropriate pathway for teaching and guiding the development of so important an aspect of professional practice as doctoring, which is exactly what competency-based educational frameworks attempt to do (Jarvis-Selinger et al., 2012). And in relation to the NSB doctors, it is exactly what the indistinguishability discourse attempts to do – re-educate and re-form the NSB students so that they can join the same trajectory towards the standardised idea of a doctor (in terms of their thinking, acting, and feeling). However, this is not how the NSB doctors in this study experienced their PIF journey, instead characterising an ontological process marked by ongoing tensions, deviations, adaptations, and resistance. For this reason, the rhizome metaphor can be a powerful way of thinking PIF anew, as a fluid, heterogeneous and open-ended process of becoming. Educational researcher Nikki Fairchild captures this concept well when she explains:

> There is no direction to becoming, no movement towards a particular point or context, but more the sense of being on the threshold of something – akin to standing at a point in space and time with multiple pathways which can be explored. (2017, p. 297)

Such rhizomatic ways of conceptualising identity formation can serve to remind us that PIF inevitably develops from different starting points and necessarily proceeds at different rates and through different trajectories. Medical students do not arrive at medical school as "blank slates." They have already been forming their identity as medical student/doctor well before they apply to medical school, in some cases as schoolchildren, with ample parental encouragement or, in the case of our NSB doctors, following a relatively late affect-driven decision to change their life course. These vastly different experiences and affects influence the identity formation process in unpredictable and potentially unique ways.

This Deleuzian notion of *becoming doctor* (to use the form without the article, which signifies a Deleuzian approach to becoming) has so far had relatively little uptake in medical education, with notable exceptions in the work of scholars such as Bleakley, Cristancho, and Fenwick. Bleakley, in particular, has consistently incorporated Deleuzian thinking into much of his thinking in the medical education field (e.g., Bleakley, 2011; 2014; 2015). Another scholar is Mahendran, who brings together affect theory and Deleuzian thought to explore the professional learning and identity formation of surgeons. Mahendran (2020) describes key affective experiences in the context of surgical education and PIF as "moments of rupture" – "events which disturb or puncture established ways of thinking" (p. 8) and which are "critical to learning" (p. 160). It is these "disturbances" which reflect more meaningfully the process of becoming surgeons, in contrast with the expected and mapped out trajectory described through traditional accounts of identity formation and "being" a professional. Recounting the narratives of two surgeons who describe "unexpected surgical events that questioned their perception and understanding of practice", Mahendran argues that:

> Such vignettes portray *disturbances* of practice wherein each surgeon is forced to think and act in ways that were not conceived of prior to the event. I suggest that the interruption to practise shifts the focus from *being* a trainee to *becoming* a surgeon, specifically, from being instructed on what to do and how to think to engaging with difficult emotions and challenging practice. This engagement has implications for how an individual starts to conceive and develop their sense of what it means to be a professional. (p. 149)

Mahendran thus highlights an important distinction between being and becoming; being is bound up in the formal structures of the curriculum (including the assessment process where a trainee's PIF is evaluated), while becoming tends to take place in the affective, embodied, and frequently unpredictable moments of practice. The phrase "what to do and how to think" is a striking characterisation of potentially prescriptive and staged interpretations of the PIF model and the formulation of thinking, acting, and feeling like a doctor; in other words, how to *be* a doctor. Becoming, on the other hand, is a "professional evolution that is unique to [oneself]" (Mahendran, 2019, p. 149). While medical schools understandably seek to order medical students' professional formation experiences within the framework of the medical curriculum, it is ultimately impossible to control or standardise the intrinsically disruptive and messy process of becoming doctor. As Bleakley (2011) explains, drawing on the Deleuzian

notion of segmentarity, the traditional professional training attempts to produce a "segmented identity," one that is "defined, bounded, bordered and patrolled" – which he labels as the "official story of identity construction" (p. 135). A similar idea is described in the context of early years teachers' professional identity formation by Fairchild: "Instead of a linear model of the reflective practitioner in training steadily developing a professional identity based on the attainment of professional standards… a more complex and unstable process is revealed" (2017, p. 295). Echoing Bleakley's view of "patrolled" identity construction, Fairchild similarly draws on the idea of segmentarity to argue that the intrinsic instability of PIF "contrasts with the attempts of policy and professional bodies to order the process of… achieving a certain kind of professional identity" (2017, p. 295).

Thus, rather than order, linearity and predictability, the PIF process may alternatively be seen as *characterised by* the very moments of rupture, disturbance, resistance, and instability. This view offers an important example of a line of flight in connection to PIF. In conceptualising becoming in terms of lines of flight, for example, Bleakley suggests that

> The sense of a strong core (a consistent "self") is replaced by ideas of nodes, attractors and flash points as places where critical changes may occur in identity construction. Here, the idea of a linear development in career is disrupted, taking into account a range of realities such as maternity breaks, career shifts, structural employment problems, burnout, illness and serendipity. There is now a shift from "being" to "becoming." (p. 135)

Such lines of flight are a crucial heuristic in PIP for understanding a phenomenon. As Benade (2016) suggests, "lines of flight are a reminder not to focus on the essence of a phenomenon, but to imagine what it might become" (p. 134). In tandem, then, PIP and becoming help us see the concept of PIF not as an essence or stable phenomenon, but as an intrinsically non-linear process of challenges and discontinuities – a "range of possible development trajectories" as Dall'Alba puts it (2009b, p. 43). Change and adaptation are part of the very phenomenon. As Bleakley (2011) further observes, "those who previously gained identities of consistency and stability within fixed territorial boundaries may now find themselves in the identity of the nomad, on short-term placements, temporary contracts and working across disciplines" (p. 136).

These perspectives highlight the potential value of conceiving identity formation as a becoming, rather than as a prescribed pathway towards a singular way of thinking, acting, and feeling (like a doctor). In the context of this study, we have witnessed many occasions when the NSB doctors questioned their own ontological alignment with medicine, such as Chloe's intense identity dilemma in trying to remain an artist while becoming a doctor, or Gemma's sense of being a "black sheep" within medicine, or Rhys' refusal to pursue a traditional (hierarchical) career in medicine, choosing instead to work professionally as a locum doctor (a distinctively "nomadic" approach). While such accounts can be accommodated and sympathetically explained by the current PIF model, for example through theories of identity construction and negotiation, professional socialisation, and psychological adjustment (Cruess et al., 2016), the implied linearity and homogeneity of the model may also inadvertently contribute to a "pathologising" of the above experiences, where the ontological difficulties are interpreted as deviations from the "proper" course of identity

formation. As McKimm and Wilkinson (2015) note, such deviations from the expected professional trajectory are not uncommonly labelled as "problematic" or even as examples of "unprofessional behaviour," especially in the case of culturally diverse practitioners (p. 838). This perspective aligns with the growing evidence of the PIF of other minoritised medical students and doctors (Volpe et al., 2021; Wyatt et al., 2020). As Wyatt et al. (2020) express it, minoritised students and doctors have "more to negotiate in the integration of their social and professional identities" (p. 1588).

While the current PIF model acknowledges that identity formation can at times be troubled and faltering, the overall direction is nevertheless seen as clear and predictable, and medical curricula are designed to facilitate the expected PIF process towards this desired end-stage. But if all we have available is a developmental model of a staged PIF with a fixed endpoint of "being," it is understandable that such "disturbances" might be interpreted (and self-interpreted) as deviant or misfitting in some way, requiring intervention and remediation, and potentially rejection. Rhys alluded to such a view when he reflects that he is better off doing his own thing so as to not feel a sense of inadequacy, just because he is doing "something that's irregular." Becoming shines a different light on such (inevitable) moments of disruption and ontological difficulty, characterising the very process of identity formation as one of fluidity, disruption and non-linear development. As Rees and Monrouxe (2018) explain, "developing professional identities can feel like a series of (seemingly never-ending) journeys with ever-shifting destinations, challenging twists, turns and, occasionally, dangers ahead" (p. 202). This characterisation, arguably without the qualification before the "never-ending" element, captures well how PIF may be rendered through the lens of becoming.

Conceptualising PIF as becoming thus changes our very understanding of the identity formation process. Principally, it acknowledges the inherent variability in identity formation and normalises it as a continuing and heterogeneous process, and as anything but a fixed and stable end-state. It also acknowledges the process as ongoing (even after graduation) and as constantly forming and reforming. Indeed, such "reforming" is seen as a natural and desirable part of the process – PIF is not a "set and forget" process. The notion of becoming thus offers a more expansive and forgiving notion of identity formation, where apparent deviations from the tacit homogeneity of the formula "thinking, acting, and feeling like a doctor" can be seen as an intrinsic part of the ongoing process of PIF and an explicit acceptance of the diversity discourse. As McKimm and Wilkinson (2015) argue, in a conception of PIF as contextual and ever-shifting, "there is room for some ambiguity and tolerance based on individuals' life journeys and complexity of social worlds" (p. 842).

Becoming also provides a language and concept that offers a more strengths-based approach to the experience of NSB doctors, an approach that "affords a certain potency" (Bleakley, 2011, p. 133). The idea of becoming in Deleuzian thought is closely connected with the concept of *difference*. For Deleuze, difference is "positive and productive, [allowing] for an exploration of new ways of becoming", as Fairchild observes (2017, p. 297), while Sotirin further explains Deleuze's view of difference as follows:

> Deleuze's work is often applauded for the "positive ontology" it pursues. By this, scholars acknowledge that Deleuze is concerned with unfettering possibility to experiment with what a life can do and where a life might go. In other words, Deleuze affirms the possibilities of becoming something else, of affirming difference itself. (2011, p. 117)

It is this spirit of "unfettering possibility" that in many ways characterises the NSB doctor's journey into and through medicine. Very quickly, on entering medicine the NSB students become acutely aware of their epistemological and ontological differences with respect to the mainstream cohort. These differences, which are initially construed as deficiencies by the institutions, by peers, and to a certain extent by the NSB students themselves, eventually come to be re-interpreted, by the NSB doctors at least, as strengths and alternative sources of identity, and are eventually integrated into and leveraged for a clinical practice very much aligned with patient-centred care and the application of phronesis. A notion of PIF as becoming acknowledges such differences not just of the NSB students, but of other non-mainstream students and in fact all medical students, whose differences may not be so easily categorised. It enables such differences to be seen as an intrinsic part of the ontological process of identity formation, while also sustaining the celebratory discourse of diversity in medicine.

As a becoming, the identity of doctor is thus more capacious than the identity implied by the current PIF model. Perhaps Gemma captured this potential best when she reflected on her current sense of ambiguous belonging in the medical profession, (as partially quoted in the previous chapter):

> Medicine is an institution I still wouldn't say I feel part of in lots of ways. Doesn't mean I don't feel like there's a place for me in there and doesn't mean that I don't feel like there's a role for me to play. But I certainly feel like, not a black sheep per se, but just a little bit different, which is fine. I knew that was going to be the case when I started.

Here, Gemma articulates an identity that is more nuanced than the notion of compromise represented in the PIF model of Creuss et al. (2015), or even the hybrid version of identity proposed by Frost and Regehr (2013). Rather, it suggests a more positive view of difference, in which the NSB doctors can see themselves as both part of the profession but also slightly apart, without undermining their professional identity. In other words, being a doctor is not "all or nothing", and this is likely what the NSB doctors are trying to say when they label medicine as "just a job". As Braidotti (1993) writes, "Deleuzian becoming is the affirmation of the positivity of difference, meant as a multiple and constant process of transformation. Both teleological order and fixed identities are relinquished in favour of a flux of multiple becoming" (p. 44). Once we move away from notions of PIF as fixed and teleological, based solely on being, there is less of a need to characterise non-homogeneous identity formation as deviant or troubled. Gemma and her peers in the medical profession are just *becoming doctor*.

Conceptualising and presenting PIF as a matter of becoming rather than being thus appears to offer a language and concept that helps embrace the ontological diversity and continual evolution of identity formation without compromising those elements of medical practice, such as foundational knowledge and clinical skills, that are conventionally constrained and regulated by the profession. Seeing PIF through the lens of becoming, we can better understand the way NSB doctors understand themselves as doctors, how they can, in an ontologically consistent and

affirmatory way, simultaneously feel part of the profession yet decidedly “different.” Such an augmented notion of PIF connects with the experiences of other marginalised medical students and doctors, reconfiguring the NSB doctor experience as part of a much broader phenomenon and challenge for medical education. In the final chapter, I briefly recap the main findings and insights of this study into the NSB doctor experience and consider key implications for medical education.

Chapter 8: Conclusions and implications

Throughout this study I have sought to explore and understand the lived experience of NSB doctors, from the initial realisation that they wanted to become doctors, through the events of catching-up to their science-background peers, and ultimately as early career doctors working in the health system. Positioning the work within the qualitative tradition and adopting a phenomenological approach, I gathered rich material on NSB doctors' experiences through in-depth interviews and a review of medical school survival guides. Analysis of this material has brought to light many significant aspects of what it is like for graduates from non-science disciplines to become doctors in Australia. I also explored the phenomenon of NSB doctors' PIF and considered how well the current theory of PIF in medical education captured the lived experience of NSB doctors.

The NSB participants' experience of becoming doctors is characterised by an often vague but strong affective attraction to the idea of medicine, typically towards the end or even after their undergraduate degree, unlike the school leaver medical student stereotype of a "lifelong ambition" for medicine. Getting into medicine was marked by long hours of study to prepare for the science component of GAMSAT. Despite a generalised institutional celebration of the diverse backgrounds of the graduate cohort, the NSB doctors are essentially defined by their knowledge deficit and expected to study long hours in order to catch up to the rest of the cohort. They are encouraged in this by an explicit discourse of indistinguishability, circulated by the medical school and the student body alike, holding that NSB students do eventually merge with the rest of the cohort. The NSB students take pride in their achievement of academic parity, though some still feel "traumatised" by that period, and many remain unconvinced about the necessity of the vast amount of science knowledge they are expected to learn, in most cases also struggling to adjust to the highly didactic and transmissive pedagogy of the science curriculum. Most also come to resist the underlying expectations of standardisation that counters earlier constructions of celebrated diversity. This same standardisation discourse can be discerned in the current model of PIF, in which medical training is seen to culminate in a final end point of "being a doctor." By this point, the discourse suggests, all (successful) doctors are essentially the same, having come to "think, act, and feel like a doctor."

If this is indeed the criterion of success in the PIF process, how do the NSB doctors fare? This research study has shown that NSB doctors do come to *think* like doctors. Despite the science knowledge deficit they begin their medical training with, the quantitative evidence on comparative performance appears to support the coveted academic indistinguishability. NSB doctors' own doubts about whether they are truly the same in terms of their knowledge does not change this, nor does their scepticism about the amount of science knowledge needed and the teaching methods deployed. They know and accept science's foundation for clinical practice, but also challenge the hegemony of rote-learned knowledge in a world of rapid technological advances in knowledge storage and retrieval. The fact of their successful completion of the course, with no greater likelihood of attrition than their peers, is important evidence of their academic capacity in medical knowledge. Finally, the epistemological preference of the

NSB students towards clinical practice aligns strongly with the principles of wise and practical judgement, as captured in the concept of phronesis. In all these aspects, the NSB doctors clearly reflect the ability and propensity to think like a doctor.

The NSB doctors' accounts of their own clinical practice also point to strong evidence for *acting* like doctors. In particular, their descriptions of their intended or actual practice reflect both the spirit and elements of patient-centred approaches to medicine. In their openness to the patient story and their fundamentally relational practice of medicine, many of the NSB doctors show a focus and commitment to prioritising the patient's needs and a willingness to work with them in a way that seeks to minimise the power gap between doctor and patient. Several profess a matter-of-fact preparedness to work with vulnerable and under-served populations, which they attribute to their alternative backgrounds, and believe that their highly developed interpersonal skills equip them with the desire to work in strongly patient-oriented but chronically under-staffed disciplines and settings such as general practice and psychiatry. Even when the NSB doctors critique or challenge professional practices or the health system, it is generally with the patient's needs in mind. Despite their resistance to and outspoken criticism of some aspects of the profession, the NSB doctors keep coming back to this bottom line – what is best for the patient? Whatever reservations these doctors might have in terms of vocational enthusiasm or conformity with the system, their capacity and propensity to *act* "like a doctor" seems unquestionable.

When it comes to evidence about *feeling* like a doctor, as we have seen, the PIF literature is comparatively scant and ambiguous. However, the data from this study show that NSB doctors do generally "feel like a doctor," both in the sense of experiencing and acknowledging their affective responses to clinical work, and in the sense of identifying *as* doctors. To be sure, there is some ambivalence in their expressions of PIF; on the one hand their passionate articulation of patient-centred practice suggests a strong identification with the profession and the work, while at other times, they cling onto and foreground their previous identity, almost defiantly, and imagine ways of practicing medicine which blend and leverage their alternative identities. For most, the negotiation of these different identities or the wholehearted acceptance of new professional norms remains an ongoing process, and sometimes a painful one. Many have settled on a certain "outsider" status – feeling like a black sheep, seeing medicine as just a job, carving out an irregular career – but in no circumstances did this translate to an apparent lack of commitment to their work or patient care. Certainly, they are prepared to criticise the profession and the system, perhaps a little too eagerly some within the profession might conclude. In the context of traditional depictions of PIF in the literature, the NSB doctors' professional identity formation might be seen as incomplete or troubled, but such a conclusion seems unwarranted. Shifting the language and implied uniformity of being a doctor to the more processual, multifaceted, and variable concept of becoming could have profound changes for the way the professional formation of NSB doctors, as well as that of other minoritised or under-represented doctors, is viewed. On the basis of findings from this study, I propose that medical education augment the current focus on identity formation with a broader notion of identity as fluid, multiple, and constantly evolving, that is, as a becoming. In other words, there is no final "is" when it comes to PIF.

The admission of NSB students, their successful completion of the medical course, and the perspectives explored phenomenologically in this thesis prompt questions about medical school selection policy and curricula. The NSB doctors show that science *can* be learned by newcomers to the discipline, and that therefore the current policy of open admission in terms of disciplinary background is justified. Medical schools might with profit shed any lingering doubts or academic concerns about the advisability of this policy or about the capacity of NSB students. The NSB students' experience also brings focus to the question of how much science content is necessary, how it is taught, and how it might be re-conceptualised pedagogically. Coupled with the insights of practice theory, which regards knowledge as a situated activity rather than an object to be internalised and reproduced on demand, the NSB experiences suggest that previous attempts to reform the teaching of science in medicine and, in particular, to integrate its teaching more fully into practical contexts and clinical usage, are indeed warranted and should strive to be more fully implemented and further developed. This is perhaps a surprising recommendation, given that medical education has in many ways been an exemplary model of pedagogical reflection and reform over the past 40 years (with the introduction of PBL and early clinical experience), or even longer if we consider the intent and impact of the Flexner Report. How can we still be debating the place and teaching of science in the medical curriculum?

Returning to the metaphor I suggested earlier, the NSB doctors function like canaries in the coalmine in terms of science in the curriculum. The success or effectiveness of curricular reform in relation to science is difficult to assess from the perspective of mainstream medical students already trained – or "disciplined," in Foucauldian terms – in scientific knowledge and positivist paradigms. They have the epistemological capital to absorb and compensate for any shortcomings in curricular design or failures in pedagogical reform, whereas it will be the NSB students who will be more susceptible to the educational trauma that stems from not getting this right, and their experiences of learning science (factual minutiae, firehoses, brute force memorisation) suggest that medical schools may still have a fair way to go. This is not to criticise current or previous medical school personnel – as has been wryly observed, reforming a medical curriculum is harder than moving a graveyard[19] – but to simply note that evaluations of those reforms may have been looking in the wrong place. The NSB doctors remind us that medicine is "more than the science," as Leonie succinctly put it.

Perhaps more importantly, and arguably more achievably, medical schools could reconsider the expectations of indistinguishability that they communicate to incoming NSB students, along with the deficit positioning that underlies this discourse. As initially reassuring as this expectation may be for all parties, it inevitably casts NSB students as intrinsically less worthy of their place in medicine, until such point that they prove themselves through academic equivalence. This positioning is reinforced by the wider discourses of standardisation and the culture of sameness aimed at the medical cohort as a whole. Despite the initial complicity of the NSB cohort in embracing this expectation, the NSB doctors eventually come to experience this as academically unrealistic and ontologically troubling, potentially

[19] Cited in O'Brien et al., 2019.

leading to affective and epistemic harm. The positive from the medical school perspective is that the conceptual and rhetorical tools necessary to correct this unhelpful positioning are already at their disposal, namely in the notions of diversity and professional becoming. The value of diversity already circulates, sometimes effusively, in the pre-medical context of medical school eligibility and recruitment statements. We have also seen how the concept of Deleuzian becoming embraces difference as an intrinsically positive phenomenon. Veen and de la Croix's (2023) notion of '"ecological diversity" applied to medical education offers a compelling metaphor for the value of diversity in identity formation, while pointing out the deleterious effects of "uniformity, predictability and conformity" (p.16) in terms of student growth. Along with an expanded reconceptualisation of PIF as a becoming, embracing and applying the principle of diversity across all stages of medical training would appear to more effectively support the experience and formation of PIF in NSB doctors, and indeed, of all medical students and doctors.

There are of course limitations to the extent to which I have been able to explore and analyse the phenomenon of NSB doctors' in this thesis. In pursuing a phenomenological exploration of my topic within an interpretivist paradigm, I may not have been able to adequately avail myself of the opportunity to interrogate the findings from a more explicitly critical perspective. The data collected and analysed as part of my project includes or touches on other potentially important aspects of medical education which potentially intersect with the lived experience of NSB doctors, such as gender, privilege, hierarchies, disciplinary rivalries, and professional and inter-professional politics. I hope that my occasional nod to these issues on the periphery of my topic might lead to more direct consideration of their role in medical education in future research. Other methodological approaches and/or data sources might also have been profitably used to investigate the phenomenon of NSB doctors; for instance, by: interviewing clinical supervisors and senior doctors about their views and experiences of NSB students and doctors; undertaking an observational study of NSB doctors' clinical practice, potentially complemented by interviews with patients; or conducting a large-scale quantitative survey of multiple graduate medical schools to determine the number of NSB graduates accepted, their educational backgrounds, attrition rates, and areas of work and specialisation post-graduation. Extending the scope of my own study to include interviews with NSB students who left the medical course before graduation, and/or NSB doctors who ultimately left the profession, would also be highly informative. All of these approaches would provide useful additional perspectives on the findings of this phenomenological exploration of the lived experience of NSB doctors.

Post-intentional phenomenology encourages researchers to try to "see what frames their seeing" (Vagle, 2018, p. 15). In this sense, my own positioning in relation to this research is an important part of not only how I have approached the study, but also how I have identified and presented its findings. As I outlined at the beginning of the thesis, I consciously sought to conduct this study without a pre-conceived agenda or hypothesis about how NSB students become doctors. Yet my own professional journey, moving from physiotherapy through the humanities and into education, has in many ways mirrored that of the NSB doctors. Like them, in the process I have had to reconcile different epistemologies, namely the largely positivist field of medical education and the more critical, interpretivist, and theoretical perspectives of contemporary educational research. I thus acknowledge that the notion of becoming

in the context of a qualitative researcher applies just as much to me. Having experienced the challenge of changing professions and reconstructing new professional identities along the way, I feel a certain affective attachment to the NSB doctors and their narratives and, in some way, I have researched my own experience of transdisciplinary identity formation by proxy through the NSB doctors themselves. Massumi (2015) describes affect as existing "in the space of relation: between an affecting and a being affected" (p. 91), and this reflects my own positioning in relation to this research. I have occupied an in-between space just as I have implied the NSB doctors do, and thus emerge from this study as much affected and formed by the research process as I have affected and crafted it.

The selection process promises so much to NSB applicants, with its openness of criteria, celebration of diversity, and a selection test that includes non-science sections. The reality faced by the NSB students when they commence the course is very different, as arguably it needs to be, given the scientific foundations of medicine. But the NSB doctors show what the medical profession can be – a diverse and heterogeneous community of professionals who draw on multiple disciplinary backgrounds and pathways into medicine, to practice science-informed, patient-centred medicine with wise practical judgement. The NSB doctors' experience and performance highlights the fact that students do not need to come into the course with a science major already behind them to be successful doctors. Even more importantly, it suggests the need for a model of PIF that explicitly recognises and embraces the diversity of the people who make up the medical profession, and for whom the process of coming to "think, act, and feel like *doctors*," rendered here plurally and pluralistically, would be a more apt description of the goal of PIF in medicine. With such a shift in the language of professional identity formation in medical education, the profession can and should celebrate the success of the NSB project.

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Appendix 1: Interview protocol

Proposed Interview Schedule

Preliminary introductory/demographic questions

When did you graduate from medical school? Which medical school?
What undergraduate course did you complete before entering medicine? (Disciplines)
What stage of your postgraduate medical training are you currently in?
When did you last visit your medical school campus?

Interview questions (with follow-up prompts if required)

Tell me about how you came to study medicine.
Was there a significant person/event that influenced this?
How did you explain your decision to friends/peers/family?
How did they react?

What did it feel like coming into medicine from a non-science background?
What aspects did you find particularly challenging?
How different did you find the kind of learning you needed to do in medicine?

While you were a medical student, how easy/hard was it to see yourself as a doctor?
How much did you feel like you belonged in the medical cohort?
Were you happy to disclose your degree background to others (eg students, tutors, clinical supervisors)?
Were there times when you weren't sure medicine was the right path for you? Tell me about that.

How do you feel the Medical School regarded students from non-science backgrounds?
How well do you feel the medical school welcomed NSB students?
How much did your medical school try to address any challenges you may have been having related to your background?
How well do you feel the Medical School supported your entry into/progress through the medical course?

Do you think coming from your different discipline/professional background has had its advantages?
Are there ever any moments of nostalgia for your previous study?
Do you think you can tell if another doctor has come from a non-traditional background? In what way?
Do you think people in medicine can tell that you came from a non-science background?

How would you advise a ‘non-science’ student who wanted to study medicine?

Is there any specific advice you would give about becoming a doctor?

Do you see yourself as a different doctor in any way, because of your different pathway/previous study?

How do you think your educational background influences how you practice?

Looking back, how much has it mattered that you didn’t have a science background?

So right now, how do you feel about being a doctor?

What kind of work or area do you see yourself working in?

Appendix 2: Request to advertise (Supervisors of Training)

Request to advertise

Melbourne Graduate School of Education
University of Melbourne

Project: The experience of becoming a doctor for medical students from non-science backgrounds: a phenomenological study

Dr Dianne Mulcahy (Responsible Researcher)
Tel: +61 3 8344 8656; Email: monicadm@unimelb.edu.au
Associate Professor Kylie Smith (Co-researcher)
Tel: +61 3 8344 4084; Email: kylieas@unimelb.edu.au
Mr Neville Chiavaroli (DEd student)
Tel: +61 0413 415600; Email: nevillec@unimelb.edu.au

Dear _____

I am a Doctor of Education research candidate with the Melbourne Graduate School of Education at the University of Melbourne. I would like the opportunity to invite eligible junior doctors (PGY1 or PGY2) through the PMCV's electronic communication network to participate in my research into the experience of studying medicine and becoming a doctor from a non-science background.

Project Details

The purpose of my study is to explore the learning and professional experiences of medical students and doctors who enter medicine from a non-science background (NSB). I am particularly interested in understanding how NSB students negotiate the academic demands of learning in the biomedical sciences, how they experience the transition to learning in a clinical environment, and, in particular, how they develop their professional identity as medical professionals. I believe this research may help raise the profile of entry into medicine from diverse educational backgrounds, inform and influence medical school selection policies, and contribute to our understanding of the development of professional identity formation, include support and welfare.

Accordingly, I would like to communicate a short announcement to Victorian interns via an appropriate electronic platform through your organisation (including email if this is the most appropriate medium), providing details about my research project and inviting eligible interns to an interview about their experiences of entering medicine from a

non-science background. I will request interested interns to contact me directly about possible participation, and I would then forward them the Plain Language statement and Consent Form (both attached for your reference).

My intention is to conduct the interviews as walking interviews, in doctors' own time, on participants' medical school campus in Victoria. This means that in terms of eligibility, I will be limiting my recruitment to Victorian trained doctors. These interviews will be conducted subject to any current COVID restrictions, including, if necessary, changing to a wholly online interview.

I would greatly appreciate the opportunity to bring my research project to the attention of your junior doctors. If you are happy for me to do so, please reply to this email address (nevillec@unimelb.edu.au), or if you would like further details about the project, please contact the responsible researchers, Dr Dianne Mulcahy or Associate Professor Kylie Smith, via the details listed above. Thank you for your consideration of this request.

This research project has been approved by the Human Research Ethics Committee of The University of Melbourne (Ethics ID: 20604).

Yours sincerely

Mr Neville Chiavaroli
DEd research candidate
Melbourne Graduate School of Education
The University of Melbourne
nevillec@unimelb.edu.au

Appendix 3: Invitation to participate

Research project: Becoming a doctor from a non-science background

Invitation to PGY 1 & 2 doctors from non-science backgrounds to participate in a doctoral research project

About the researcher and project

I am a doctoral research student at the University of Melbourne exploring the learning experiences of recently graduated doctors who entered medicine from a non-science background. I am interested in understanding how doctors from non-science backgrounds experienced the academic demands of the course, learning in the clinical environment, and, in particular, the development of their professional identity.

What's involved?

Participation in the project involves a single interview of approximately 60 minutes. Where possible, the interview will be conducted as a walking interview around the site of participants' university medical training (conducted in accordance with any COVID- related restrictions in force at the time). Alternatively, interviews can also be conducted over zoom. Interviews will take place during July – August 2021.

Who can participate?

Doctors who entered their graduate medical course with a non-science degree (eg humanities, law, social sciences), currently in their first or second post-graduate year of practice. Ideally participants will have trained in Victoria, in order to conduct the interview on the site of their medical training; however, interviews with interested participants who trained interstate will also be considered.

Like more information?

If you are interested in participating in the study and/or would like further information, please get in touch with Neville Chiavaroli via phone 0413 415600 or email nevillec@unimelb.edu.au

Ethics ID Number: 2021-20604-14472-3 Date 23/3/2021
Melbourne Graduate School of Education The University of Melbourne Victoria 3010 Australia

Appendix 4: Consent Form

Consent Form (Doctors)

Melbourne Graduate School of Education
University of Melbourne

Project: The experience of becoming a doctor for medical students from non-science backgrounds: a phenomenological study

Responsible Researcher:

Dr Dianne Mulcahy, +61 3 8344 8656 monicadm@unimelb.edu.au

Additional Researchers:

A/Prof Kylie Smith (Co-researcher); +61 3 8344 4084 kylieas@unimelb.edu.au
Mr Neville Chiavaroli (DEd student); +61 0413 415600; nchiavaroli@student.unimelb.edu.au

Name of Participant: _____

I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written plain language statement to keep.

I understand that the purpose of this research is to explore the learning and professional experiences of medical students and doctors who entered their course from a non-science background (NSB). I understand that my participation in this project is for research purposes only.

I acknowledge that the possible effects of participating in this research project have been explained to my satisfaction.

For this project I understand that I will participate in an individual interview. The focus of the interview will be to discuss my experiences of learning medicine and becoming a medical practitioner from the perspective of entering the course with a non-science background.

I understand that my interviews will be audio-recorded and may be professionally transcribed for the purpose of ensuring accurate documentation of the data.

I understand that my participation is voluntary and that I am free to withdraw from this project anytime without explanation or prejudice, and to withdraw any unprocessed data that I have provided.

I understand that the data from this research will be stored at the University of Melbourne and will be destroyed after 5 years.

I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements; my data will be password protected and accessible only by the named researchers.

I understand that all data will be analysed and will only be cited under a pseudonym, to protect my identity. However, given the relatively small number of participants involved in the study, I also understand that it may be possible for some readers to surmise my identity from my comments. Similarly, I also understand that due to the interview being conducted in a public space, anonymity during the interview process cannot be assured.

I understand that after I sign and return this consent form, it will be retained by the researcher.

Participant Signature: _____ Date: _____

Appendix 5: Plain Language Statement

Plain Language Statement (Junior doctors)

Melbourne Graduate School of Education
University of Melbourne

Project: The experience of becoming a doctor for medical students from non-science backgrounds: a phenomenological study

Dr Dianne Mulcahy (Responsible Researcher)
Tel: +61 3 8344 8656; Email: monicadm@unimelb.edu.au
Associate Professor Kylie Smith (Co-researcher)
Tel: +61 3 8344 4084; Email: kylieas@unimelb.edu.au
Mr Neville Chiavaroli (DEd student)
Tel: +61 0413 415600; Email: nevillec@unimelb.edu.au

Introduction

Thank you for your interest in participating in this research project. The following pages will provide you with further information about the project, so that you can decide if you would like to take part in this research.

Please take the time to read this information carefully. Please feel free to ask questions about anything you don't understand or want to know more about.

What is this research about?

The purpose of this study is to explore the learning and professional experiences of recently qualified doctors who entered their course from a non-science background (NSB). We are interested in understanding how NSB students manage the academic demands of learning medicine, how they experienced the clinical environment, and, in particular, how they developed (and continue to develop) their professional identity as medical practitioners.

What will I be asked to do?

Should you agree to participate, you will be invited to participate in an individual interview of approximately 60 minutes. Due to the current COVID-related restrictions this interview will be conducted remotely over zoom. The interview will be audio-recorded and may be commercially transcribed in order to ensure accurate documentation of the data.

What are the possible benefits?

This research aims to benefit medical education by better understanding the experience of early career doctors from non-science backgrounds. Medical education researchers appreciate that learning in the biomedical sciences can be challenging for students with limited exposure to these disciplines, however there has been comparatively little research conducted into the more personal and professional experiences of doctors from non-science backgrounds. We hope to uncover the insights and experiences NSB doctors have about their learning, in the broadest sense, including initial expectations, challenges faced, and unexpected aspects of becoming a doctor from the perspective of entering the course from a diverse educational background. These understandings will help inform curriculum designers, academics and clinical educators involved in medical training in Australia.

While this research is not designed to have direct benefits for individual participants, we believe a potential key benefit will be to raise the profile of entry into medicine from diverse educational backgrounds, with the potential to influence medical school selection policies, the disciplinary balance of medical curricula, and pathways into postgraduate training.

What are the possible risks?

All data will be analysed and reported under a pseudonym in order to protect your identity. However, given the relatively small number of participants involved in the study, it may be possible for participants' identity to be surmised from their comments. Similarly, as the interview may be conducted in a public space, anonymity during the interview process cannot be assured. (See below for further information about confidentiality of data.)

While we anticipate that participants will experience the interviews as stimulating and collegial, the discussion may touch on personal or emotional topics for some participants. In that sense, there may be some emotional risk for participants. The interviewer will endeavour to address any such issues sensitively and supportively, and participants may choose to end the interview at any time. You are also free to withdraw any data collected from your responses at any time up to the point of collation and data analysis.

Will I hear about the results of this project?

Our intention is to publish the results of this research project in academic journals and/or present the results at academic conferences. If you are interested in the results of this project, a summary of the findings can be made available to you by email.

What will happen to information about me?

We intend to protect the confidentiality of your responses to the fullest possible extent, within the limits of the law. As such your responses will be analysed and stored anonymously. All data collected during the research process will be password-protected and accessible only by the named researchers and then stored, according to the University of Melbourne regulations, in a private and secure location at the Melbourne Graduate School of Education for a

minimum of five years before being destroyed. The audio recording of the interview will be preserved only for transcription purposes, and then destroyed as indicated above.

All data will be stored securely and anonymously, and in reporting the data from this project we will remove any references to personal information that could directly identity you. Any quotations based on information you provide will be rendered anonymous and/or disguised by a pseudonym. However, please note that as the number of people we seek to interview is relatively small, it may not be possible to fully guarantee your anonymity.

Where can I get further information?

If you would like more information about the project, please contact the researchers;

Dr Dianne Mulcahy, Associate Professor Kylie Smith or Mr Neville Chiavaroli, as detailed above.

Who can I contact if I have any concerns about the project?

This research project has been approved by the Human Research Ethics Committee of The University of Melbourne. If you have any concerns or complaints about the conduct of this research project, which you do not wish to discuss with the research team, you should contact the Manager, Human Research Ethics, Research Ethics and Integrity, University of Melbourne, VIC 3010. Tel: +61 3 8344 2073 or Email: HumanEthics-complaints@unimelb.edu.au. All complaints will be treated confidentially. In any correspondence please provide the name of the research team or the name or ethics ID number of the research project.